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THE DETERMINANTS OF CAPITAL STRUCTURE: A CASE STUDY

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Abstract. This paper investigates the determinants of capital structure of business start-ups utilizing simultaneously a survey of business owners’ characteristics and data collected from financial reports submitted to the taxation authorities of 268 newly established enterprises in Hanoi. The results have indicated that most of the hypotheses are accepted and consistent with relevant theoretical models. However, unlike existing studies on the capital structure of startups in developed nations, the influence of a start-up size, profitability, work experience based on relationships prior to starting up a new company, growth orientation and the age of a business are the major determinants of the initial capital structure decision while the asset structure, organizational type, gender, age of owner and education level of business owners does not seem to have a significant impact on the choice of capital structure in the context of transitional economies and financial markets that are not quite developed, such as in Vietnam. The major findings are discussed based on the trade-off theory and the pecking order theory. The article also provides some implications and recommendations for future research.

Keywords: start-ups; capital structure; performance; crisis; financial leverage; Hanoi


JEL Classifications: G00, G390

1. Introduction

In most countries, besides government subsidies or loans, equity from venture capital funds such as business angels or venture capital funds, the capital structure choices of startups are primarily based on the main sources of capital: the business owners' equity from family, friends and personal savings, his or her loans from banks and suppliers (Huygebeart, 2004, Rob and Robinson, 2010) to fund assets as well as maintain business operations. Bank credit and commercial credit play an important role for businesses in the first two years of operation (Berger and Udel, 1998; Rob and Robinson, 2010, Schwarz, 2018, Ravid and Spiegel, 1997; Mackevičius et al., 2018; Włodarczyk et al., 2018; Isatayeva et al., 2019).

Research by Huygebeart et al (2007) also shows that, with the highly value private benefits of control, newly established firms tend to substitute bank credit with commercial credit to avoid the risk of liquidation. However,
in developing countries whose financial market is as young as in Vietnam, asymmetric information seems to be more of a serious issue. Therefore, it is difficult for businesses to access formal credit sources due to credit constraints stemming from credit supply (Ravid and Spiegel, 1997), or bias towards start-up firms in particular and SMEs in the private sector (Thang, Ngoc 2012) are also considered one the causes of this situation.

In general, the capital structure of newly established firms has different circumstances due to differences in the business cycle. Meanwhile, the establishment of capital structure is based on the availability of credit supply, so debt use seems to be more difficult for startups in developing countries. The question is, during the early stage of financing, what are the factors affecting the capital structure of the business? Carrying out this approach, based on the framework of capital structure theory and the findings from existing empirical research, we have developed the hypothesis of the factors influencing capital structure in the context of transition economies from the panel data with a sample size of 269 new enterprises.

These findings help contribute to a richer understanding of capital structure constraints in the cases of newly established firms, which have distinct characteristics of the first stage of business compared to those of mature businesses or listed companies, and large corporations.

2. Research literature review

2.1 Theoretical background

Although not directly referring to the case of newly established firms, the pecking order theory, agency cost theory and tradeoff theory are significant nonetheless and contribute to the explanation of how decisions having to do with the capital structure of young businesses are made.

The pecking order theory suggests that there is no optimal level of leverage, instead, the level of corporate debt depends on the situation of the business over time. As a result, start-ups facing restrictions in cash during their early stages of operations will use their debt to cover capital shortages (Miettinen and Virtanen, 2013).

However, the agency cost theory points out that the contradiction between creditors and startups will more likely limit the ability to use debt of young enterprises than old businesses, because from the viewpoint of the owners, incentives of using debt can stimulate young entrepreneurs to make risky investments or have a negative net present value.

The above is explained by Modigliani and Miller’s approach (1958) based on the issue of asymmetric information that influences the initial financial decision and the terms of use of the debt (Ravid and Speiegel, 1997; Huyghebeart et al., 2007) facing the concern that changes in lenders’ behavior might lead to creditors’ losses when loans are disbursed. Only mature businesses with well-established historical data on debt repayment can possibly access low-cost loans. (Harris and Ravid, 1991). Smaller new businesses containing higher risks will likely receive a smaller amount of debt (Stiglitz and Weiss, 1981; Berger and Udell, 1998).

To reduce the problem of asymmetric information in the relationship between start-ups and debt owners, some studies suggest that it is important to optimize loan contracts by demanding that loans be secured with collateral (Ravid and Soeigle, 1997) or to lend at higher interest rates to hedge against higher probability of default (Berger và Udell, 1998; Huyghebeart và Gutch, 2004).
2.2 Literature review

While the studies on the determinants of capital structure of mature firms have built up a massive amount of documents, the studies on the sample of start ups are fairly scarce. Among many factors examined, four factors including asset structure, firm size, investment opportunities and profitability are considered factors that demonstrate the correlation with leverage of old firms consistently (Rajan và Zingales, 1995; Frank và Goyal, 2004).

In the case of newly established firms, existing studies have shown the role of the above factors in the research models, but the results have not reached an agreement point. According to Ando (1998); Cassar (2004); Sanyal và Mann (2010) and Huyghebeart (2004), firm size and asset structure strongly affect the total leverage, long term leverage, rate of banking debt and external debt (Cassar, 2004). However, Scherr và Sugure (1994) only agree with the impact of business size on official leverage. The impact of growth opportunities and profitability on the decisions of capital structure of start ups is recorded by only very few studies.

In addition, new businesses have very little information about history of business operation and these firms are thought to have the most opaque information (Berger and Udell, 1998). These characteristics severely affect the accessibility of official credit resources of new firms because banks lack information to assess loans. In order to overcome this problem, some studies have shown that characteristics of owners could play an important role in the financial decisions of creditors. This approach is derived from the suggestion of Bates (1991) and Ando (1998) that factors such as education levels, work experience, age, gender and start up skills that entrepreneurs acquired before starting up make an impact on business performance of new entrants. Therefore, they are accepted by investors as factors involved to business prospects. In other words, ownership characteristics represent human capital that provides some additional predictive information on explaining the decisions of capital structure of newly established firms besides the elements of the characteristics of the business as mentioned above.

Following that study approach, Meittien and Virtanen (2013) focused on the examination of owner-attribute factors only, in order to illustrate the importance of non-accounting features in explaining the capital structure of new company. However, most other studies have not yet obtained satisfactory answers to the relationship between ownership factors and the level of debt used. In particular, the influence of ownership characteristics on financial leverage differed among different studies. For example, Mittinen and Virtanen (2013); Robb and Robinson (2010); Sanyal and Mann (2010) affirmed the importance of work experience and industry experience to debt use, whereas Cassar (2004); Scherr and Surgrue (1993) found no evidence of how these characteristics have significant effects on the capital structure of newly established firms.

When considering factors such as age and sex, studies have consistently indicated that the owner's age has the opposite effect on the use of debt (Robb and Robinson, 2010; Scherr and Surgrue, 1993) and enterprises owned by males tend to use more debt than those operated females (Schouten, 2019; Thandabhani, 2020).

Industry factor is also examined in a number of existing studies when considering the capital structure of firms in the initial stage of operations. However, the effects of these factors are only significant for individual studies. For example, some studies have shown that new firms operating in the fields of transportation and essential services use more debt than firms in other industries (Scherr and Surger, 1993). Also, high-tech firms tend to use external equity rather than bank loans (Colombo and Grilli, 2005), while firms operating in traditional industries do not use venture capital in the beginning. (Huyghebeart and Gutch, 2004).

As can be seen, in the case of newly established firms, existing studies have attempted to link elements of enterprise ownership and enterprise characteristics to clarify the factors affecting the capital structure during the initial financial period. However, the research on this issue is very scarce, focusing mainly on economically
developed countries. Meanwhile, the study of capital structure on the sample of mature businesses cannot represent startups because of the differences in financial demand, debt use and dependence on the supply side during their early stages. In addition, most existing studies that we have got have been carried out a long time ago.

Meanwhile, in developing countries, the start-up ecosystem issues are starting to be noticed just recently. The question being posed is that in the current context in developing countries, particularly Vietnam which has a transition economy, how will the sector of state enterprises establish their initial capital structure, and what are the determinants affecting the capital structure of new entrants. These questions being answered is extremely significant, since understanding the initial choices of capital structure is, on one hand, a basis to testify how decisions of capital structure affect how the business operates and thrives. On the other hand, it provides information on the distributive mechanism of credits of the market, which can be a factor making an impact on the success rates of young businesses, especially in financial markets that are underdeveloped in countries with a transition economy.

Research model

Research based on the frameworks of the static theory of capital structure and the pecking order theory in explanations of elements affecting capital structure for enterprise characteristics including size, asset structure, profitability, growth potential, liquidity and the legal form of the business. In addition, age, gender, and years of experience representing the characteristics of ownership are also examined.

Hypotheses

Newly run businesses are considered to be at high risk because of their new entrance, low competitiveness and vulnerability. In addition, with a lack of operational data and transparency of information on financial statements, these businesses face serious asymmetric information problems when accessing loans. Then, according to Titman and Wessel (1998), the size of the business is viewed as a function related to the transaction costs that help reduce the problem of information asymmetry. Therefore, this factor also affects the level of debt that enterprises can access.

**Hypothesis H1.1:** Firm size has a positive impact on the leverage of newly established firms

The agency cost theory (Jensen and Meckling, 1976) illustrates a negative relationship between the use of debt and growth opportunities by the benefit conflict between the creditor and the shareholder. However, according to Huyghebeart (2004), new firms have the advantage of being in control so they are often unwilling to borrow, in order to avoid risk. Loans are considered when businesses are quite sure about the effectiveness of the investment. At the same time, Cassar's (2010) study suggests that this problem can be mitigated if young start-ups use short-term debt instead of long-term debt. Therefore, it is possible to expect a positive relationship between growth potential and the capital structure of the enterprise.

**Hypothesis H1.2:** Growth has a positive impact on capital structure of newly established firms

The relationship between profitability and the level of debt used in the capital structure of enterprises so far has not reached an agreement on the direction of influence. The tradeoff theory suggests that the profitable firms with a cost of financial exhaustion have lower expectations and can approach benefits of the tax shield from debt. Therefore, businesses will tend to use more debt to take advantage of the tax shield. In contrast, the pecking order theory implies that more profitable businesses will have less debt to reduce the amount of profit they have to share.

In the case of newly established businesses, credit is considered not available in the early stages of the business cycle. At the same time, young businesses in this period also face limited cash-generating capacity (Miettinen and Virtanen, 2013) as well as insufficient cumulative profitability (Berger and Udell, 1998). Consequently, the study argues that tax benefits from debt may not yet be a priority for new businesses during this period. In contrast, discipline from debt can
be more significant for profitable businesses, especially those with the serious problem of free cash flow (Jensen and Meckling, 1976). Based on these arguments, in the early stages of operations, in order to increase the likelihood of accumulating profits, more profitable businesses will use more debt.

**Hyphothesis H1.3: Profitability has a positive impact on the leverage of newly established firms**
The tangible assets of a business often being referred to as a collateral that secures loans in order to reduce the possible financial losses on creditors are a widely recognized issue. According to Haris and Ravid (1991); Titman and Wessels (1998); Ravid and Spiegel (1997) for businesses having a bigger problem of information asymmetry, the cost of adverse selection will be reduced if the sponsorship agreements are based on the assurance of a particular asset. Thus, in the case of start-ups, due to the lack of operational history and transparency of information, and the elements that represent commitments of the reduction of risk for investors, the structure of the assets will significantly influence the ability to use debt in the initial capital structure of an enterprise. Therefore, the study proposes

**Hyphothesis H1.4: Asset structure has a positive on the leverage of newly established firms**
In terms of liquidity, the static tradeoff theory suggests that firms with poor liquidity may face higher financial costs, given that other factors remain unchanged. Therefore, these businesses should use less debt. At the same time, poor short-term liquidity will harm the parties involved in the business investment. As a result, creditors will limit lending to businesses that lack cash flow. This judgment is also considered appropriate for start-ups when banks consider lending decisions. Based on this argument, the study suggests an opposite relationship between the liquidity and capital structure of newly established firms.

**Hyphothesis H1.5: Liquidity has a negative impact on the leverage in capital structure of newly established firms**
The characteristics of ownership are considered an influence on the initial capital structure decisions of newly established firms. On the one hand, information about the business owner might be able to make up for the lack of information on the history of operation of the business in lenders’ decisions. On the other hand, the characteristics of ownership help justify the initial capital structure decision, as such decisions somewhat depend on how willing the business is to take necessary risks. Factors such as age, gender and education levels are also examined in studies on financing new businesses, specifically:

- The older the business owner, the more experience he or she has, and the more considerate he or she is in their financial decisions, the more likely the bank will be willing to give out loans;

- On the education background of the business owner, the study argues that as education contributes to business success for startups or small companies, business owners with higher levels of education might have an easier access to debt and have higher debt level in the capital structure;

- Gender is also considered a factor that influences the amount of debt used, suspected to be related to the differences on a person’s willingness to take risk. One of the studies suggest that businesses owned by females tend to have a lower level of debt use since they are more reluctant to take risk than their male counterpart.
From the points stated above, the study suggests several hypotheses on the influence of the characteristics of ownership on the decisions of capital structure of new businesses as follows:

**Hypothesis H2.1:** Business owners with higher levels of education and/or more experience in the same field of business are more likely able to access and use more debt in the initial stage of starting up.

**Hypothesis H2.2:** New businesses managed by males or business owners that are older in age have a higher debt ratio in the initial capital structure.

Along with controlling the effects of the industry variable on the initial decisions of capital structure of new businesses, the research model is suggested as follows (see Table 1):

\[
CS_{i,t} = \beta_0 + \beta_1 SIZE + \beta_2 GRO + \beta_3 TANG + \beta_4 LIQ + \beta_5 PROFIT + \beta_6 GEN + \beta_7 AGE + \\
+ \beta_8 EDU + \beta_9 EXPR + \epsilon_{i,t}
\]

### Table 1. Variable and measured scale description

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<th>Variables</th>
<th>Scales</th>
<th>Researches</th>
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<td>1</td>
<td>LEV, SLEV, LEV1</td>
<td>Financial leverage of firms i, year t = Total liabilities/ Total assets; short debt/ Total assets and( Loan + credit trade)/Total assets</td>
<td>Harris, Raviv (1991); Huyghebeart, Gucht(2004, 2007); Frank và Goyal (2009); Anchor (2007); Rajan và Zingales (1995);</td>
</tr>
<tr>
<td>2</td>
<td>SIZE</td>
<td>Firm size measured using the natural logarithm of total turnover for firm i in year t, expressed in VND</td>
<td>Sanyal và Mann, 2010; Rajan và Zingales, 1995; Huyghebeart và Gucht(2004, 2007; (Robb và Robinson, 2010); Harris, Raviv (1991);</td>
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<td>3</td>
<td>GROW</td>
<td>Growth = ( Total assets year( t) – Toatal asset year(t-1))/ Total assets year(t-1)</td>
<td>Chittenden et al (1996); Capenter and Petersen (1998); Margarits and Psillaki (2010)</td>
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<tr>
<td>5</td>
<td>TANG</td>
<td>Asset structure = Tangible assets/ Total assets</td>
<td>Frank và Goyal (2009),</td>
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<td>7</td>
<td>GEND</td>
<td>Gender of owner: A binary variable takes the value of 1 if the owner is female, male takes the value 0.</td>
<td>Cassar (2004); Creesy (1998); Scherr và Sugrue, 1993</td>
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<td>8</td>
<td>AGE</td>
<td>Age of entrepreneur at operating year i</td>
<td>Cassar (2004); Creesy (1998); Scherr và Sugrue, 1993</td>
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<td>9</td>
<td>EDU</td>
<td>Education level: A binary variable takes the value of 1 if the owner of firms received a degree above the bachelor’s, others take the value 0</td>
<td>Cassar (2004); Scherr và Sugrue, 1993</td>
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<td>10</td>
<td>EXPR</td>
<td>Working experience = natural logarithm of the total years that the owner of the firm I worked in the same start up sector</td>
<td>Cassar (2004); Scherr và Sugrue, 1993</td>
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**Resource:** Author’s collection
3. Research methodology

3.1 Sample and data collection
Our first raw data set consists of 312 truly operating new firms that were registered for establishment at the Hanoi Department of Planning and Investment and given a tax registration number by the Hanoi Tax Department in 2010 and observed in the initial 5-year period. We collected a sample including enterprises established at the same time to ensure greater homogeneity in macroeconomic condition at the moment of foundation depending on suggestion given by Huyghebeart & Gutch (2004). The sample was collected using the following method of proportionate stratified sampling depending on the number of firms distributed on every district in Hanoi.

We excluded 38 firms from the original sample include 21 firms had incomplete financial statements or information recorded on these statements, 17 others firms had negative equity, which causes the possibility of making detorted ROE as well as exaggerating overdose financial leverage and 5 others were filtered out of the data set because they had very small total assets (4 firms have less than 500 millions VND) or having outlier authorized equity (one firm with authorized equity of more than 1.000 billion VND). The final sample consists of 169 firms with 1614 observations. A sample size used in regression analysis is quite homologous compared to recent studies on start-ups or small and medium enterprises samples.

Firms in the sample were divided into over six industries (Agriculture, Manufacture, Construction, Service and Trading, Construction Materials and Transportation ), based on current regulations issued by the General Statistic Organization and criteria of industrial classification proposed in the annual enterprise survey reports of VCCI.

3.2 Data analysis
We used a package of STATA software version 12 to estimate the regression equations that we proposed above. First off, bivariate relations among variables were explored via examining correlation. Then, we used ordinary least square (OLS) to examine the effect of leverage to business performance. Then, Hausman’s test was employed to discover which models are more suitable for the data set between Fixed Effects Model (FEM) and Random Effects Model (REM). The result suggests that FEM is suitable for the character of data in this research. The research also examined some necessary test for regressive assumption to ensure the result of regression is blue such as autocorrelation, multicollinearity and heteroskedasticity.

Finally, to validate our research results, the robust option was performed to recalculate standard errors in case the models violate regressive assumptions.

4. Research results

4.1 Descriptive statistics on the capital structure of newly established firms
Table 2 provides descriptive statistics on capital structure of newly established firms for our sample. The results show that start-ups mainly used traditional finance including debts and equity in the initial capital structure.

Unlike new ventures in developed countries, outside equity and sponsored finance from Government did not find in detail report of any firms in the sample. Only two firms report about a leasing in their balance statements. This is also difference with finding about using leasing to compensate credit shortage of start –ups in the initial years of operation.
Table 2. Descriptive statistics of the capital structure of newly established businesses

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>mean</th>
<th>p50</th>
<th>sd</th>
<th>min</th>
<th>max</th>
<th>cv</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEV</td>
<td>1614</td>
<td>.4396</td>
<td>.4419</td>
<td>.3121</td>
<td>0</td>
<td>9994</td>
<td>.7099</td>
</tr>
<tr>
<td>SLEV</td>
<td>1614</td>
<td>.4111</td>
<td>.3773</td>
<td>.3099</td>
<td>0</td>
<td>9994</td>
<td>.7538</td>
</tr>
<tr>
<td>LLEV</td>
<td>1614</td>
<td>.0285</td>
<td>0</td>
<td>.1170</td>
<td>0</td>
<td>9279</td>
<td>3.2368</td>
</tr>
<tr>
<td>LEV1</td>
<td>1614</td>
<td>.3375</td>
<td>.2853</td>
<td>.2990</td>
<td>0</td>
<td>9869</td>
<td>.8860</td>
</tr>
<tr>
<td>LEV2</td>
<td>1614</td>
<td>.1543</td>
<td>0</td>
<td>.2330</td>
<td>0</td>
<td>9322</td>
<td>1.5098</td>
</tr>
<tr>
<td>TDTM</td>
<td>1614</td>
<td>.1842</td>
<td>.0935</td>
<td>.2205</td>
<td>0</td>
<td>9743</td>
<td>1.1972</td>
</tr>
<tr>
<td>VCSH</td>
<td>1614</td>
<td>.5603</td>
<td>.5580</td>
<td>.3121</td>
<td>.0005</td>
<td>1</td>
<td>.5570</td>
</tr>
</tbody>
</table>

Resource: Author’s evaluation

Regarding to difference financial resources used in the first initial five years of operate, start-ups used average finance leverage (LEV) around 44% on total liabilities. The percentage of credit trade is not high, less than 18.5%. Similarity, average bank loan rate (LEV2) also take only approximately 15.5% in which focus mainly in short term debt. Long-term debt take only 2.8% on total liabilities. This finding indicate capital structure of start-ups in the sample use percentage of bank loan and credit from suppliers much lower and percentage of equity much higher than peer in developed contries (see also Huyghebeart & Gutch, 2007; Robb & Robinson, 2010).

4.2 Results

The results (Table 2) show that the positive effects of firm size, growth and profitability are consistent on all 3 scales of capital structure including total leverage, short term leverage and outside debt leverage across the research. The increase in factors such as firm size, growth and profitability are factors that cause the overall debt to go up. The coefficients reported for these variables in turn are (0.031), (0.244), and (0.044). This finding is consistent with the majority of studies both in young and mature firms (Frank và Goyal, 2009; Huyghebeart và Gutch, 2004; Cassar, 2004).

Factors related to liquidity and asset structure have a negligible impact on the capital structure of newly established firms presented on the sample, although the dimension of the impact is supported by the majority of the existing studies. The coefficient of liquidity reported is (-0007).
Table 3. Models of factors affecting the capital structure of new businesses

<table>
<thead>
<tr>
<th></th>
<th>(1) OLS LEV</th>
<th>(2) FEM LEV</th>
<th>(3) OLS SLEV</th>
<th>(4) FEM SLEV</th>
<th>(5) OLS LEV1</th>
<th>(6) FEM LEV1</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIZE</td>
<td>0.067***</td>
<td>0.031***</td>
<td>0.064***</td>
<td>0.032***</td>
<td>0.065***</td>
<td>0.037***</td>
</tr>
<tr>
<td>GROW</td>
<td>0.074***</td>
<td>0.044***</td>
<td>0.074***</td>
<td>0.046***</td>
<td>0.047***</td>
<td>0.039***</td>
</tr>
<tr>
<td>PROFT</td>
<td>0.412**</td>
<td>0.244</td>
<td>0.363**</td>
<td>0.273*</td>
<td>0.420**</td>
<td>0.141</td>
</tr>
<tr>
<td>TANG</td>
<td>0.000</td>
<td>0.001***</td>
<td>0.0001*</td>
<td>0.001***</td>
<td>0.001***</td>
<td>0.001***</td>
</tr>
<tr>
<td>LIQ</td>
<td>-0.000**</td>
<td>-0.001***</td>
<td>-0.000*</td>
<td>-0.001***</td>
<td>-0.000</td>
<td>-0.000**</td>
</tr>
<tr>
<td>GEN</td>
<td>-0.025</td>
<td>0.088***</td>
<td>-0.023</td>
<td>-0.051***</td>
<td>0.002</td>
<td>-0.039**</td>
</tr>
<tr>
<td>AGE</td>
<td>-0.001</td>
<td>0.001</td>
<td>0.001</td>
<td>0.003</td>
<td>-0.001</td>
<td>0.001</td>
</tr>
<tr>
<td>EDU</td>
<td>-0.02</td>
<td>-</td>
<td>-0.031*</td>
<td>-</td>
<td>-0.06***</td>
<td>-0.048</td>
</tr>
<tr>
<td>EXPR</td>
<td>0.112***</td>
<td>0.100***</td>
<td>0.071***</td>
<td>0.06*</td>
<td>0.089***</td>
<td>0.077***</td>
</tr>
<tr>
<td>_cons</td>
<td>-1.147***</td>
<td>-0.374</td>
<td>-1.096***</td>
<td>-0.441</td>
<td>-1.131***</td>
<td>-0.608**</td>
</tr>
<tr>
<td>N</td>
<td>1314</td>
<td>1314</td>
<td>1314</td>
<td>1314</td>
<td>1314</td>
<td>1314</td>
</tr>
<tr>
<td>R² adjust (%)</td>
<td>29.2</td>
<td>14.79</td>
<td>24.87</td>
<td>10.25</td>
<td>24.73</td>
<td>11.48</td>
</tr>
<tr>
<td>Hausman</td>
<td>Prob &gt; chi2(8) (=298.170) = .0000</td>
<td>Prob &gt; chi2(8) (= 53.22) = .0000</td>
<td>Prob &gt; chi2(8) (= 36.85) = .0000</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Other findings in the sample of newly established firms is that new businesses are run by males having working experience in the same business sector tend to use more debt, ceteris paribus. These results match the findings of Scherr và Sugrue (1993); Robb và Robinson (2010) stating that female entrepreneurs tend to be more risk-averse, thus using less external debt to finance business operation than male business owners. However, this relationship was not statistically significant (at 5%) in OLS and FE models reported above.

The results also show that there is insufficient evidence to conclude that the age of the entrepreneurs influences the leverage in the early stage of business operation, although the regression analysis result also suggests a positive relationship somewhat similar to that of Cressey (1996) và Cassar (2004). The effect of this factor was not significant (at 5%) in all models.

The effect of the business owner’s education background is also examined in the models. However, the results do not provide any evidence that a higher level of education leads to higher levels of debt use. This effect was not statistically significant in all OLS models according to the different scales of capital structure; however, it was determined in the fixed FE models.
5. Conclusions

In conclusion, the capital structure of newly established enterprises is affected by both supply and demand of capital. On the one hand, the choice between debt and equity to finance business operations is based on investment opportunities, profitability as well as risks that enterprises might face with the bankruptcy. On the other hand, capital structure of new entrants is also influenced by the availability of credit of the region or country where the enterprise operates. In addition, the risk tolerance might have certain effects on the capital structure of newly established firms. That is the new factor, which is initially identified in this research.

Newly established enterprises find it difficult to access the capital market for a number of reasons, including high fixed cost (transaction costs) and the unwillingness of financial institutions to invest in small equity investments. In addition, banks are often reluctant to lend short-term and medium-term loans to newly established small businesses. The main results summarized from the study are as follows:

Firstly, the research show that newly established enterprises depend mainly on retained earnings, equity and internal debt. This is in line with the Pecking order theory. It is also consistent with the suggestion from Trade-off theory which demonstrate that newly established small companies have higher risk so they use less debt than other companies (Harris and Ravid, 1991)

Secondly, newly established enterprises tend to use more short-term debt. The result is explained from external investors due to the asymmetric information. These are unobserved factors. Thus, with the indicators that can be established in the model, profitability, business size and growth potential are the three factors positively and strongly affected to debt level in companies measured by total debt ratio, short-term debt and external debt. Agency theory and Pecking-order theory suggest that, firms with opportunities of high growth and profitability use less debt. However, the equity of new entrants is not available. They have less opportunities to invest in the projects with positive NPV such as mature firms (Ravid and Spiegel, 1997). As the result, new companies with high growth potential and profitability are likely using more debt and mainly short-term debt to mitigate the asymmetric information. (Cassar, 2004).

Thirdly, the relationship between capital structure of newly established enterprises and personal finance and ownership characteristics. According to the financial literatures, the asset structure plays an important role in determining the capital structure because tangible assets constitute collateral for the debt. However, the impact of tangible asset on capital structure in the case of Hanoi new established enterprises does not support the above mentioned opinion. In other words, the use of debt in new entrants is less concerned to their investment in tangible assets. This result gave the suggestion about the relationship between the capital structure of new entrants and the finance of the owners. Besides, it also suggested that the wealth of owners, might be a factor influenced to capital structure of new entrants in the initial stage of business, need to be further examined. In addition, gender and age of the owners in new entrants might be the factors determine the capital structure of new established firms related to the ability of risk tolerance and control on the business. These factors should be further examined in following researches.
References


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IMPACT OF DISRUPTION ERA ON ORGANIZATION PERFORMANCE SUSTAINABILITY: A CASE STUDY

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Abstract. The research aims to determine factors that most influence company's sustainability and form the family business model of travel agent company in this disruption era using SEM-PLS analysis. Data used is primary data, which is obtained through questionnaire on travel agent company, based on the family business that is spread in Indonesia and incorporated into Travel Agent association. Data collection using questionnaire by Likert scale. The population of this research are entire member of AMPHURI, which is one of travel Agent association in Indonesia, consisting of 427 travel agent companies in the entire Indonesian area. The results of this study show that company's sustainability is determined positively by at least three factors, namely leadership succession, mission and vision between generations, and development of technology management. Meanwhile, product life cycle is found to be insignificant in determining sustainability of a family company.

Keywords: sustainability of family business; transitional leadership; mission; vision; generations; development of technology management; product life cycle


JEL Classifications: M1, M12, M21

1. Introduction

Sustainable development of any society is impossible without viable small and medium enterprises, to be it developed or developing country (e.g Kowo et al., 2019; Baltgailis, 2019; Vigliarolo, 2020). In Indonesian Institute for Corporate and Directorship (IICD, 2010) data, more than 95 percent of business in Indonesia is family owned and controlled company. That means that family business activities have long contributed to the national economic development. In fact, in the time of economic crisis in years 1997/1998 and 2008, family business continues to demonstrate its existence as a support as well as a capital of power in the recovery of national economy. As a family owned and controlled business, management and performance of the company, both small and large, are heavily influenced by the vision and mission of the family.

However, the family business certainly does not escape the various issues that are sometimes difficult to solve. For example, of distrust among fellow family members, conflicts in leadership succession, conflicts in decision-making, the issue of the Crown Prince (the successor of the company's throne), the difference in managerial mindset between the first generation and the next generation, and so on. Consequently, not infrequently the family business suffered deterioration, even forced to close, due to prolonged conflict in the family's internal.

Family business represents the world's toughest business model. The success of a sustainable family company from generation to generation depends on motivation of the successor generation, who will take over the family
business, to face challenges. Family business also has a strong culture to execute. Parents galvanize the successor generation to have a sense of responsibility and also a desire to determine an ambitious target.

Family business is a timeless business. This is demonstrated by the number of family companies that emerge and move in various fields and scattered in many areas in Indonesia. The survey results of Jakarta Consulting Group in 2004 showed that apparently the rise of the family company back in Indonesia occurred between the years 1992–2002. This is because in the span of the year a lot of emerging family companies. Speaking of the turnover range of family companies, the company has a range of turnover between 50 billion to 100 billion rupiah; and also the majority have an employee count of more than 150 people. This condition indicates that the family company has a concern for unemployment reduction and the national economy.

Company is said to be a family company when it consists of two or more family members who supervise the company's finances. According to Donnelley (2002) in his book “The Family Business”, an organization is named family company when at least there are two generations of involvement in the family and they affect the company's policy. In business terminology there are two types of family companies. First is a family owned company but managed by professional executives coming from outside the family circle. The second type of family company is a company owned and managed by its founder family members (Susanto et al., 2008).

In Indonesia, most family companies are the second type where family members also become managers. In his travels, not infrequently family companies metamorphosed from the second type of family companies into the first type of family company. However, in Indonesia, the percentage is still small and not significant. The company belongs to a family but is managed by professional executives who come from outside the family circle, have a competitive advantage when the company is aligning between the aspects of family and business activities so that the company becomes more professional and mutually supportive (Carlock, 2009).

The unique qualities of family business are key to their competitive advantage. Characteristics of family business are: thinking in a long-term business perspective, making decisions more quickly and flexibly, there is an entrepreneurial mindset, there is a great commitment to job creation and the welfare of the surrounding communities, as well as having a more personal approach in business. The combination of family aspect and business aspect make the family business has toughness and uniqueness. Alas, not all of family's business is able to realize its toughness and uniqueness until it continues to the next generation. One of the disadvantages that are often owned by companies in Indonesia is the weakness of human resources development Pattern 3 at intermediate level and management of succession preparation for long-term purposes (Susanto et al., 2008).

Only a handful of family companies succeeded in succession and continued to the second generation even third generation. Amazingly, the companies that succeeded in making the succession, evolved into a company with a national scale and global. Unfortunately, the succession in the family business has so far yet become an integral part of the long term plan. From survey results of Jakarta Consulting Group in 2004, it was found that only two-thirds of the middle-class family companies were up in Indonesia, which prepared a successor through succession planning to lead the company.

2. Theoretical background

In Indonesia, business people are dominated by family business. Although there is no definite number but a rough estimate suggests that more than 90% of business people in Indonesia are family business. In the realm of management, the family business is a field of study with the body of knowledge that is separate from business studies in general. Family businesses have their own characteristics that other types of business do not have in common.
The family business is a business founded by one of the family members, controlled by the family and handed over to the next generation of family members. The family business is owned, controlled, and controlled by several family members involving two or more generations. For example, husbands and wives involve children (two generations), and can also involve grandchildren (three generations) (Casillas & Acedo, 2007; Ward et al., 2007; Núñez-Cacho, Lorenzo-Gómez, 2020). Meanwhile Litz (1995) said that a business can be called a family business if management and ownership are concentrated in one family unit and if family members try to maintain or enhance a family's presence in a business activity.

A family business involves three distinct, interrelated entities: the company itself, business-involved families, and ownership. These three entities represent families in a business that are portrayed by using a triple circle: one representing a family, one representing a company, and one representing ownership. This illustration highlights the interdependence nature of the three circles as well as the resulting gains and problems that may be encountered. The characteristics of family business as Susanto (2005:6) can be seen from some of following aspects. Among them (a) family involvement is the involvement of a second or third generation into business management; (b) enthusiasm of the successor generation to quickly learn in business activities; (c) level of trust and mutual reliability among family members; (d) power of emotions in conducting business activities; (e) level of flexibility in business life; and (f) dual leadership in the sense of every head of the family is usually the business leader. This shows when compared to corporate businesses in general, the family business has both advantages and disadvantages.

Among the strengths/excess of the company's family (Susanto, 2005:10): (1) The high level of self-reliance (independence of action) in understanding the company's survival rate is not determined by the exchange market as most or all financial resources are supported by the family; (2) There is no concern if the company's wealth will run out so that the company has high financial power; (3) There is a firm stability guarantee because it is supported by a strong corporate culture; (4) The willingness to reinvest profit in accordance with mutual agreement to develop the company; (5) The process of acculturation to the business world that occurs since childhood allows family members to have excellent business knowledge; and (6) Informal approaches with minimum bureaucracy usually color a family company in carrying out business activities.

Based on these strengths, many family companies continue to exist even though the macro economic situation is experiencing a crisis. The family company can persist and contribute significantly to the state's income (Susanto, 2005:4). However, family companies also have some disadvantages. Among them are: (1) lack of organizing in family companies is demonstrated by uncertainty of organizational structure, lack of management development due to excessive intervention of the owner; (2) Family involvement in a company that is too large has resulted in company's very emotional life and risk of conflicts of interest. The bonds of tradition and family history also cause the company became difficult to change; (3) Family companies are vulnerable to internal conflicts, as they tend to incorporate personal affairs with company affairs. Not a few family companies fail in the middle of the road for not being able to compete with other family companies, not operating worthily, and laying many of its workforce.

In general, there are three phases of growth in a family company (Susanto, 2005:45-54), namely: (1) Development phase. In this phase the main drivers of the business are the founders and family members. The existence of family companies is also determined by other stakeholders such as customers, employees, and the surrounding community. (2) Management phase. In this phase there are seven important issues that arise, namely: value conflict; Succession Organizational structure; Compensation Competence income distribution; Business and family alignment. (3) Transformation phase. Business transformation should be done by entering new elements into the company.
Business model is a term that has been known since the 1970s (Faber et al., 2003). It is only that understanding when it is not the same as the definition of BM in question today. As we understand today BM embryos start from the writings of Keidel (1984) Baseball, Football, and Basketball: Models for Business. Keidel said that certain types of sports could be a model for running organizational activity. Keidel says: Three major professional team sports in the United States baseball, football and basketball exhibit profoundly different dynamics and exemplify three organizational patterns common in business (and other sectors). Each represents a model a coherent set of relationships that captures the essence of an organizational form. By studying these models, managers can gain new insight into their own cognitive orientations.

The three types of sports that are very popular in America i.e., baseball, football and basketball show different dynamics and illustrate the three common patterns of business organizations (and other sectors). Each type of sport represents a model that is a coherent set of relationships describing the essence of a single organizational form. By studying these models, managers are believed to be able to gain an understanding of how to run organizational activities.

Simanjutak (2010) in his journal titled Family Business Management Principles (Family business) is associated with the company's independent position Limited (PT). The study stated that the family commitment to the principles of honesty, fairness, consumer safety, and environmental sustainability in business management will positively impact the family Limited Company’s (PT) liability in Realizing the independence of PT. Article No. 40 year 2007 about PT has ensured the independence of PT in the form of Board of Directors in conducting the company in a professional manner, without any illegal intervention or unethical behaviour from Family (owner). Therefore, PT also apply those principles in internal and external to the company (government, competitors, and consumers). So, the boundaries of the family business Management in PT is located on the function of each organ of PT (GMS, Directors, commissioners) in which there are members of the family owner.

The succession, in theory and practice of Organization refers to the process of transferring managerial control from one generation of leaders to the next generation. The succession or transition of leadership is closely related to the performance and sustainability of family company. Akpan and Ukpai et al. (2017) in his research found the result that family companies need to make a succession plan to achieve sustainable business. Further, Morris et al. (1996) states if the dimensions of work experience in the family business and self-preparation have a positive effect on the smoothness of succession or transitional leadership. The next generation experience can benefit the performance of improving the family business. Adedayo et al. (2016) also found a positive relationship between the succession plan and the sustainability of the family company, namely when the founder or first generation brings and shares his experience to the next generation of business management. The family will be later transferred.

H₁ = Succession or transitional leadership has no significant effect on the sustainability of family business

Neff (2015) said that the best practice for family business sustainability in the long term is to determine the purpose, vision and mission of family, family values, and motivation as the basic thought to continues the family business. A family company that maintains its vision and mission will be seen as having consistency in performance of its company, especially a family company that has a unique vision and mission and culture. In line with Neff (2015) study, which suggests that shared vision has positive influence on the effectiveness of family company's culture that will further affect the family's performance. Calantone et al. (2002) also stated if the vision of intergenerational (shared vision) has a positive influence on the orientation of next-generation learning, which will then affect the company's performance.

H₂ = The vision and mission between generations has no significant effect on the sustainability of family business
Research and development of technological innovations, consisting of basic and applied research activities and new product design and development process, to generate new technological knowledge and develop it in the form of products, services, and new techniques, which are subsequently produced, implemented, and distributed throughout the phase of technological innovation (De Massis et al., 2013). Both types of knowledge are technological and market knowledge have a positive influence on the performance of family business, even at different levels. Knowledge of technology plays an important role in facilitating the development of new products, but knowledge about the market has a much more important role.

H₃ = The development of technology management has no significant impact on family business sustainability

The product lifecycle is influenced by innovation, where innovation is the process by which companies identify new opportunities for change, and make it happen and capture the resulting value (Tidd & Bessant, 2009) quoted in (Massis et al., 2013). Alberti and Pizzurno (2013) found if new product development is one form of innovation that has positive relationship with family business performance, compared with other forms of innovation. Alberti and Pizzurno (2013) also finds similar results, where the typical characteristics of family companies (vs. non families) have a positive influence on the managerial factors that will further impact the success of New product development.

H₄ = Product life cycle has no significant effect on the sustainability of family business

3. Research objective and methodology

This study uses quantitative, qualitative and descriptive approach as well as the creation of business models on family business. An exportated quantitative approach was chosen to test the hypothesis, with measured data and resulted in a depudialized conclusion. The objective of quantitative research is to test the theory, put theory in deductive to be a cornerstone in terms of discovery and problem solving research. In this study, quantitative approach using inferential statistical methods (analysis tools), it is parametric statistics that analyze interval and ratio data (Sugiyono, 2008:206). The data used is the primary data, which is obtained through the questionnaire on travel agent companies, based on family business that is spread in Indonesia and incorporated into Travel Agent association. Data were collecting using questionnaire using Likert scale with a value of 1-5 where 1 is very low, 2 low, 3 medium, 4 high, and 5 very high.

This study has single endogenous construction, the family business sustainability measured through the achievement of sales targets, investment returns, profit growth targets and the 5-year business continuity. With 4 exogenous constellations, namely: (1) The succession or leadership shifts measured by the successor generation capability of education, work experience, employment, initial office, planning, loyalty, commitment, value or tradition, compulsion, and Competition between successors. (2) Inter-generational vision and mission with gauge indicators, among others, the ability of successor generation to maintain strategy, culture, leadership style, relationship between generations, and business management. (3) The development of technology management related to the ability of a successor generation in identifying opportunities, creating a passion for transformation, establishing priorities, building digital capabilities, and creating innovations in line with the development Technology. (4) Product lifecycle that includes the rate of change in customer needs and technology, the intensity level of the war price and new competitor, the level of disruptive innovation in the application and business model.

The population of this research is the entire member of AMPHURI, which is one of the travel Agent association in Indonesia, which is a model of 427 travel agent companies in the entire Indonesian area. AMPHURI is the only special travel agent Association of Hajj and Umrah which has achieved certificate of ISO 9001:2008 (Quality Management System) from Bureau Veritas and implement governance oriented services with Tagline "Risen to Serve" (AMPHURI, 2019). Sampling in this study used purposive sampling techniques, i.e. sampling with certain
criteria. The samples obtained were as many as 50 travel agent companies from the entire questionnaire which was distributed and the number of family companies’ members of AMPHURI, which is approximately 120 companies.

The analytical Model used is the influence of the exogenous (independent) construction of the endogenous (dependent) construction measured by several indicators. So the analysis model of this study can be described as follows:

Figure 1 above describes the model of analysis built in this study, with the following description:

1. Round Blue: Construct
2. Yellow box: Indicator (Questions)

In this study, there was a construction of endogenous (dependent), corporate sustainability that has four indicators. And four exogenous (independent) Constructions: i) leadership succession with 10 indicators; ii)
vision and mission between generations with eight indicators; iii) development of technology management with eight indicators; and iv) product life cycle with 10 indicators.

Direction of the arrows comes from construct to indicator, because indicators in this research are reflection of the construct used. However, eliminating an indicator does not diminish the meaning of a construct because the construct can still be mirrored by another indicator. This study uses Structural Equation Modelling – Partial Least Squares (SEM-PLS) analysis methods based on Garson (2016) and Hair, Hult, Ringle, and Sarstedt (2014).

Based on the construction used, the relationship between variables can be expressed in the following function:

\[ Y = f(X) \] (1)

The regression equation form can be formulated as follows:

\[ Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + e \] (2)

Description:
- \( Y \): Sustainability of Family Business
- \( X_1 \): Transitional Leadership
- \( X_2 \): Vision and Mission Between Generations
- \( X_3 \): Development of Technology Management
- \( X_4 \): Product Life Cycle
- \( \beta_0 \): Constant
- \( \beta_1, \beta_2, \beta_3, \beta_4 \): Regression Coefficient
- \( e \): Coefficient of Error

Moleong (2006:4) defines qualitative research as a research procedure that generates descriptive data of written or spoken words from people and behaviors that can be observed. Descriptive research according to Arikunto (1998: 309) is a study intended to collect information about the status of existing symptoms, namely condition of symptoms according to fact when research is conducted. The purpose of descriptive research is to create a description, a systematic, actual and accurate representation of the facts, properties and relationships between phenomena. Based on the above sense, it can be argued that descriptive research is research based on the fact during research progress, linking phenomena occurred, and analyze based on concepts that have been developed in the past to facilitate the researchers solving the problems.

Creating business model in the family business, by upgrading from existing model of Three Circle Model, it is a circle that describes the position of family party, business interests and ownership rights (see figure 2).

![Figure 2. Three Circle Model](image-url)
1. Family Circle
The family puts a high priority on emotional capital – a family experience shared between generations. Family members are also concerned with social capital or reputation of the family in society. In addition, there is a financial capital or dividend and wealth creation). Family values, relationships formed, and communication styles are all elements belonging to the family circle. Everyone in the family (in the whole generation) is clearly part of the family circle, but some family members (for some reason and one other thing) will never have a stake in the family business, or work on it.

2. Business Circle
Executives in a business are concerned about strategy and social capital – the reputation of the company in the marketplace. Business circles typically include non-family members employed by the family business. Family members are also included in this circle. An employee who has a role in social capital and financial capital (the performance of the business because it will affect career opportunities, bonuses and fair performance measurement system). Business systems are similar to those found in organisations seeking other benefits; is driven by the company's mission and strategy applied by the management team. Business circles include the structure (reporting relationship), system (information and human resources), and process (quality and communication)

3. Ownership Circle
The company owners are interested in financial capital – performance in the creation of wealth (performance business and dividend). Proprietary systems are driven by a shareholder-value proposition that emphasizes the importance of expectations of owners/shareholders’ ability to generate profits (profitability), investment risk, growth and industry type. The objectives of shareholders are often expressed in writing through the governance process of Board of directors, legal structure and distribution of ownership. The ownership circles may include family members, investors and or owners who are also employees within the company.

Based on introduction, theoretical background, and research objective and methodology that has been explained, step by step of this research is written as follows:
1. Seek out and discover ideas that are fundamental to determining sustainability factors of the family business.
2. Determining factors that cause a family business can take place from generation to generation.
3. These factors are succession or transitional leadership, vision and mission between generations, development of technology management, product life cycle and perspective of accounting and finance.
4. Perform multiple linear regression.
5. Find the right model for the family business.

4. Results and Discussion

4.1. Results

4.1.1. Outer Loadings
The Outer Loadings value is the size that specifies the entry or absence of an indicator in the advanced analysis (inner model analysis). The values of outer loadings ranging from 0 to 1 with decision-making regarding the entry in advanced analysis are as follows (Table 1):
Table 1. Indicator in Advanced Analysis

<table>
<thead>
<tr>
<th>Range Value of Outer Loading</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;0.4</td>
<td>Not included in advanced analysis</td>
</tr>
<tr>
<td>0.4 - 0.7</td>
<td>Further examined, pay attention to the value of new Outer Loadings and the value of reliability tests and validity of the construction</td>
</tr>
<tr>
<td>≥0.7</td>
<td>Included in advanced analysis</td>
</tr>
</tbody>
</table>

After going through a series of experiments, an entire indicator that has fulfilled the requirements of the outer loadings value at the previous stage was retested to ensure the value of the outer loadings of indicators to be included in the advanced analysis. The result of the outer loadings value can be seen in the following table.

Table 2. The result of third Test Outer Loadings value calculation

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>X1.07</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X2.01</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X3.07</td>
<td></td>
<td></td>
<td>0.703</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X3.08</td>
<td></td>
<td></td>
<td>0.745</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X4.02</td>
<td></td>
<td></td>
<td></td>
<td>0.738</td>
<td></td>
</tr>
<tr>
<td>X4.07</td>
<td></td>
<td></td>
<td></td>
<td>0.881</td>
<td></td>
</tr>
<tr>
<td>Y.02</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.754</td>
</tr>
<tr>
<td>Y.03</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.893</td>
</tr>
</tbody>
</table>

In table 2, the entire indicator included in the third experiment already has an outer loading of more than 0.7 (green color) so it can be used in advanced analysis. The structural model scheme used in this research in the next phase of analysis is as follows.
After going through the process of outer loadings testing, an indicator is obtained on transitional leadership and vision and mission between generations, and two indicators on development of technology management, product life cycle, and sustainability company. List of questions as follows:

1. Transitional leadership
   a. Successor generation continues the company due to family coercion
2. Vision and mission between generations
   a. Ability to clearly define the company vision
3. Development of Technology Management
   a. Every generation has the ability to build digital culture
4. Product Life cycle
   a. Customer request related to new product
   b. Level of price war intensity
5. Sustainability Company
   a. Investment return achievement
   b. Achievement of profit growth target

**Figure 3. Structural Model Theme**
4.1.2. Reliability and validity test of construction

The reliability and validity tests of construction are conducted to ensure that construction that is formed in this research model is reliable and valid. The reliability test is conducted by observing the value of Composite Reliability, with the minimum value being 0.6. Meanwhile, the validity of the construction test is carried out by observing the Average Variance Extracted, with the minimum required value of 0.5 (Hair et al., 2014). The reliability and validity testing of construct only used an indicator that already had an outer loadings value of 0.7 on the last try. The results the reliability and validity testing of these studies can be seen in the table 3 below.

<table>
<thead>
<tr>
<th>Construct</th>
<th>Composite Reliability</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transitional Leadership</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Vision and Mission Between Generations</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Development of Technology Management</td>
<td>0.688</td>
<td>0.524</td>
</tr>
<tr>
<td>Product Life Cycle</td>
<td>0.794</td>
<td>0.660</td>
</tr>
<tr>
<td>Sustainability of Family Business</td>
<td>0.810</td>
<td>0.683</td>
</tr>
</tbody>
</table>

In table 3, all of the construction is formed from the indicators that qualify the outer loadings, has fulfilled the reliability and validity aspects. The reliability aspect of construct is indicated by the value of the composite reliability of all the construction with required value of more than 0.6. While the validity aspect of the construct is indicated by the AVE required value of all the construction above 0.5.

4.1.3. Validity Test of Discriminant

Discriminant validity testing is made to ensure that each construction is unique when compared to other construct. In this study, testing of discriminant validity was conducted using Fornell–Larcker Criterion, provision stating that the uniqueness of construct can be seen from squared root value of the construct. If AVE squared root value of construct is greater than the correlation of the construction with the other, then the construct is unique (Hair et al., 2014). The results of the Fornell-Larcker Criterion test of the construct in this research can be seen in the table 4 below.

<table>
<thead>
<tr>
<th>Construct</th>
<th>AVE Squared Root</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transitional Leadership</td>
<td>1</td>
<td>Higher than the value of correlation with other construction higher than the value of correlation with other construct</td>
</tr>
<tr>
<td>Vision and Mission Between Generations</td>
<td>1</td>
<td>Higher than the value of correlation with other construction higher than the value of correlation with other construct</td>
</tr>
<tr>
<td>Development of Technology Management</td>
<td>0,724</td>
<td>Higher than the value of correlation with other construction higher than the value of correlation with other construct</td>
</tr>
<tr>
<td>Product Life Cycle</td>
<td>0,812</td>
<td>Higher than the value of correlation with other construction higher than the value of correlation with other construct</td>
</tr>
<tr>
<td>Sustainability of Family Business</td>
<td>0,826</td>
<td>Higher than the value of correlation with other construction higher than the value of correlation with other construct</td>
</tr>
</tbody>
</table>

In table 4 above, the AVE quadratic root value of the whole construction is higher than the value of the correlation with other construction. In other words, constructs used in this study is unique to each other.
4.1.4. R-Square

The value of R-Square is one of the important indicators in model PLS analysis, it is expected that the R-square value or coefficients of the latent construction or endogenous construction can be maximised (Hair et al., 2014). In this study, the R-square value reached 0.417. This means that the four exogenous constellations in this study can account for 41.7% variances or changes in the endogenous "Sustainability of Company" construction.

4.1.5. F-Square

The F-square value is a coefficient used to measure the impact of an exogenous construct against endogenous construct (Hair et al., 2014:186). The classification of exogenous construct affection against endogenous construct based on the F-square value is as follows (Table 5):

<table>
<thead>
<tr>
<th>Range Value of F-Square</th>
<th>Impact Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 0.02</td>
<td>No impact</td>
</tr>
<tr>
<td>0.02-0.15</td>
<td>Weak</td>
</tr>
<tr>
<td>0.15-0.35</td>
<td>Moderate</td>
</tr>
<tr>
<td>≥ 0.35</td>
<td>Strong</td>
</tr>
</tbody>
</table>

Table 5. Classification of Exogenous Impacts based on F-square Values

The F-square value of each exogenous construction in the study is as follows:

<table>
<thead>
<tr>
<th>Exogenous Construct</th>
<th>F-Square Value</th>
<th>Impact Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transitional Leadership</td>
<td>0.252</td>
<td>Moderate</td>
</tr>
<tr>
<td>Vision and Mission Between Generations</td>
<td>0.107</td>
<td>Weak</td>
</tr>
<tr>
<td>Development of Technology Management</td>
<td>0.111</td>
<td>Weak</td>
</tr>
<tr>
<td>Product Life Cycle</td>
<td>0.016</td>
<td>No Impact</td>
</tr>
</tbody>
</table>

Table 6. Value of F-square Exogenous Construct

Table 6 above shows that the highest F-square value belongs to the exogenous construction "transitional leadership" with the F-square value reaching 0.252, indicating that leadership succession has a moderate impact on corporate sustainability as the endogenous and H₁ construction is rejected. It was followed by the "development of technology management" and "vision and mission between generations" which each had an F-square worth 0.111 and 0.107, indicating that two of the constructs had a weak impact on the company's sustainability so that H₂ and H₃ were also rejected. The "Product life cycle" only has an F-square value of 0.016 or less than 0.02. In other words, this exogenous construction has no impact on the company's sustainability and H₄ is accepted.

4.1.6. Q-Square

The value of Q-square is a coefficient that aims to determine the ability of exogenous construction in predicting certain endogenous construction. When the Q-square value is greater than 0, it can be said that exogenous construction is relevant to predict endogenous construction (Hair et al., 2014). In this study, it was obtained that the value of Q-square was 0.204. The figure is greater than 0, so it can be concluded that an exogenous construction is relevant to predict the endogenous "Sustainability of Company" construction.
4.1.7. Colinearity Statistics

Collinearity statistics are used to ensure that there is no problem of colinearity of the structural model built. Measurement of colinearity statistics using Variance Inflation Factor (VIF) figures provided that the indicators in the structural model should not be more than 5 (Hair et al., 2014). The results of the VIF measurements on the indicators on the structural model in this study are indicated by the following table 7.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>VIF Value</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>X1.07</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>X2.01</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>X3.07</td>
<td>1.002</td>
<td></td>
</tr>
<tr>
<td>X3.08</td>
<td>1.002</td>
<td></td>
</tr>
<tr>
<td>X4.02</td>
<td>1.122</td>
<td></td>
</tr>
<tr>
<td>X4.07</td>
<td>1.122</td>
<td></td>
</tr>
<tr>
<td>Y.02</td>
<td>1.166</td>
<td>There are no problem of colinearity</td>
</tr>
<tr>
<td>Y.03</td>
<td>1.166</td>
<td></td>
</tr>
</tbody>
</table>

Table 7 Above shows that the entire indicator has a VIF value below 5, so it can be concluded that the problem of colinearity is not found in the structural model built in the study.

4.1.8. Path coefficient

Path coefficient or direct effect analysis is the instrument used in the hypothesis test on PLS method. It is used to view the significance impact of an exogenous construction against endogenous construction. Path coefficient is obtained through the bootstrapping process of SmartPLS software. A significant path coefficient value is indicated by P-Values of the coefficient which is worth less than 0.05 (Hair et al., 2014). The value of path coefficient between the construct in the structural model of this study can be seen in the table 8 below.

<table>
<thead>
<tr>
<th>No</th>
<th>Line</th>
<th>Original Sample (O)</th>
<th>P Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Transitional Leadership -&gt; Sustainability of Family Business</td>
<td>0.413</td>
<td>0.000</td>
</tr>
<tr>
<td>2</td>
<td>Vision and Mission Between Generations -&gt; Sustainability of Family Business</td>
<td>0.279</td>
<td>0.009</td>
</tr>
<tr>
<td>3</td>
<td>Development of Technology Management -&gt; Sustainability of Family Business</td>
<td>0.267</td>
<td>0.029</td>
</tr>
<tr>
<td>4</td>
<td>Product Life Cycle -&gt; Sustainability of Family Business</td>
<td>0.105</td>
<td>0.496</td>
</tr>
</tbody>
</table>

Based on table 8 above, majority of the exogenous construct indicates positive and significant path coefficient, indicated by P-values less than 0.05, namely: i) "transitional leadership" with the path coefficient reaching 0.413; II) "vision and mission between generations" with the path coefficient reaching 0.279; and III) the "development of technology management" with the path coefficient reaching 0.267. Exceptions are found in "product lifecycle" exogenous construct which has a positive path coefficient (0.105) but insignificant.
4.2. Analysis

The analysis of the path coefficient between constructs indicates that majority of the exogenous construct is positive and significant against the endogenous construct of "sustainability of family business". The factors that most influence the company's sustainability of the main transitional leadership of the 10 variables only 1 of the most influential variables is the succeeding generation of forwarding the company due to family compulsion. This is because the next generation is inherited by the previous generation to continue the effort so that they must be willing to carry the inheritance. Second, from vision and mission between generations that have 8 variables only 1 of the most influential variables is the ability to clearly define the company's vision. Although from transitional leadership factor indicates that the successor generation continues the effort due to compulsion but as long as they clearly understand the vision of the family company then they are biased to maintain sustainability of the business. The. Third, in terms of development technology management there are 2 most influential variables of 8 variables that each generation has technological innovation capability in the company and each generation has the ability to build digital culture.

The succeeding generations are supported by understanding the clear vision and innovation skills and building a digital culture will help the sustainability of family company. In other words, corporate sustainability can be sustained if the company has smooth transitional leadership, vision of an inter-generation mission that is conveyed and well understood, and development of ongoing technology management. Akpan and Ukpai (2017) in his research found the result that family companies need to make a succession plan to achieve sustainable business. Furthermore, Morris et al. (1996) quoted in Buang et al. (2013) states if the dimensions of work experience in the family business and self-preparation have a positive effect on the smoothness of succession or transitional leadership. The next generation experience can benefit the performance of improving the family business. Adedayo et al. (2016), also found a positive relationship between the succession plan and the sustainability of the family company, when the founder or first generation brings and shares his experience to the next generation of family business management that will later be handed over.

The vision and mission between generations has a positive relationship with family enterprise sustainability. A family company that maintains its vision and mission will be seen as having consistency in the performance of its company, especially a family company that has a unique vision and mission and culture. This is in line with Neff (2015) study, which suggests that shared vision has a positive influence on effectiveness of family company’s culture that will further affect the family company's performance. Calantone (2002) also states if the shared vision has a positive influence on the orientation of next-generation learning, which will then affect the company's performance.

The development of technology management has a positive influence on the sustainability of family companies. This result is supported by Alberti and Pizzurno (2013) study, which conducts an exploration of which type of knowledge is more affecting innovation between knowledge about technology and knowledge of the market. The results show if both types of knowledge have a positive influence on family company performance, even at different levels. Knowledge of technology plays an important role in facilitating the development of new products. Similar opinion is also expressed by De Massis et al. (2013), where technological innovations are associated with the size of a company. Larger companies have superior technology management, making it easier to introduce new products and services compared to small-size family companies. Small-size family companies tend to have a more viscous family relationship and have more limited resources including the development of technology management, so it can cause difficulties in introducing new products or services.

Meanwhile, product life cycles have an insignificant impact on corporate sustainability. From the side of the product lifecycle has 2 variables of 10 variables that do not have significant influence, that is customer related to
the new product and the intensity level of price war. The family company in this research is a travel agent company usually having loyal customers that even though new product innovations are not much and do not follow the price war, does not affect the ability of the company to survive. In other words, although the company's products have a life cycle that runs smoothly, it does not guarantee the company's sustainability. This is in accordance with the study conducted by Buang et al. (2013) that the life cycle has no significant influence on the corporate sustainability of the family.

Figure 4 showed the family business model in the disruption era based on the results of this study, which found that the exogenous construct of succession or transitional leadership, vision and mission between generations, and development of technological management affected the endogenous construct of sustainability of firms gained after the process of calculating the outer loadings value, and a series of statistical tests. To obtain an indicator on transitional leadership and vision and mission between generations, and two indicators on development of technology management and sustainability of family business.

Conclusions

The research aims to determine the factors that most influence the company's sustainability and to form the family business model of the travel agent company in this disruption era using SEM-PLS analysis. After Testing of indicators and the construct in the structural model of this research, the results of this research show that company’s sustainability is determined positively by at least three factors, namely transitional leadership, mission and vision between generations, and development of technology management. From transitional leadership factor that most influence is the next generation forward the company due to family compulsion. The most influential vision and mission between generations is the ability to clearly define the company's vision. There are two variables that affect development of technology management, namely every generation has technological innovation capability in the company and every generation has the ability to build digital culture. Meanwhile, the product life cycle is found to be insignificant in determining the sustainability of a family company.
Suggestions

Based on the results of this study, there are recommendations for a number of parties, either practitioners, regulators, or further researchers. For practitioners, the management of the company, should create a system that enables smooth transitional leadership and minimizes conflict. This is particularly indispensable to family companies whose conflicts of interest among the members of the company's controlling family are enormous. The system should also be supported by good inter-generation mission vision communication efforts so that there is sustainability between the ideals of the founders and the predecessor generation with the succeeding generation. Management should also always update the technology used in its business activities so as to compete with the innovations of competitors.

For the government as a regulator, in addition to the regulation of business that one of which is sought to overcome the conflict between the company's elite, also have to create an investment climate that provides incentives for companies to develop technology the current business practices. It is also a form of effort to support the competitiveness of the national economy. For researchers, subsequent studies should be possible with a larger number of samples (> 50 respondents) and using different construction so that there is a more comprehensive research result.

References


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SUSTAINABLE CONSUMPTION BEHAVIORS OF YOUNG PEOPLE IN THE FIELD OF FOOD AND DRINKS: A CASE STUDY

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Abstract. The research measures the sustainable consumption behavior of student groups and compares whether there are differences among student groups studying at universities in Hanoi area, divided according to quantitative variables, including: gender, religion, academic year, love relationship and marital status, residence status, average expenditure in sustainable consumption behaviour of young people in the field of food and beverages. By analyzing data collected from 791 universities students in Hanoi area, the result shows that only a quantitative variable about love relationship and marital status includes three groups: single, couple, married which have the statistically significant difference in sustainable consumption behavior in food and drinks.

Keywords: sustainable consumption, student, comparative research, food; Hanoi area


JEL Classifications: G00, G390

1. Introduction

Sustainable development of any country is dependent on consumption patterns, which directly affect energy security, water security and food security (Tvaronavičienė et al., 2017; Muniz et al., 2018; Tvaronavičienė et al., 2020; Moumen et al., 2019; Akhmetova et al., 2019; Baltgailis, 2019; Akhmadeev et al., 2019; Chernova et al., 2020; Tokhayeva et al., 2020; Kulikov et al., 2020; Voronkova et al., 2020). Sustainable production and consumption are the twelfth among the seventeen Sustainable Development Goals of Unicef in 2015 and are emphasized in the "Strategic Orientation for Sustainable Development in Vietnam" in the period 2011-2020. In Vietnam sustainable production and consumption is one of 17 sustainable development goals proposed by The United Nations in 2015 and emphasized in the “Strategic Orientation for Sustainable Development in Vietnam” in the period 2011-2020. Accordingly, “Sustainable consumption is understood as the use of products and services effectively, meeting the essential needs of life while minimizing the use of natural resources and toxic materials; while limiting the emission of pollutants over the life circle of the product so as not to jeopardize the needs of future generations”. However, for Vietnamese consumers, sustainable consumption is still a new concept although their daily consumption behavior still contains sustainable consumption factors and each group has a certain level...
of Sustainability, so consumers do not yet understand the importance and create healthy consumption habits in their daily life.

A study of Olsson an Gericke (2015) indicated that the phase of adolescence is clearly associated with a rapidly declining interest in environmental and sustainability issues. Besides, Young consumers are considered a key target group by researchers, policy-makers, and educators alike, as it is deemed crucial to intervene in the formation and routinization of mainstream unsustainable consumption practices and patterns (Fien et al., 2008; Heiss and Marras, 2009).

In order to have an appropriate approach to promoting sustainable consumption behavior among young people, it is necessary to understand the difference in sustainable consumption behavior among groups of people by social criteria (gender, religion, academic year, residency status, love relationship and marital status, average spending). In light of that fact, following the findings of the authors of the topic “Measuring sustainable consumption behavior of students in Hanoi area” with many different aspects such as descriptive and descriptive statistical results, discovery factors, factor analysis, correlation analysis, linear structure analysis, etc.; This paper focuses on presenting the results of descriptive statistical research, one-factor variance and the mean value of variables, in order to explore the differences between different consumer groups divided by the variable, demographic to make appropriate policy implications. The research topic is a valuable reference for researchers, policy makers and educators in the intervention of shaping and guiding the implementation of sustainable consumption behaviors of young people, especially of students.

2. Research literature review

The Global Development Research Center GDRC (The Global Development Research Center) has given a complete definition of sustainable consumption. Accordingly, the goal of sustainable consumption is to limit the impact on the environment, social justice and economic development in meeting the basic needs of people. People who are different in gender, religion, age, relationship status, place of residence, etc. have different perceptions, different needs, and therefore their interest in environmental and socio-economic issues may not be the same. A number of current researchers have pointed out differences in environmental and social concerns in groups of people with different gender, religion, age, residence status, love relationship and marital status.

*Gender*

Empirical studies have shown that women tend to have a higher level of environmental concern relative to men (Blocker and Eckberg, 1997; Hunter, et al., 2004; Lee, 2009). But a study in China revealed that women are less concerned about the environment than men (Shen and Saijo, 2008). However, these findings contradict the study of (Sonika Raj et al., 2012), where the ecological footprint for men and women is no different for any of the four ingredients: food, mobility, shelter, goods and services. Some studies also found no difference in environmental behavior basing on gender (Solar, 2011) also show that men and women have similar needs for natural resources.

*Age or Academic year*

The study of Sonika Raj et al. (2009) in India has indicated that students from 17 to 19 years have the highest overall mark on the ecological footprint comparing to those at a higher age. These findings contradict Solar's study in the Philippines in 2010 and 2011 on a sample of 100 university students and 200 students respectively, and it was found that ecological footprints had no relationship to age.

*Resident status*

The majority of current studies indicate that the larger the household size, the lower the impact on the environment due to reduction in consumption. According to the research results of Lukáš Kala (2015) and Williams (2005), single – person households consume more power than family households. At the same time Lukáš Kala also pointed out that there are single people with huge workload, living in the city center, having no private car, tend to have a more environmentally friendly lifestyle by reducing consumption for goods and energy
because they spend most of their time on work and outside activities. In addition, Roy et al. (2001) also mentioned a decrease in ecological footprint of each person as household size increases, meaning that each person's demand for nature will decrease.

**Love relationship and marital status**

Regarding differences in environmental concerns, Natalia Melgar et al. (2013) have shown that married people are more concerned with environmental issues and take more positive environmental actions. They have a higher willingness to participate in social activities and they also care more about the needs of others and future generations.

In general, studies on the differences between different groups of people in their interest in the environment and social issues are relatively popular, but showing how such differences are reflected in consumer behavior is relatively limited. Therefore, this will continue to be a topic that needs to be researched to supplement the assumptions and hypotheses in sustainable consumption behavior.

Researches on sustainable consumption in Vietnam mostly focus on pre-behavior factors without measuring specific sustainable consumption behaviors in particular, especially the differences between groups by demographic variable.

After identifying factors that influence the choice of sustainable consumption behaviors of young people (students in Hanoi area), in this study a comparison were conducted to find out differences among groups of the six control variables, including: gender, religion, academic year, residence, relationship status and average expenditure.

**Research model**

The model researching factors affecting students' sustainable consumption behaviors is built refering to the Sustainable consumption behaviors - SCB (Geiger et al. 2017) and Young Consumers's Sustainable consumption behaviors - YCSCB (Fisher et al. 2017), and based on qualitative research and preliminary research for the study object – students. The research model is as follows:

![Figure 1. Research model](source: Study design of the authors)
With the above research model, the research hypotheses are:
H1: There is a statistically significant difference in the mean value of SCf among student groups by gender.
H2: There is a statistically significant difference in the mean value of SCf among student groups by religion.
H3: There is a statistically significant difference in the mean value of SCf among student groups by academic year.
H4: There is a statistically significant difference in the mean value of SCf among student groups by love relationship and marital status.
H5: There is a statistically significant difference in the mean value of SCf among student groups by residence status.
H6: There is a statistically significant difference in the mean value of SCf among student groups by average spending.

The scales are encoded in the table below (see Table 1):

<table>
<thead>
<tr>
<th>Groups of factor</th>
<th>Variable</th>
<th>Detailed explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainable buying options</td>
<td>FP1</td>
<td>I prefer to buy food that have clear origin and organic certification</td>
</tr>
<tr>
<td></td>
<td>FP2</td>
<td>I use fresh, raw food for meal preparations</td>
</tr>
<tr>
<td></td>
<td>FP3</td>
<td>I have a healthy diet (restricting alcoholic beverages, ....)</td>
</tr>
<tr>
<td></td>
<td>FP4</td>
<td>I use food grown in my hometown</td>
</tr>
<tr>
<td></td>
<td>FP5</td>
<td>I buy the products that are near the expiry date because of the discount</td>
</tr>
<tr>
<td>Economical and effective options</td>
<td>FF1</td>
<td>I prefer to cook by myself</td>
</tr>
<tr>
<td></td>
<td>FF2</td>
<td>I buy enough food for the meals to avoid waste</td>
</tr>
<tr>
<td></td>
<td>FF3</td>
<td>I handle food before cooking (thawing,...)</td>
</tr>
<tr>
<td></td>
<td>FF4</td>
<td>I let the food to cool down before putting them in the refrigerator</td>
</tr>
<tr>
<td></td>
<td>FF5</td>
<td>I reuse leftovers for the next meal</td>
</tr>
<tr>
<td>Environmental awareness and action</td>
<td>FE1</td>
<td>I cook in an energy-efficient way (gas, water, electricity,...)</td>
</tr>
<tr>
<td></td>
<td>FE2</td>
<td>I avoid eating convenience food because of plastic waste</td>
</tr>
<tr>
<td></td>
<td>FE3</td>
<td>I use containers instead of plastic wraps/bags</td>
</tr>
<tr>
<td></td>
<td>FE4</td>
<td>I sort the inorganic or organic waste before throwing into the trash</td>
</tr>
<tr>
<td>Sustainable consumption behavior in food</td>
<td>SCf1</td>
<td>I buy hygienic and nutritious food</td>
</tr>
<tr>
<td></td>
<td>SCf2</td>
<td>I consume food sparingly and effectively</td>
</tr>
<tr>
<td></td>
<td>SCf3</td>
<td>I consciously eat and drink to protect the environment</td>
</tr>
<tr>
<td></td>
<td>SCf4</td>
<td>I care and follow the trend of sustainable consumption in my eating habit.</td>
</tr>
</tbody>
</table>

Source: Study design of the authors

3. Research methodology

The research data was collected through survey techniques using semi-structured questionnaires. The team used a convenient non-random sampling technique. Data is collected using both (1) direct survey, and (2) internet surveys. To preliminarily assess the scale, the research team issued 450 surveys at Thuong Mai University, University of Industry, University of Technology, Academy of Finance, and Banking Academy. As a result, the group has collected 387 valid questionnaires. After a preliminary evaluation of the scale with 387 valid votes, the authors redesigned the questionnaire and online survey via internet which was conducted through docsgoogle tool by developing the sample size sprouts. Besides, the group also came to universities in Hanoi area to distribute 1000 cards and collected 791 valid votes. The questionnaire has 18 questions that address food issues from the process of purchasing - using - reusing. Data were analyzed for descriptive statistics, multivariate regression and one-factor variance (One-way ANOVA).
4. Research results

4.1 Descriptive statistics (see Table 2 below)

<table>
<thead>
<tr>
<th></th>
<th>Average value (Mean)</th>
<th>Standard error (S.E. Mean)</th>
<th>Median</th>
<th>Mode</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>FP1</td>
<td>3.53</td>
<td>0.046</td>
<td>4</td>
<td>5</td>
<td>1.297</td>
</tr>
<tr>
<td>FP2</td>
<td>3.65</td>
<td>0.042</td>
<td>4</td>
<td>5</td>
<td>1.191</td>
</tr>
<tr>
<td>FP3</td>
<td>3.60</td>
<td>0.042</td>
<td>4</td>
<td>5</td>
<td>1.178</td>
</tr>
<tr>
<td>FP4</td>
<td>3.41</td>
<td>0.040</td>
<td>3</td>
<td>3</td>
<td>1.130</td>
</tr>
<tr>
<td>FF1</td>
<td>3.72</td>
<td>0.041</td>
<td>4</td>
<td>5</td>
<td>1.153</td>
</tr>
<tr>
<td>FF2</td>
<td>3.84</td>
<td>0.040</td>
<td>4</td>
<td>5</td>
<td>1.135</td>
</tr>
<tr>
<td>FF3</td>
<td>3.84</td>
<td>0.039</td>
<td>4</td>
<td>5</td>
<td>1.096</td>
</tr>
<tr>
<td>FF4</td>
<td>3.82</td>
<td>0.040</td>
<td>4</td>
<td>5</td>
<td>1.128</td>
</tr>
<tr>
<td>FF5</td>
<td>3.61</td>
<td>0.041</td>
<td>4</td>
<td>3</td>
<td>1.158</td>
</tr>
<tr>
<td>FE1</td>
<td>2.70</td>
<td>0.051</td>
<td>3</td>
<td>1</td>
<td>1.436</td>
</tr>
<tr>
<td>FE2</td>
<td>2.56</td>
<td>0.048</td>
<td>3</td>
<td>1</td>
<td>1.352</td>
</tr>
<tr>
<td>FE3</td>
<td>2.76</td>
<td>0.044</td>
<td>3</td>
<td>3</td>
<td>1.241</td>
</tr>
<tr>
<td>FE4</td>
<td>2.99</td>
<td>0.049</td>
<td>3</td>
<td>3</td>
<td>1.377</td>
</tr>
<tr>
<td>SCF1</td>
<td>3.16</td>
<td>0.043</td>
<td>3</td>
<td>3</td>
<td>1.217</td>
</tr>
<tr>
<td>SCF2</td>
<td>3.70</td>
<td>0.037</td>
<td>4</td>
<td>4</td>
<td>1.051</td>
</tr>
<tr>
<td>SCF3</td>
<td>3.42</td>
<td>0.050</td>
<td>4</td>
<td>5</td>
<td>1.403</td>
</tr>
<tr>
<td>SCF4</td>
<td>3.19</td>
<td>0.040</td>
<td>3</td>
<td>3</td>
<td>1.116</td>
</tr>
</tbody>
</table>

Source: Processed survey data by the group of authors

The study found that students' sustainable spending on food were occasional with average values ranging from 2.5 to less than 4. The survey results show that the average point for the student's "Sustainable Buying" factor is in medium level (Mean = 3.55, SD = 1.199). In which the most appreciated criterion is "I use fresh, raw food for meal preparations " (Mean = 3.65, SD = 1.191) and the lowest rating is the indicator "I use food grown in my hometown " (Mean = 3.41, SD = 1.130). The results for the factor "Economical and effective options" show that the overall average score of students is relatively high (Mean = 3.766, SD = 1.134). In which the most evaluated criteria are "I buy enough food for meals to avoid wasting", "I handle food before cooking (thawing, ..... " (Mean = 3.84) and the lowest rated indicator is" I reuse leftovers for the next meal "(Mean = 3.61, SD = 1.158). The results for the factor "Environmental awareness and action" show that the average score of students is 2.75 (SD = 1.3515). In which the most evaluated criterion is "I sort the inorganic and organic waste before throwing into the trash" (Mean = 2.99, SD = 1.377) and the lowest rating is the " I avoid eating convenience food because of plastic waste" (Mean = 2.56, SD = 1.352).
The study also noted that the result of “sustainable purchasing choice” and the “economical and effective use” factor was about 396 students at a never, rarely, occasional or regular basis; The remaining 395 students performed on a regular or always basis (with median = 4). About 396 students are aware of and take action to protect the environment at a level of never, rarely or occasionally; The remaining 395 students performed on an occasional or regular, always basis (with median = 3). Students mainly spend on sustainable purchases of clearly sourced foods, making dishes from fresh / raw foods, healthy diets and economical and efficient use of food. They have the habit of using processed food, which dump more and more plastic waste to the environment.

4.2 Regression analysis

Structural Equation Model (SEM) analysis

The results of preliminary assessment of scales, exploratory factor analysis EFA, confirmatory factor analysis CFA and linear structure model of the eating category.

The results of analysis by linear structure model after adjusting some possible relationships between the errors of observed variables in the factors showed that: Chi-square / df = 2.483 <3, CFI = 0.960, GFI = 0.965, AGFI = 0.949 are both greater than 0.9. P-value = 0.000 <0.05, RMSEA = 0.043 <0.08. This shows that the theoretical model is compatible with the survey data.

All 3 independent variables FE, FF, FP are statistically significant with p-value <0.05, so all 3 independent variables influence the measurement of sustainable consumption behavior in food of students and their influence is proportional (see Table 3 below).

### Table 3. Standardized regression and non-standardized weights in SEM model

<table>
<thead>
<tr>
<th>Relationship</th>
<th>Non-standardized weights</th>
<th>Standardized regression weights</th>
<th>S.E.</th>
<th>C.R.</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCf --- FE</td>
<td>0.271</td>
<td>0.465</td>
<td>0.033</td>
<td>8.138</td>
<td>***</td>
</tr>
<tr>
<td>SCf --- FF</td>
<td>0.204</td>
<td>0.267</td>
<td>0.047</td>
<td>4.321</td>
<td>***</td>
</tr>
<tr>
<td>SCf --- FP</td>
<td>0.148</td>
<td>0.208</td>
<td>0.045</td>
<td>3.297</td>
<td>***</td>
</tr>
</tbody>
</table>

*Source: Data processing results of the authors*

Environmental awareness and action (FE) is the most strongest impact on measuring sustainable consumption behaviors of students in food (SCf). The regression equation is rewritten as follows:

\[
SCF = 0.465*FE + 0.267*FF + 0.208*FP
\]

To test the stability of the estimated model, the author used Bootstrap test with the refunded sample of 1500 to compare with the estimated results from the samples obtained. The results show that the difference between the sample estimation and the Bootstrap estimation is very small, the absolute values of the critical values (CR) are less than 2, it shows that the sample estimation can be generalized. Thus, the estimated model can be considered lasting and reliable.

### Table 4. Estimated results by Bootstrap in food category with sample size of 1500

<table>
<thead>
<tr>
<th>Relationship</th>
<th>Estimates</th>
<th>SE</th>
<th>SE-SE</th>
<th>Mean</th>
<th>Bias</th>
<th>SE-Bias</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCf --- FE</td>
<td>0.464</td>
<td>.050</td>
<td>.001</td>
<td>.466</td>
<td>.000</td>
<td>.001</td>
<td>.000</td>
</tr>
<tr>
<td>SCf --- FF</td>
<td>0.267</td>
<td>.068</td>
<td>.001</td>
<td>.264</td>
<td>-.003</td>
<td>.002</td>
<td>-1.5</td>
</tr>
<tr>
<td>SCf --- FP</td>
<td>0.208</td>
<td>.074</td>
<td>.001</td>
<td>.210</td>
<td>.002</td>
<td>.002</td>
<td>-1</td>
</tr>
</tbody>
</table>

*Source: Data processing results of the authors*

In which: Mean is the average estimation result of the regression coefficient by Bootstrap, SE-Bias is the standard error for the bias, CR is the critical value.
4.3 Analysis of differences between student groups for sustainable consumption in the field of food and drink

An analysis of variance is a factor that examines the differences between control variables including gender, academic year, religion, residence status, and average expenditure (see Table 5).

<table>
<thead>
<tr>
<th>No.</th>
<th>Factor</th>
<th>Groups of variable</th>
<th>Number of samples in each group</th>
<th>Sig. value for Levene test</th>
<th>Sig. value of ANOVA analysis between groups of variable</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Gender</td>
<td>Male</td>
<td>324</td>
<td>.918</td>
<td>.281</td>
<td>No difference</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Female</td>
<td>467</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Academic year</td>
<td>First year</td>
<td>184</td>
<td>.260</td>
<td>.369</td>
<td>No difference</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Second year</td>
<td>228</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Third year</td>
<td>297</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fourth year</td>
<td>68</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Religion</td>
<td>Buddhism</td>
<td>57</td>
<td></td>
<td>.616</td>
<td>No difference</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Protestantism</td>
<td>23</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Catholic</td>
<td>17</td>
<td></td>
<td>.316</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non religion</td>
<td>670</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Relationship status</td>
<td>Single</td>
<td>443</td>
<td></td>
<td>.512</td>
<td>Different</td>
</tr>
<tr>
<td></td>
<td></td>
<td>In a relationship</td>
<td>336</td>
<td></td>
<td>.041</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Married</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Residence status</td>
<td>Stay with relatives/family</td>
<td>174</td>
<td></td>
<td>.266</td>
<td>No difference</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rent alone</td>
<td>94</td>
<td></td>
<td>.923</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rent with friends</td>
<td>433</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stay in campus</td>
<td>90</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Average spending</td>
<td>&lt;1 mil. dong</td>
<td>86</td>
<td></td>
<td>.343</td>
<td>No difference</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1-&lt;2 mil. dong</td>
<td>273</td>
<td></td>
<td>.884</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2-&lt;3 mil. dong</td>
<td>322</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3-&lt;5 mil. dong</td>
<td>78</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&gt;5 mil. dong</td>
<td>32</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Source:* Processed survey data by the group of authors

For the gender control variables, the academic year, the religion, the accommodation, and the average expenditure all have Sig values of ANOVA analysis greater than 0.5, so it can be concluded that the variance between groups is not different. The difference between the groups classified by the above control variables can be explained as follows. Consistent with the findings of Raj et al. (2012), Solar (2011), the study found no difference in sustainable consumption behavior based on gender. This may be because women have more spending needs, such as buying fashion clothes, beauty, health care, etc. That is why they calculate more, consider more carefully, make longer choices in consumption. They are also the main housewives in the family, so to protect the health of themselves and their relatives, they will buy and consume environmentally friendly products. In a report from Fidelity - the leading financial group in the US, women tend to receive information and advice from financial experts more than men (women: 55%; men: 44%). It can be seen that they are very careful and think through the matter before making a decision both in business and in managing their funds. Also according to the research
results, women are often more meticulous, cautious and more perfection than men. A big plus for spending management is more often seen in women than the habit of setting financial goals through the list of items they need to buy before shopping. As for men, due to lack of buying experience, lack of knowledge about the item, they depend on and absorb the seller's advice more than women. But the mentality of men who usually buy is to buy good, genuine products, and they pay more attention to quality than price. So between men and women, although there is a difference between the psychology of buying, their buying behaviors show sustainability - behavior between a meticulous, careful buyer and a good buyer.

The study also noted that the results of five academic years among groups of students did not differ in sustainable consumption behavior because they were all people living independently, taking responsibility for their own lives, leaving family for the first time to go to college and are in a period reflecting consumer socialization. So, they choose to eat, prepare food, hang out and gather more with friends. This result is similar to the study of Solar in the Philippines in 2010 and 2011 on a sample of 200 university students.

Contrary to the results of Elizabeth Minton (2013), there is no difference in the sustainable consumption behavior between religions, but there is a big difference in the number of students between religions. We cannot reach a hasty conclusion on this matter.

According to the research results of Lukáš Kala (2015) and Williams (2005), people living alone have more power consumption than family households. However, in contrast to this study, the results of the group's study showed that there was no difference in residence status among student groups for sustainable consumption behavior. This may be because the research of Lukáš Kala (2015) and Williams (2005) is only to measure electricity consumption while this study is to measure sustainable consumption behavior in food area. Accordingly, sustainable behavior in eating includes many stages from purchasing, using, processing and finally recycling products. Reasonable power consumption is only a small part of the overall sustainable consumption behavior.

The research results also show that sustainable consumption behavior among groups of students with average spending levels is not different. According to the survey of the author group, the group of students spending less than 1 million VND / month is usually students living with families and relatives, so the selection of food is often made by relatives. For students with an average expenditure of 1-<2 million VND / month and 2-<3 million VND / month, most of them know how to calculate their expenses appropriately so they tend to buy things economically. The group of students with an average spending of> 3 million / month is a group with a better family background than other groups, so they will spend on more expensive and better food. In general, the consumption behavior of student groups towards one of the sustainable reflection is saving and safety.

Only the control variable of the relationship status consists of three groups of subjects: "Single", "In a relationship", "Married" is having Sig value of ANOVA <0.05 (0.041), thus we can conclude that: There are differences between these groups in sustainable consumption behavior for eating purposes (see Table 6).

<table>
<thead>
<tr>
<th>Table 6. ANOVA analysis between relationship status variables in the field of food and drink</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
</tr>
<tr>
<td>--------</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Lower bound</td>
</tr>
<tr>
<td>--------</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>Tổng</td>
</tr>
</tbody>
</table>

Source: Processed data by the group of authors
After determining the average difference of the quantitative variable with respect to the value of the qualitative group, One-way Anova depth test was performed to find out which pair of values had difference. Anova depth analysis is performed when the basic analysis is completed and it is determined that there are differences in quantitative variables for different values of control variables. The relationship status variable has three groups: (1) Single, (2) In a relationship, (3) Married (see Table 7 below).

<table>
<thead>
<tr>
<th>(I)</th>
<th>(J)</th>
<th>Mean Difference (I-J)</th>
<th>Std. Error</th>
<th>Sig.</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>-0.164*</td>
<td>0.066</td>
<td>0.014</td>
<td>-0.29</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-0.03</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>0.082</td>
<td>0.066</td>
<td>0.014</td>
<td>0.03</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>2</td>
<td>3</td>
<td>0.246</td>
<td>0.066</td>
<td>0.014</td>
<td>0.03</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.28</td>
</tr>
</tbody>
</table>

* The mean difference is significant at the 0.05 level.

Source: Processed survey data by the group of authors

Results of ANOVA in-depth analysis based on the Post Hoc Tests Multiple Comparisons table shows sig values. when comparing between the two groups (1) Single and (2) In a relationship whose value is 0.014 < 0.05. This shows that among the three groups, only these two groups have differences in sustainable consumption behavior, this can also be explained by the relatively low number of respondents in the third group compared to the two groups. rest.

The Mean Difference (I-J) column of this row is -0.164, which means that the Sustainable Consumption Behavior of the first group (Single) is lower than the second group (Couple). In other words, the Couple has a statistically significant difference from the Single group in sustained consumption spending in the dining sector.

The Anova analysis of the variables controlling the relationship status in the dining category shows the average value of the object having the highest lover (mean = 3.52). In a study of the difference between the male and female consumer groups conducted on 600 people, it was found that the most frequent activity and form of entertainment for men and women was eating and drinking (accounting for 40%). Therefore, the dining option is the first choice in couples' dating. In addition, at the University of North Carolina, a study of relationship and weight was performed, in addition to weight gain that is evident in long-term relationships, one also found that in the time they live and date, the amount of medicine and alcohol they use is significantly reduced to please the other half, leading to a healthier lifestyle.

The study also found that the average value of married subjects was the lowest (mean = 3.28). This may be due to the fact that the study authors are students, so the proportion of married students is very low. In which, the author group collected 12 votes out of 791 votes, the number of married students (accounting for 1.52%). Therefore, the level of reflecting sustainable consumption of married people is lower than that of other subjects.

5. Conclusions

This study aims to measure the sustainable consumption behavior of student groups, then explore whether or not the differences among student groups are classified according to control variables including gender, school year, religion, relationship status, residence status and average monthly spending. By using ANOVA analysis, the research reveals that only the control variables of relationship status (composing of three groups: "Single", "In a relationship", "Married") show differences in sustainable consumption behavior in eating and drinking habit.
Research results show that "Environmental awareness and actions" have the greatest impact on measuring students' sustainable consumption behaviors. Therefore, for students who in the future will decide their consumption, the education about sustainable consumption is extremely necessary. Previous studies have found that students have a greater impact rather than other ages in terms of carbon emissions, and emissions into the environment (Raj et al., 2012; Medina and Toledo-Bruno, 2016). Students need to act from the smallest things like waste sorting; weigh between consumption and use to avoid waste and excess; limiting the use of plastic items, single-use plastic bags; students should participate in the trend of using environmentally friendly straws, using their own utensils and utensils, taking mugs to buy milk tea, coffee, using fabric straps to drink drinks instead of plastic bags; exchange old products for new ones; garbage collection etc.

The research also shows that there are differences in the sustainable consumption behavior between the two groups "Single" and "Lovers." Therefore, in order for consumers and especially single students to have a more sustainable way of consuming, it is necessary to enhance education and raise awareness of environmental protection through propaganda or seminars for groups " Single "and" Having lover "groups can exchange and learn healthy lifestyles and sustainable consumption.

Besides the findings and contributions of the topic, the research still has certain limitations. Firstly, the research only explores gender in male and female perspective and does not mention other gender groups. Second, religious data and samples are limited, so it is impossible to draw an accurate conclusion about the difference in sustainable consumption between religions. Hopefully, future research can further explore religion and gender factors. Due to religious issues around the world, the acceptance of gender diversity is gaining increasing interest, but relatively few studies have been done to assess religion or gender affecting sustainabe consumption behavior of students in particular and young people in general.

References


TEXT MINING ON SUSTAINABILITY REPORTING: A CASE STUDY

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Abstract. This study describes the trend and pattern of company's sustainability report in construction industry listed in Indonesian Stock Exchange year 2010 until 2018. Using text mining analysis, 152 companies' sustainability report are analyzed using a software named "Phyton". This study found that the concern for sustainability issues is represented by the selection of problem disclosures through negative words, and the company's attention and efforts are represented by positive words. This study contributes help to the users of sustainability report (investors, governments, and communities) to understand companies's strategies and concerns related to economic, social and environmental issues.

Keywords: sustainability report; text mining; construction industry; Indonesian


JEL Classifications: L74, N60

1. Introduction

The increasing of public awareness on the environment has been a concern of the company over the past few years. According to Gray et al. (1987), the growth of public awareness of the role of companies in the community can create social problems related to pollution, resources, waste, product quality, product safety, rights, and labor status. These social controls and critical actions from the community encourage companies to communicate their environmental planning to all stakeholders, through sustainability reports (Modapothala and Issac, 2009; Nadhir, Wardhani, 2019). Setiawan (2012) explains that sustainability reports are seen as a form of corporate social responsibility to stakeholders, although the motivation to submit this report can vary, either because of self-awareness or in response to environmental demands. Since 2014, the government has promoted the importance of sustainable development so that each sector must implement sustainable development into policies and programs. Government commitments then become an important source for emphasizing sectoral targets and programs that contribute to reducing emissions and environmental damage (Nasih et al., 2019). Nowadays, many companies have been involved in disclosing sustainability reports, which contain information about economic, social, and environmental dimensions (KPMG, 2015). Sustainability reports are a medium for companies to express matters relating to internal and external interests, to show transparency and accountability of company actions, to legitimize corporate actions and attract investors (Bonsón and Bednárová, 2014). Disclosure of sustainability reports can provide benefits to businesses both at national and global levels (Lawrence et al., 2013), because the success of the company is not only seen in its economic success (Shahin and Zairi, 2007), but companies must be skilled at balancing the interests of various stakeholders to gain a competitive advantage and have a credible reputation in the eyes of the public (Jamali et al., 2008).
On the other hand, sustainability reports have highly qualitative content, which raises serious concerns for users of information in terms of analysis, comparability, and judgment. The most common technique used to analyze economic, social, and environmental information contained in sustainability reports is content analysis (Krippendorff, 2004). However, lately, there have been new techniques that are being used by researchers, namely, text mining. Text mining is used to analyze trends and patterns in sustainability reporting and identify which aspects are most emphasized or disclosed in company reports (Aureli, 2017). Text mining can also provide an overview of the main problems discussed in the company's sustainability report. This technique relies heavily on computer programs and algorithms, so it will be able to overcome the weaknesses of content analysis (Milne and Adler, 1999).

This study specifically wants to describe trends and patterns of information disclosed in corporate sustainability reports, especially for companies in the construction sector, because this sector economically made an important contribution, such as creating employment and contributing to gross domestic income (GDP) (Glass, 2012). In addition, there is still little research focusing on sustainability reports in the construction sector, so this study aims to open up debate and provide an understanding of disclosures in sustainability reports in the construction sector.

This study uses the text mining method with the help of Python software to analyze 152 company sustainability reports in the construction sector listed on the Indonesia Stock Exchange from 2010 to 2018. This study found that there is a concern for sustainability issues as indicated by the tendency to disclose problems through negative words, while the company's attention and efforts are represented in positive words. The results of text mining show that "sustainability", "support", "commitment", "improvement", "award", "integrated", "fair", "contribution", "empowerment", and "protection" are popular words related to the company's concern and efforts to overcome economic, social, and environmental problems reported in the sustainability report. Whereas, "waste", "complaints", "disaster", "corruption", "hazardous", "injury", "conflict", "violation", "noise", and "fraud" are popular words related to the main problems expressed in the sustainability report. It is expected that this research can help investors, governments, and communities to understand the company's strategies and concerns related to economic, social and environmental issues.

Furthermore, this research will be continued with the following arrangement: Part 2 contains an explanation of various previous studies related to sustainability reports and text mining methods; Section 3 contains an explanation of the variables and samples as well as the research model; Section 4 contains empirical analysis and research results; and Section 5 contains a summary or conclusion from the study, including the contributions and suggestions for further research.

2. Literature Review

2.1. Overview of Sustainability Reports

Kolk (2008) explained that sustainability reporting is a voluntary activity oriented to give consideration to social and environmental implications to internal and external stakeholders in conducting the business operational. Initially, disclosure of sustainability reports has drawn some criticism, including no clear general benchmarks, lack of institutional and less standardized frameworks, poor participation rates and reports that do not meet the guidelines, inconsistent, incomplete and incomparable data (too many definitions, indicators and formats) (Roca and Searcy, 2012). Therefore, various efforts have been made to improve the quality of sustainability reporting.

According to KPMG (2008), thousands of organizations around the world now produce sustainability reports. In 2008 nearly 80 percent of the 250 largest companies in the world issued a sustainability report. The increase in
disclosure of sustainability reports is still dominated by certain industries. In the construction sector, few companies merely disclose sustainability reports. Lamprinidi and Ringland (2008) analyzed annual reporting in 16 global construction and real estate companies and concluded strongly that sustainability reporting practices are still not established when compared to other sectors, such as financial services or the electric utility sector. In terms of reporting, the construction sector is considered to be less up-to-date on global trends for sustainable development; less defining several indicators that are clearly reported; and lack awareness about sustainability reporting standards (Kaatz et al., 2006).

2.2. Text Mining on Sustainability Reports

Text mining has a definition of mining data in the form of text where data sources are usually obtained from documents, and the purpose is to search for words that can represent the contents of the document so that analysis of the relationship between documents can be done (Kumar and Bhatia, 2013). Text mining can provide solutions to the problems of processing, organizing, and analyzing large amounts of unstructured text in the sustainability reports. Text mining attempts to extract useful information from data sources through identification and exploration of interesting patterns (Kumar and Bhatia, 2013).

The process of text mining includes gathering information, retrieving information, including association and link analysis, and predictive visualization, and analysis. These characteristics are the same as the characteristics of the sustainability reports, where the style and format of reporting vary from one company to another. Therefore, the use of text mining is needed. The main purpose is to convert text (unstructured data) into data (structured format) for analysis, through the use of natural language processing methods. Text mining is used to analyze trends and patterns in sustainability reporting, and identify which aspects are most emphasized or disclosed in company reports (Aureli et al., 2016).

Research that uses text mining to analyze sustainability reports is still not many. Modapothala et al. (2010) showed that based on the results of the text mining it is found that environmental variables are factors that contribute significantly more to the explanation of the sustainability report. Goloshchapova et al. (2019) found that the results of text mining showed that "employee safety", "employee training support", "carbon emissions", "human rights", "efficient power", and "health medicines" are common topics reported by public companies in Europe and the United Kingdom. Freundlieb and Teuteberg (2013) also found that companies have broadened their understanding of CSR by referring to the term "sustainability" rather than "environment" more often.

3. Method

The sample of this study is 152 sustainability reports of companies in the construction sector which are listed on the Indonesia Stock Exchange for the year 2010 to 2018. The reports are downloaded from the GRI (Global Reporting Initiative) database. This study uses text mining analysis technique using Python software. Most sustainability reports are presented in pdf format. All of these pdf files are converted into a text format before the report can be read by Python software. Because the reporting on corporate responsibility is voluntary, thus the reporting style and format vary from one company to another, so pre-processing is needed before the content of this report can be analyzed (Goloshchapova et al., 2019).

4. Result

Table 1 shows the results of the descriptive statistics. The number of observations illustrates the number of sustainability reports analyzed as many as 152 reports. The number of characters or letters used in the sustainability report on averages is 61462.29 characters. The length of the words or the number of words in one
sentence on averages is 5.881579 words. The number of non-significant words expressed in the sustainability report is 1286,118 words. While the text in the form of numerical on averages is 255.2237.

<table>
<thead>
<tr>
<th></th>
<th>Obs.</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tot_Character</td>
<td>152</td>
<td>61462.29</td>
<td>17283.25</td>
<td>479</td>
<td>1957940</td>
</tr>
<tr>
<td>Long_Word</td>
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<td>5.881579</td>
<td>.3975789</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
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<td>1286.118</td>
<td>3454.493</td>
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<td>38350</td>
</tr>
<tr>
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<td>255.2237</td>
<td>809.3274</td>
<td>2</td>
<td>9255</td>
</tr>
</tbody>
</table>

Table 2 shows the popular words that are often mentioned in the sustainability reports. The popular words are divided into two groups based on the content; into words that have positive and negative contents. Positive contents illustrate the concern and efforts of the company to address sustainability issues. While negative contents describe the sustainability problems that the company is facing. The first positive word that appears first is "sustainability", the second is "support", and the third is "commitment". This result shows that construction companies have a concern for sustainability issues and provide support for sustainable development. In addition, the company also has a high commitment to support sustainable development. Furthermore, there is also a positive "improvement" word that shows the improvement efforts made by the company; the "award" describes the awards received by the company as a result of corporate social responsibility (CSR) activities carried out; "integrated" describes the strategic integration of CSR in the company's core business that shows bilateral relations between the company and the community where the company operates; and "fair" which describes the justice given by the company to all stakeholders. In addition, there is also a positive word "contribution" which indicates that the company contributes in realizing sustainable development goals; "empowerment" shows that the company cares and empowers its employees well; "protection" illustrates that the company also cares about the earth and its environment.

On the other hand, the negative word that often arises is "waste", indicating that the problem faced by the company is related to industrial waste. Besides being the biggest economic contributor, the construction sector also contributes the most solid waste. Next, the word "complaints" shows complaints from affected people from construction waste; "disaster" indicates a disaster can occur as a result of construction waste which is not handled properly; "corruption" illustrates that corruption is still a problem in the construction business; "hazardous" indicates that construction waste contains hazardous substances that have a significant impact on the environment, as it needs to be handled properly; "injury" and "conflict" describe the problems faced by construction workers. In addition, "violation" indicates violations that may be committed by the company, causing construction waste to arise; "noise" indicates pollution problems that can be caused by development activities; "fraud" shows economic related problems faced by companies in the construction industry.
Table 2. Popular Words in Sustainability Report of Construction Companies in 2010-2018

<table>
<thead>
<tr>
<th>Word</th>
<th>Positive</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Word_Rank1</td>
<td>sustainability</td>
<td>waste</td>
</tr>
<tr>
<td>Word_Rank2</td>
<td>support</td>
<td>complaints</td>
</tr>
<tr>
<td>Word_Rank3</td>
<td>commitment</td>
<td>disaster</td>
</tr>
<tr>
<td>Word_Rank4</td>
<td>improvement</td>
<td>corruption</td>
</tr>
<tr>
<td>Word_Rank5</td>
<td>award</td>
<td>hazardous</td>
</tr>
<tr>
<td>Word_Rank6</td>
<td>integrated</td>
<td>injury</td>
</tr>
<tr>
<td>Word_Rank7</td>
<td>fair</td>
<td>conflict</td>
</tr>
<tr>
<td>Word_Rank8</td>
<td>contribution</td>
<td>violation</td>
</tr>
<tr>
<td>Word_Rank9</td>
<td>empowerment</td>
<td>noise</td>
</tr>
<tr>
<td>Word_Rank10</td>
<td>protection</td>
<td>Fraud</td>
</tr>
</tbody>
</table>

Table 3 shows the annual distribution of popular words that are often mentioned in the sustainability reports. Positive words summarize what the company is fighting for and negative words show a summary of problems faced by the company. From 2010 to 2018, the company has paid attention and concern about the issue of sustainability. This is indicated by the word "sustainability" which always ranks 1 in the popular word every year. Additionally, the company's efforts related to sustainable development are also ongoing. The emergence of the words "support", "commitment", "improvement", and "award" also show that the company continues to support and is committed to continue to execute activities aimed at achieving sustainable development goals, continuing to make improvements both internally and externally, and provide rewards for all forms of positive actions that lead to sustainable development. In addition, since 2010 the main problem faced by companies in the construction sector is industrial waste. This is indicated by the word 'waste' which always ranks 1 in the popular word every year. The presence of large amounts of construction waste can cause many negative impacts on the environment. Therefore, there is a need for waste management to reduce these impacts.

Moreover, in 2010 and 2018, another problem faced by the company was corruption, whereas in the following years the problems faced focused on complaints from the public related to waste and environmental pollution. The increase of public awareness regarding the role of companies in the community leads to increased social control and critical actions from the community related to social issues, pollution, resources, waste, product quality, product safety level, and labor rights and status. Therefore, the company must be able to give responsibility for the impact of its business activities on the community through sustainability reporting.
Table 3. Popular Words in Sustainability Report of Construction Companies based on Year Observation

<table>
<thead>
<tr>
<th>Year</th>
<th>+/-</th>
<th>Rank 1</th>
<th>Rank 2</th>
<th>Rank 3</th>
<th>Rank 4</th>
<th>Rank 5</th>
<th>Rank 6</th>
<th>Rank 7</th>
<th>Rank 8</th>
<th>Rank 9</th>
<th>Rank 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>+</td>
<td>sustainability</td>
<td>support</td>
<td>award</td>
<td>commitment</td>
<td>improvement</td>
<td>integrated</td>
<td>contribution</td>
<td>fair</td>
<td>awards</td>
<td>respect</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>waste</td>
<td>corruption</td>
<td>violation</td>
<td>disaster</td>
<td>hazardous</td>
<td>conflict</td>
<td>noise</td>
<td>poverty</td>
<td>toxic</td>
<td>death</td>
</tr>
<tr>
<td>2011</td>
<td>+</td>
<td>sustainability</td>
<td>support</td>
<td>commitment</td>
<td>awards</td>
<td>integrated</td>
<td>contribution</td>
<td>guidance</td>
<td>improvement</td>
<td>helped</td>
<td>assurance</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>waste</td>
<td>corruption</td>
<td>complaints</td>
<td>hazardous</td>
<td>noise</td>
<td>conflict</td>
<td>violation</td>
<td>injury</td>
<td>discrimination</td>
<td>disaster</td>
</tr>
<tr>
<td>2012</td>
<td>+</td>
<td>sustainability</td>
<td>commitment</td>
<td>support</td>
<td>improvement</td>
<td>award</td>
<td>integrated</td>
<td>healthy</td>
<td>contribution</td>
<td>assurance</td>
<td>empowerment</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>waste</td>
<td>complaints</td>
<td>violation</td>
<td>injury</td>
<td>disaster</td>
<td>corruption</td>
<td>hazardous</td>
<td>conflict</td>
<td>death</td>
<td>noise</td>
</tr>
<tr>
<td>2013</td>
<td>+</td>
<td>sustainability</td>
<td>support</td>
<td>commitment</td>
<td>contribution</td>
<td>improvement</td>
<td>fair</td>
<td>award</td>
<td>empowerment</td>
<td>healthy</td>
<td>assurance</td>
</tr>
<tr>
<td></td>
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<td>waste</td>
<td>complaints</td>
<td>disaster</td>
<td>noise</td>
<td>conflict</td>
<td>corruption</td>
<td>hazardous</td>
<td>injury</td>
<td>violation</td>
<td>death</td>
</tr>
<tr>
<td>2014</td>
<td>+</td>
<td>sustainability</td>
<td>support</td>
<td>commitment</td>
<td>improvement</td>
<td>empowerment</td>
<td>award</td>
<td>integrated</td>
<td>contribution</td>
<td>fair</td>
<td>healthy</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>waste</td>
<td>complaints</td>
<td>injury</td>
<td>disaster</td>
<td>noise</td>
<td>hazardous</td>
<td>corruption</td>
<td>conflict</td>
<td>violation</td>
<td>toxic</td>
</tr>
<tr>
<td>2015</td>
<td>+</td>
<td>sustainability</td>
<td>support</td>
<td>commitment</td>
<td>award</td>
<td>improvement</td>
<td>empowerment</td>
<td>integrated</td>
<td>contribution</td>
<td>protection</td>
<td>healthy</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>waste</td>
<td>complaints</td>
<td>hazardous</td>
<td>disaster</td>
<td>injury</td>
<td>noise</td>
<td>conflict</td>
<td>toxic</td>
<td>death</td>
<td>corruption</td>
</tr>
<tr>
<td>2016</td>
<td>+</td>
<td>sustainability</td>
<td>improvement</td>
<td>fair</td>
<td>support</td>
<td>commitment</td>
<td>integrated</td>
<td>award</td>
<td>contribution</td>
<td>protection</td>
<td>empowerment</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>waste</td>
<td>complaints</td>
<td>disaster</td>
<td>conflict</td>
<td>fraud</td>
<td>violation</td>
<td>corruption</td>
<td>injury</td>
<td>hazardous</td>
<td>failure</td>
</tr>
<tr>
<td>2017</td>
<td>+</td>
<td>sustainability</td>
<td>commitment</td>
<td>support</td>
<td>improvement</td>
<td>award</td>
<td>empowerment</td>
<td>contribution</td>
<td>healthy</td>
<td>integrated</td>
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<td>-</td>
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<td>complaints</td>
<td>hazardous</td>
<td>corruption</td>
<td>disaster</td>
<td>fraud</td>
<td>injury</td>
<td>poverty</td>
<td>conflict</td>
<td>discrimination</td>
</tr>
<tr>
<td>2018</td>
<td>+</td>
<td>sustainability</td>
<td>award</td>
<td>commitment</td>
<td>support</td>
<td>improvement</td>
<td>awards</td>
<td>protection</td>
<td>integrated</td>
<td>healthy</td>
<td>empowerment</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>waste</td>
<td>complaints</td>
<td>disaster</td>
<td>hazardous</td>
<td>corruption</td>
<td>toxic</td>
<td>discrimination</td>
<td>poverty</td>
<td>violation</td>
<td>fraud</td>
</tr>
</tbody>
</table>

5. Conclusion

Sustainability reports have a variety of formats, complex and incomplete text structures, unclear and nonstandard meanings, and in different languages. This study uses text mining to analyze trends and patterns of 152 companies' sustainability reports in the construction sector listed on the Indonesia Stock Exchange in 2010-2018. This study finds that there is a concern for sustainability issues as indicated by the tendency to disclose problems through negative words, while the company's attention and efforts were represented in positive words.

The results of text mining show that "sustainability", "support", "commitment", "improvement", "award", "integrated", "fair", "contribution", "empowerment", and "protection" are popular words related to the company's concern and efforts to overcome economic, social, and environmental problems reported in the sustainability report. Whereas, "waste", "complaints", "disaster", "corruption", "hazardous", "injury", "conflict", "violation", "noise", and "fraud" are popular words related to the main problems expressed in the sustainability report.

Enhancing public awareness about the role of companies in the community has led to an increase in social control and critical actions in the community. Therefore, the company must be able to give responsibility for the impact of its business activities onto the community through sustainability reporting. It is expected that this research can help investors, governments, and communities to understand the company's strategies and concerns related to economic, social and environmental issues.
References


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EUROPEAN-VIETNAM FREE TRADE AGREEMENT (EVFTA) IMPACTS ON IMPORTS:
A CASE STUDY

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Abstract. European-Vietnam Free Trade Agreement (EVFTA), signed on 30 June 2019, is one of the new generation Free Trade Agreements between Vietnam and 28 European Union member states. It is a comprehensive and high-quality agreement which ensures opportunities and challenges on developing trade for both Vietnam and the EU as well as boosting economy over the integrated period. Automobile is one of the most important goods exports in the EU and is one of the goods imports in Vietnam that experiences a significant decrease of tariff after the trade deal takes effect. The study would use Single market partial equilibrium simulation tool (SMART) to evaluate the potential impact of EVFTA on the imports of automobile in Vietnam. The result of the tool suggests that after the trade agreement takes effect, the European nations would boost export turnover of automobile to Vietnam by the declination of tariff to 0%. To be specific, Germany shows that its export turnovers surges compared to other nations, the subsequent ranks are Sweden, Italia and Slovakia. The SMART tool also claims that nations which are not in the European Union would have a negative growth of automobile exports to Vietnam after the agreement has effect. Based on the result of research process, the study also provides some remedies to boost the trade benefits for Vietnam and develop automobile industry under EVFTA.

Keywords: EVFTA; Vietnam; EU; automobile; SMART; FTAs, import


JEL Classifications: G00, G390

1. Introduction

EVFTA which is signed on 30 June 2019 has been ratifying by the Vietnam National Assembly and the European Parliament. In terms of the agreement, Vietnam and EU would commit to eliminate about 99% of import tariffs on the European market during 7 year period and on Vietnamese market over 10 year period of time. The agreement could pave the way potential opportunities in trade cooperation between two partners. Vietnam would have more chances to export various potential goods such as: aquatic products, textiles, footwear, agricultural products etc. At the same time, EU also has many opportunities to export some goods to Vietnam including machines, electronic products and components, automobiles. Regarding automobile products of EU, nowadays the large number of cars is imported from Germany by Vietnamese businesses. According to the Vietnam Register, there were 1.197 cars which imported from Germany and were registered to circulate in Vietnam by 2008. In Vietnam, there are two leading premium manufacturers, which occupy a high percentages of automobiles in the market. They are BMW (Truong Hai Auto Coporation-THACO managed the brand and promoted the
products) and Mercedes (Mercedes Benz- Vietnam MBV manufactures, imports and promotes). Moreover, there are many car brands imported to Vietnam, Audi, Jaguar, Porches, Volkswagen, Ducaiti, Ferrari, Fiat, Bugatti etc. When EVFTA does not come into effect, the import tax rates under MFN for automobile products are 74 percent for products with cylinder capacity of less than 3.0L and 78 percent for over 3.0. In addition, according to EVFTA's list of tariff preferences and annexes, Vietnam also remove tariff barriers for cars and components after 9-10 years at entry into force. To be specific, the 0% tariff is applied for cars with cylinder capacity of 2.5 L (diesel cars), above 3.0L (gasoline cars); after 10 years for other cars; after 7 years for the components of automobiles; 10 years for motorbikes and 7 years for motorbikes of 150 cc (cubic centimetres). Regarding the conditions of EU’s cars with zero-tariff according to EVFTA, the cars need to have the localization rate of 55%. Until 2029 or 2030, the import tariff for automobiles with completely built-up (CBU) to Vietnamese market would be 0%. The figure experiences a dramatical declination and is expected to have influence on the imports of automobiles in the market.

Thus, the study about the impact of EVFTA on the imports of vehicles in Vietnam is highly crucial to show the potential effects of the agreement and propose some solutions to enhance the commercial benefits of the agreement as well develop the automobile industry under EVFTA.

The research would use SMART tool to evaluate the potential impacts of EVFTA to the cars imports of Vietnam.

2. Research literature review

The studies about the impact of free trade agreements on trade flows often use a gravity model and an assessment based on aggregated data to evaluate the impact assessment (ex-post) of FTAs being valid for 5-10 years. However, studies on the impact of FTAs on trade flows have not yielded a consistent result. Nobel Prize-winning economist Jan Tinbergen (1962), one of the first researchers to use a gravity model to evaluate the impact of a free trade agreement claimed that the effects of FTAs on trade flows are statistically insignificant, or the signing of FTAs is thought to have no effect on international trade. Meanwhile, the results of Aitken (1973), Abrams (1980) and Brada and Mendez (1985) showed that free trade agreements and especially the European Union (EC) have the effect on promoting international trade among intra-regional members. These opposite results are explained by the researchers' different use of quantitative models and data processing. Quantitative studies using gravity models often use different control variables (except for fixed independent variables such as GDP, and geographical distance), as well as different data processing methods. For example, the least squares model (OLS), the Tobit method, the PPML method (Poisson Maximum likelihood). Moreover, the use of dummy variables to represent FTAs is usually not calculated, the countries participating in an FTA are usually those countries that already have large amounts of bilateral trade. There is no taking into account the factors that a country participates in or is selected to participate in the FTA would also affect the accuracy of model results (Baier, Bergstrand, 2007).

Besides, the research considers whether FTAs on affecting the international trade lines, the study in accordance with the potential costs and benefits of FTAs, especially new FTAs generation is very popular. These studies often use simulation tools such as SMART or CGE and are based on theories such as General Equilibrium or Partial Equilibrium to evaluate the effects. It can happen to a specific economy or industry when a country is a party to a FTAs. Studies using CGE to evaluate the impact of FTAs on the economy are quite common, such as Li (2014) assessing the impact of RCEP on foreign direct investment (FDI); Itakura and Lee (2014) use CGE to evaluate the impact of TPP and RCEP on Japanese agriculture; Li, Scollay, Gilbert (2017) evaluate the impact of Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) on foreign direct investment (FDI); Lu (2018) assesses the impact of CPTPP and EVFTA on Vietnam's garment exports; Khan, Zada,
Mukhopadhyay (2018) assess the impact of CPTPP on the Pakistani economy; Itakura and Lee (2019) assess the impact of member states' CPTPP and RCEP on the same global supply chain. Specific assessments of a particular industry using the partial equilibrium model are more limited in terms of quantity and market diversity used for analysis, such as Kumar and Ahmed (2014) used SMART to assess the impact of the South Asia Free Trade Agreement (SAFTA) on a number of sensitive product lines, or Othino and Shinyekwa (2011) to use SMART to evaluate the impact of the East African customs union to Uganda. Llano, Perez and Steinberg (2019) expand the scope of the study and evaluate the impact of US tariffs on the iron and steel industry on different economic sectors. Veeramani and Saini evaluate the impact of the ASEAN and India agreements on the crop sector. In addition to international studies, the number of studies using SMART assumptions in Vietnam are limited. Vu (2016) used SMART to quantify the potential impact of EVFTA on importing Vietnamese medicine from EU, UK, Anh and Ngoc (2011) assessing the potential impact of RCEP agreement on automobile imports in Vietnam. Male. The impact of RCEP on automobile products in Vietnam was further studied by Tu, Ngoc and Huong in 2017.

Through the research on the effects of ex-ante and expost FTAs to the trade lines for general and new FTAs generations as CPTPP and EVFTA on the Vietnamese trade lines for particular, the author team claimed that the research of assessment on the impacts of EVFTA about a particular sector is not diverse, especially there is no study on providing the results of research about the effects of EVFTA to automobiles imports in Vietnam based on SMART tool. Thus, in the scale of the study, the author team would use the SMART tool and partial equilibrium to evaluate the impacts of EVFTA to Vietnamese automobile industry to express the unique perspectives compared to the previous studies.

3. Research methodology

3.1. Partial equilibrium-PE

Partial equilibrium is a tool that uses the basic supply-demand theory to assess and analyze a given market under the impact of policy changes (strengthening or reducing tariff barriers), or other impacts affecting supply and demand of that industry. The partial equilibrium model often ignores the effects that lead to changes in related or alternative industries, or makes the assumption that the industry under analysis is relatively small compared to the whole economy. In fact, changes from one category do not affect other sectors. This feature of the partial equilibrium model makes the use of the model and evaluation simpler, but the weakness of the model is that it can only assess an independent industry and ignore comparisons. In order to cooperate with other industries, as well as the use of the partial equilibrium model, it is necessary to comply with some rigorous and often unrealistic assumptions. Therefore, the results presented by the partial equilibrium model are often considered as references or estimates of the changes that may occur when the industry is affected by a certain policy, but not regarded as accurate forecasts. Below, the authors would give a basic theoretical framework of the partial equilibrium model based on the theory of supply and demand.

An import nation as j, import good as i from an export nation as k show a demand curve formula such as:

\[ M = \alpha_M PM^\varepsilon \]

\( \alpha_M \) is a constant provided that \( \alpha_M > 0 \), and \( \varepsilon < 0 \) is the import elasticity (demand elasticity). Similarly, we can describe the supply curve with the following equation:

\[ X = \alpha_X PX^\eta \]
With $\alpha_M > 0$ is a constant, and $\eta > 0$ is the export elasticity (supply elasticity). In case the exporting country has a small economy, or has a smaller import turnover of goods $i$ than the total world trade, $\eta$ is equal to extremely positive. The equilibrium condition of the model requires that the following equation needs to be satisfied

$$M = X$$

The difference between the import and export prices is created by the tariff and is shown by the following equation.

$$PM = PX (1 + \frac{T}{100})$$

The changes of benefits on import-export activities are shown as below:

$$\Delta WM = \frac{\alpha_M}{\alpha_X} (PM^{e+1}_0 - PM^{e+1}_1)$$

$$\Delta WX = \frac{\eta}{1 + \eta} (PM^{e+1}_0 - PM^{e+1}_1)$$

### 3.2. SMART (Single market partial equilibrium simulation tool)

Based on the theoretical basis of the partial equilibrium (PE) model, the SMART assumption tool is applied to calculate changes in trade flows based on tariff rates that would be changed under trade agreements, free trade and trade turnover of that sector during the selected year. Therefore, SMART can be considered as a tool to establish counter-factual to answer the question "if?" If future tariff reductions are applied now, how the trade flow would be changed. SMART is used based on the following assumptions about export supply and demand curves

1. There is only one importer in the model, exporters have to compete to export to the market of the exporting country, so the supply and demand curve would often be perfectly elastic, or in other words. The other would have an extremely positive elasticity, and the supply curve would be horizontal.
2. Armington assumption: Consumers have different eyesight for products imported from different importers. Because of different tastes in products, the flow of imports would not focus on one exporting country, if that exporting country enjoys special preferential tariffs.
3. Consumer demand would be divided into two steps, step one, consumers decide the aggregate demand for the item based on the consumer price index, step two: the buyer decides the demand of other categories of each item based on the total demand.

The accuracy of the results from the SMART model depends heavily on selecting the appropriate elasticity to calculate the change in turnover when there is a change in price due to the increase or decrease of the tariff. The two elasticities that need to be selected in the SMART model are supply elasticity and substitution elasticity. In this article, the author chooses the supply elasticity to be infinite since Vietnam's automobile import turnover is relatively small compared to the total international exchange turnover. The long-term elasticity - armington elasticity was chosen to be 0.2 according to the estimates of Anderson, McLellan, Overton and Wolfram (1997).

### 3.3. Data

To assess the potential impacts of EVFTA on imports of automobiles industry in Vietnam, the author would use data of Vietnamese import turnover for some categories such as 8702 (cars have more than 9 seats), 8703 (others) and 8704 (trucks) by 2018 with the aim to establish the assumptions of tariff and evaluation of effects. Data of imports turnovers is extracted from the data resources of UNCTAD-TRAINS under SMART. The information of commitment process on remove tax rates is extracted on appendix 2-A-2 of EVFTA. In the study, the European Union consists of 27 members, apart from England (EU27). Thus, England would not applied the incentives of tariffs under the agreement. The SMART model is a simulation model, which is predictive of the future, so
including the United Kingdom into the European Union EU would create false issues for the results, since the UK has left from the tariffs union by 2020.

3.3.1. The imports of automobiles in Vietnam
The image 1 illustrates import turnovers of automobile industry in Vietnam by 2018 according to 04 codes.

(Units: billion USD)

![Image 1](image1.png)

**Image 1.** Import turnover of automobile industry in Vietnam according to 04 codes by 2018.

*Source: UNCTAD-TRAiNS*

It is clear that Vietnam often import automobile with code HS code 8703 (less than 10 seats), its import turnover in 2018 is more than 12 billion USD. In addition, HS code 8704 which is trucks accounts for 6 billion USD of import turnover, the half of the figures for 8703. 8702 (more than 10 seats) has the less imports with the imports turnover of above 2 million USD. This shows that cars imported into Vietnam market are mainly for personal use, as well as showing a strong structural change in vehicles from motorbikes to cars in Vietnam. The types of freight cars (HS code 8704) are also imported with large turnover to satisfy the demand for large cargo transportation in Vietnam, clearly reflecting the developing economy and the volume of goods exchanged in domestic area as well as large transnational region.

There are some export markets for Vietnam such as Thailand, Indonesia, and Japan. Image 2 below expresses the import turnover of automobiles from main markets of Vietnam in 2018.
The image 2 illustrate that the import turnovers of Vietnam regarding the huge export companies. Because of the impacts of the Asian Free Trade Area (AFTA), with the commitment to reduce import tax as zero tariff, making imported cars to Vietnam mainly sourced from countries in Southeast Asia such as Thailand and Indonesia. The trends of Vietnamese consumers also tend to favor individual car products manufactured by Japan, so the import turnover of cars from Japan is the second highest, at nearly 300 million USD. In addition, cars from the United States and Germany also have a significant import turnover into Vietnam, although the turnover of the United States and Germany is relatively small compared to the three largest exporters, Thailand, Japan and Indonesia.

Besides, Vietnam also imports automobile form EU’s market every year. Image 3.3 shows the import turnovers of Vietnamese automobile from others nations in EU’s regions by 2018.

Image 2. The import turnover of Vietnamese automobiles based on exports markets in 2018
Source: UNCTAD-TRAINS

Image 3. Import turnover of automobiles in Vietnam according to EI’s members in 2018
Source: UNCTAD-TRAINS
Among 27 members of EU, Vietnam only has import turnovers from 12 nations and exports turnovers with the slight percentages. Three largest members of EU experience a dramatic export turnovers to Vietnam are Germany, Sweden, and Switzerland, even they has the import turnovers as medium percentage compared to others to Vietnam including Japan, Thailand and Indonesia. The limited import turnover from European countries can be explained by the relatively high import tax of Vietnam on automobile codes, there are HS codes up to 78%. Therefore, the fact that Vietnam commits to reduce automobile import tax to 0% in the period of 9 to 10 years in EVFTA would have a huge impact on Vietnam's automobile import activities in general and Imports from EU member states in particular, especially when the import tax reduction would increase the competitiveness of cars of European origin, which have quality and style to attract Vietnamese consumers.

4. Research results

4.1. The impacts of EVFTA on total import turnover of automobiles in Vietnam

The assumption states that the sign of EVFTA has positive impacts on imports of automobile in Vietnam. The growth of potential imports is shown due to the decrease of imports tariffs of automobiles between Vietnam and EU’s members under the agreement. Table 1 illustrates the potential changes of turnovers with assumptions of declination of imports tariff into Vietnam to 0% in the next 9 years.

<table>
<thead>
<tr>
<th>Index</th>
<th>Assumption (Units: Billion USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The import turnovers before the agreement (‘000 USD)</td>
<td>1856197</td>
</tr>
<tr>
<td>The import turnovers after the agreement (‘000 USD)</td>
<td>1909883</td>
</tr>
<tr>
<td>The total value of import changes (‘000 USD)</td>
<td>53685</td>
</tr>
<tr>
<td>The percentage of import changes (%)</td>
<td>2.89</td>
</tr>
</tbody>
</table>

Regarding table 1, EVFTA would have a relatively significant impact on Vietnam's automobile imports. Under the impact of reducing import tax from Europe to 0%, Vietnam's total car import turnover would increase by USD 53 million, equivalent to an increase of 2.8%. Although this is not a small growth, but is relatively limited compared to the deeply reduced tax rate, many 6-digit HS codes have been reduced from over 70% to 0 (8702.90, 8703.10, 8703.21 ...). The growth is not too big compared to this expectation because Europe is not the main export market for cars to Vietnam (only 10 out of 28 countries have export turnover) and the export volume to Vietnam is similar. Small relative to other countries like Japan, Thailand. Therefore, even when the tax is reduced to 0%, the volume of imports does not soar, but only average growth, although the reduction of tariffs is relatively large.
4.2. The effects of EVFTA for automobile exports into Vietnam regarding nations

The results of SMART on effects of EVFTA on import turnovers of automobiles industry in Vietnam are the members of EU as below.

Table 2. The results of assumptions for EU’s members

<table>
<thead>
<tr>
<th>Nations</th>
<th>Imports before the agreement ('000 USD)</th>
<th>Imports after the agreements ('000 USD)</th>
<th>Growth (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>68405.94</td>
<td>105362.1</td>
<td>54.02</td>
</tr>
<tr>
<td>Switzerland</td>
<td>8745.509</td>
<td>12485.16</td>
<td>42.7</td>
</tr>
<tr>
<td>Italy</td>
<td>7613.693</td>
<td>11718.19</td>
<td>53.9</td>
</tr>
<tr>
<td>Slovakia</td>
<td>850.491</td>
<td>1248.922</td>
<td>46.8</td>
</tr>
<tr>
<td>Portugal</td>
<td>730.091</td>
<td>2311.173</td>
<td>216.5</td>
</tr>
<tr>
<td>Netherlands</td>
<td>616.631</td>
<td>884.984</td>
<td>43.5</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>234.273</td>
<td>502.452</td>
<td>114.4</td>
</tr>
<tr>
<td>Belgium</td>
<td>174.772</td>
<td>490.151</td>
<td>180.4</td>
</tr>
<tr>
<td>France</td>
<td>136.175</td>
<td>843.076</td>
<td>519.1</td>
</tr>
<tr>
<td>Switzerland</td>
<td>59.531</td>
<td>58.929</td>
<td>-1.01</td>
</tr>
</tbody>
</table>

Among the 28 members, only 10 member countries have car export turnover to Vietnam, Germany has a remarkable export turnover compared to other member countries, followed by Sweden, Italy and Slovakia. The presumptive results show that, after joining EVFTA, EU countries would have an increase in automobile export turnover to Vietnam thanks to the reduction of tariffs to zero. However, Switzerland is as an exception. As a result of the SMART model, Swiss car exports to Vietnam would decrease by 1.01%. Switzerland only exports cars belonging to the two codes HS 870323 (Vehicles with a capacity of over 1,500 cc but not exceeding 3000 cc) and 870324 (Vehicles with a capacity of over 3,000 cc) to Vietnam. However, these two products are also imported by Vietnam in very large quantities from other exporters such as Germany, Sweden and Italy. This shows the clear trends of Vietnamese people for auto products from these countries. Therefore, when the import tax of cars in Vietnam is reduced to 0%, the import volume of 870323 and 870324 codes from major exporting countries such as Germany, Sweden, and Italy would increase sharply, causing a deviating effect. trade and reduce turnover of smaller exporting countries like Switzerland.

In general, it can be seen that most European member countries would have an average export growth of 50%. However, there are some countries with much higher export growth rates from 100% to 200%, especially in France with a very large growth rate of 500%. The high or low growth rate depends on the structure of the country's automobile exports to Vietnam. Countries that focus on HS codes that have high import tariffs on Vietnam, as well as have high export weights for those HS codes, would have a higher growth when those HS codes are tax deductible. import down to 0%. Although France only exports cars belonging to three HS codes: 870323, 870331 (vehicles with a cylinder capacity not exceeding 1,500cc) and 870332 (vehicles with a cylinder capacity of over 1,500cc but not exceeding 2,500c), but two codes 870331 and 870332 not only account for 70% of French car's export turnover to Vietnam, but are also subject to relatively high import tax (78%). Therefore, the reduction of these two tax codes would have a great impact on French car exports to Vietnam, namely according to SMART, the code 870331 would increase from USD 6 million to USD 22 million, and the code 870332, would increase from 90 million USD to 766 million USD. Although EU countries are expected to have different automobile export growth rates, Germany would still be the leading country in automobile export turnover to Vietnam, with a larger export volume. nearly 9 times more than the 2nd country with Sweden.
According to the results in Table 3, the Vietnam-EU Free Trade Agreement (EVFTA) has caused the phenomenon of diversion in trade.

<table>
<thead>
<tr>
<th>Nations</th>
<th>Exports before the agreement ('000 USD)</th>
<th>Exports after the agreement ('000 USD)</th>
<th>Growth (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thailand</td>
<td>1052644</td>
<td>1048468</td>
<td>-0.39668</td>
</tr>
<tr>
<td>Japan</td>
<td>289419.3</td>
<td>288049.4</td>
<td>-0.4733</td>
</tr>
<tr>
<td>Indonesia</td>
<td>279354.5</td>
<td>277870.6</td>
<td>-0.53118</td>
</tr>
<tr>
<td>US</td>
<td>48755.28</td>
<td>48304.78</td>
<td>-0.924</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>32466.79</td>
<td>32178.47</td>
<td>-0.88805</td>
</tr>
<tr>
<td>Russia</td>
<td>23876.93</td>
<td>23872.51</td>
<td>-0.01852</td>
</tr>
<tr>
<td>India</td>
<td>13713.18</td>
<td>13704.86</td>
<td>-0.06065</td>
</tr>
<tr>
<td>Turkey</td>
<td>886.658</td>
<td>886.096</td>
<td>-0.06338</td>
</tr>
<tr>
<td>Singapore</td>
<td>290.471</td>
<td>288.102</td>
<td>-0.81557</td>
</tr>
<tr>
<td>Malaysia</td>
<td>127.164</td>
<td>126.953</td>
<td>-0.16671</td>
</tr>
<tr>
<td>Israel</td>
<td>37</td>
<td>36.664</td>
<td>-0.90811</td>
</tr>
</tbody>
</table>

The results claimed that the nations not belonged to European Union would have the increase of exports of automobile into Vietnamese market after the agreement. The import turnovers of automobiles into Vietnam from these countries would decline, and a part of the turnover would change into EU’s nations, the phenomenon would be named as trade diversion.

However, the amount of turnover reduction of these countries is not too large, the average growth rate is 0.5%. Meanwhile, the Russian Federation, India and Turkey were hardly affected, as these countries experienced very small, insignificant growth rates from 0.01% to 0.06 % because these countries have a quite special automobile export structure. In addition to individual cars, transporting less than 10 people (HS 8703), these countries also export quite a large number of cars that are specifically designed to transport goods (HS 8704). At the same time, European Union countries did not export these car codes to Vietnam, so the impact of EVFTA on countries such as Russia, India and Turkey was negligible.

Although SMART is a effective tool to assess the impacts of changes of tariff policies on the trade lines as well as a tool of assumption based on the data, the tool cannot assess or forecast the connection of commerce between Vietnam and nations which do not have the export turnovers of automobiles to Vietnam. Besides, the import businesses of Vietnam pave the way for importing others modes of automobiles because of the effects of cutting tax rates. It is a weakness of tool and also a limitation of study and research direction in the future.
4.3. The effects of EVFTA on Vietnamese import turnovers under the categories
The effects of EVFTA on Vietnamese import turnovers under the categories can illustrate in table 4 as below.

<table>
<thead>
<tr>
<th>HS Code</th>
<th>Turnover before the agreement (‘000 USD)</th>
<th>Turnover after the agreement (‘000 USD)</th>
<th>Growth (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8702</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>870210</td>
<td>23065.437</td>
<td>24593.871</td>
<td>6.62</td>
</tr>
<tr>
<td>870290</td>
<td>131.977</td>
<td>131.977</td>
<td>0</td>
</tr>
<tr>
<td>8703</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>870310</td>
<td>1175.676</td>
<td>1175.676</td>
<td>0</td>
</tr>
<tr>
<td>870321</td>
<td>45821.889</td>
<td>45821.889</td>
<td>0</td>
</tr>
<tr>
<td>870322</td>
<td>101354.175</td>
<td>103415.703</td>
<td>2.03</td>
</tr>
<tr>
<td>870323</td>
<td>726343.691</td>
<td>756206.287</td>
<td>4.11</td>
</tr>
<tr>
<td>870324</td>
<td>65568.498</td>
<td>75426.712</td>
<td>15.03</td>
</tr>
<tr>
<td>870331</td>
<td>8.766</td>
<td>25.386</td>
<td>189.59</td>
</tr>
<tr>
<td>870332</td>
<td>224384.202</td>
<td>234353.142</td>
<td>4.4</td>
</tr>
<tr>
<td>870333</td>
<td>62462.913</td>
<td>62843.894</td>
<td>0.60</td>
</tr>
<tr>
<td>870390</td>
<td>2533.545</td>
<td>2533.545</td>
<td>0</td>
</tr>
<tr>
<td>8704</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>870410</td>
<td>19747.607</td>
<td>19747.607</td>
<td>0</td>
</tr>
<tr>
<td>870421</td>
<td>414394.601</td>
<td>414394.601</td>
<td>0</td>
</tr>
<tr>
<td>870422</td>
<td>123495.642</td>
<td>123502.199</td>
<td>0.005</td>
</tr>
<tr>
<td>870423</td>
<td>25908.983</td>
<td>25908.983</td>
<td>0</td>
</tr>
<tr>
<td>870431</td>
<td>19386.408</td>
<td>19386.408</td>
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<tr>
<td>870432</td>
<td>405</td>
<td>405</td>
<td>0</td>
</tr>
<tr>
<td>870490</td>
<td>8.416</td>
<td>10.305</td>
<td>22.44</td>
</tr>
</tbody>
</table>

Table 4 shows that imports of automobiles into Vietnam are mainly automobiles of item 8703, accounting for 66% of total imports of cars. The proportion of 8702 and 8704 codes accounted for only 34% of the total value of Vietnamese automobile sales. However, as a result of the SMART assumption, the product codes would have different growth rates after the Vietnam-EU Free Trade Agreement (EVFTA) was signed. 8 out of 16 (50%) of HS codes currently imported into Vietnam would have no change in import value, this is because these codes are not currently exported by EU member states to Vietnam, should not be affected by the removal of tariff barriers. However, among the codes that have a change in turnover, the growth rate in turnover also has a clear difference. Some models such as 870422 (vehicles carrying more than 5 tons but less than 20 tons) or 870333 (cars under 9 seats with cylinder capacity above 2500cc) have low growth rates, or trivial. This small growth can be explained in two ways. Firstly, Item 870422 is currently subject to a relatively small tax rate compared to other HS codes at 15%, so the effect of removing the tariff barrier would have a smaller effect on the 870422 code. Secondly, the export share of 870422 and 870333 codes from EU member states is currently very limited. Code 870333 is currently being imported from Europe with a turnover of USD 322 thousand, accounting for only 0.5% of the total export turnover of this HS code to Vietnam, so even when the EVFTA comes into effect, this HS code would also be subtle growth.
It suggests that SMART cannot forecast the impacts in accordance with establishing and developing the trade. Take as an example, the import companies from Vietnam make a decision on importing the new HS code that does not exist in the past in EU due to the impacts of removing tariffs. Thus, the author would assess some problems by using other tools.

Some solutions on promoting trade benefits under removing tariffs of automobile imports and developing automobile industry under EVFTA.

SMART illustrates the potential impacts of EVFTA for automobile imports of Vietnam when the import tax rates of automobiles decreases to 0%. It can promote the increase of automobile values from EU, especially automobiles lines with less than 9 seats. Import turnovers from Thailand and Indonesia may decrease, instead imports from Germany and Italy may increase. This agreement can benefit consumers due to reduced import costs. In addition, when the tax is reduced, the increase in imports would increase the competitive pressure on domestic automobile manufacturers and assemblers, which can be considered as an opportunity for domestic enterprises to improve their capacity. However, this could also be a challenge for businesses to compete with imported goods in the domestic market. Therefore, to enhance the commercial benefits from the EVFTA tax reduction as well as to be able to develop the automotive industry in the context of the implementation of EVFTA, Vietnam needs to take the following measures:

- Firstly, the State needs to create conditions for domestic manufacturing and assembling enterprises to develop competitive products through financial policies, especially tax policies, lending policies, etc.
- Secondly, the State needs to implement synchronous solutions to develop supporting industries to increase the localization rate of domestically manufactured and assembled automobile products, helping to lower production costs and improve the competitiveness of imported goods.
- Thirdly, the State needs to use technical measures to ensure compatibility and compliance with international regulations and commitments to restrict the import of poor quality cars, causing damage to the environment and health of the community.
- Fourthly, domestic manufacturing and assembling enterprises themselves need to be active and proactive in raising their competitiveness to products to be able to compete well with imported goods, especially when the import tax to 0%.
- Fifthly, build a consumer culture towards consumption of environmentally friendly products and give priority to high-quality Vietnamese goods.

5. Conclusions

In the study, The SMART model is used based on the theory of partial equilibrium (PE) model to assess potential changes in automobile imports due to the impact of tariff elimination under EU-Viet Nam free trade agreement. The authors hypothesize that in nine years' time, Vietnam would completely eliminate import duties on cars from the EU.

As a result of the article, under the influence of EVFTA, EU member countries would have positive growth in export turnover to Vietnam for all automobile HS codes studied. However, the growth distribution between countries is uneven, when the major automobile exporters such as Germany and France would have large growth rates, the export growth rates of countries like Switzerland would be higher as medium level. Meanwhile, non-EU countries would see negative growth in automobile exports, due to the effects of trade deviations, as Vietnamese importers turn to importing cars from Europe. The HS codes studied (8702, 8703, 8704) also have an increase in certain import turnover, but growth would be concentrated in the code 8703 are the medium-sized cars dedicated to carrying people from less than 9 seats.
However, the authors also found limitations in the study, especially the limitations in terms of research methods. Although the SMART assumption is a very useful tool in assessing the impact of FTAs on the turnover of product lines, SMART does not take into account the effectiveness, as well as research and issues. Concerning trade creation (expanding goods, expanding importers) when tariffs are abolished. Therefore, the authors hope that in the future, other quantitative tools would be used to provide a comprehensive view of the impact of EVFTA on Vietnam's imports.

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TOWARDS SUSTAINABILITY OF COMPANIES’ DEVELOPMENT VIA ATTRACTING MILLENNIAL JOB APPLICANTS: IMPACT OF CORPORATE SOCIAL RESPONSIBILITY AND INDIVIDUAL VALUES

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Abstract. Organizations can be sustainability development so it is becoming some needs to balancing between profitability and moral responsibility through Corporate Social Responsibility. This study objective is to explore external and internal CSR policy in attracting millennials employees regarding their values. Data collected with an online questionnaire and technique analyses using PLS. The result of this study states that all hypothesis is supported. External CSR is significantly influenced by P-O fit, Internal CSR is significantly influenced by P-O fit and P-O fit is significance influenced among Job Pursuit Intention. The implication of this study is organizations which have positive Internal CSR policies are more attractive to potential applicants because the organizations are seen to “care for” its employees and external CSR is viewed as a means of enhancing corporate image and organizational attraction for job seekers in competitive environments.

Keywords: internal CSR; external CSR; P-O fit; job pursuit intention


JEL Classifications: M14, Q56

1. Introduction

In an increasingly competitive global environment, corporations seek to attract the best job candidates [1]. Job applicants consider the reputation of organizations when applying for a job and/or accepting job offers. One factor that influences an organization' perceived reputation is its commitment to corporate social responsibility (CSR). CSR refers to an organization interest in social responsibility, as well as social policies that aid in improving its relationship with society. CSR is an integral aspect of the organizational image. CSR policies include those that show concern for the environment, promote community relations, improve employee relations and improve diversity and benefits (Backhaus et al., 2013). CSR is viewed as a means of enhancing corporate image and organizational attraction for job seekers in a competitive environment (Adetunji and Ogbonna, 2013). Organizations who have positive CSR policies are more attractive to potential applicants because the organization is seen to “care for” its employees (Highhouse et al., 2003).

CSR refers to organizational actions and policies to achieve financial, social environmental sustainable development. Sustainability in an organization can be achieved if the organization is not only focused on the macro level that organization profitability achievement, but also must have moral responsibility on government, society, and employees. Organizations can be sustainability development so it is becoming some needs to
balancing between profitability and moral responsibility through Corporate Social Responsibility. CSR researchers often make the distinction between internal and external CSR (Werther and Chandler, 2005). External CSR (focused on the macro level) refers to practices focused on stewardship the local community, the natural environment, or consumers (Akremi et al., 2018). Internal CSR (focused on the micro level) refers to practices focused on stewardship toward the internal workforce. This has included activities such as employee development, continuing education program, work-life balance and safe working condition (Turker, 2019).

Millennials were born in 1980 and 2000 (Kaifi et al., 2019). They are confident and optimistic (Guha, 2010; Kowske et al., 2010). Millennials are preferred on flexibility at works, fully optimistic and values on finishing their tasks (Long, 2017). Millennials are very rarely wished to spend their career until retirement times and believe that organizations will bring work safety (De Hauw and De Vos, 2010). Millennials prefer abos who cares more than any other quality (Andert et al., 2012). Ng, Schweitzer and Lyons (2012) concluded that the millennials have realistic expectations about career and pay advancement when it comes to the first job after graduation. They want into work with good people in a nurturing environment, which allows for balance between work and life. (Ng, Schweitzer and Lyons, 2012). CSR policies do not have an influence on all job seekers. Not all millennials job seekers may be attracted by an organization’s CSR policies. Millennials have some different characteristics, values, and demands with the previous generations.

The values of millennials differ from those of older workers. These differences in values may lead to millennials job applicants to a different view of CSR. Person-organization fit (P-O fit) demonstrates that employees are attracted and committed to organizations that better fit their values (Cable and Judge, 1996; Kristof-Brown, 2000). The attraction – selection – attrition (ASA) model supports the idea that job seekers will be more attracted to organizations whose values match their own (Schneider et al., 1995). The Perception of person-organization fit is one of the strongest predictors of applicant attraction to an organization (Uggerslev et al., 2012). Applicants appear to review the characteristic of an organization in light of their own needs and values to determine fit (Chapman et al., 2012). When an organization employs people similar to applicants in terms of values, the applicant may take the perceived similarity as a signal that the organization's value is also a similarity to their own. This study objective is to explore external and internal CSR policy in attracting millennials employees regarding their values.

2. Theory and Hypothesis Development

3.1. The Relationship of External CSR to Person-Organization Fit

External CSR (focused on the macro level) refers to practices focused on stewardship the local community, the natural environment, or consumers (Akremi et al., 2018). Organizations exhibiting social and environment (SER) can positively enhance the local community and shareholder perceptions (McWilliams et al., 2012). Greening and Turban (2016) demonstrated that corporate social performance dimensions significantly predicted company reputation and employer attractiveness perceptions among management students beyond assets and profitability. Research on person-organization fit (P-O fit) demonstrates that employees are attracted and committed to the organization that better fit their values Cable and Judge, 1996; Kristof-Brown, 2000). The attraction–selection–attrition (ASA) model supports the idea that job seekers will be more attracted to organizations whose values match their own (Schneider et al., 1995).
H1: External CSR is related to Person-Organization Fit

3.2. The Relationship of Internal CSR to Person-Organization Fit

Internal CSR refers to practices focused on stewardship toward the internal workforce. This has included activities such as employee development, continuing education program, work-life balance and safe working condition (Turker, 2019; Nasih, 2019; Utama and Mirhard, 2016). Millennials are very rarely wished to spend their career until retirement times and believe that organizations will bring work safety (De Hauw and De Vos, 2010). Millennials are a very easy deciding to out from organizations because their commitment is more based on respect among organizations, not on the length work. Millennials are unique, they have a high expectation of career development, and they have higher self-esteem and assertiveness than the previous generation (Deal et al., 2010). Millennials are more preferable to choose the job which is more meaning and challenging for them (De Hauw and De Vos, 2010). They expect to be in a workplace that is nurturing with regard to their well-being and fitness, and they seek to achieve a balance between work and other life events. Millennials rank social awareness high on organizational responsibility and prefer work that is socially responsible (De Hauw and De Vos, 2010). CSR Internal will attract millennials if there is some congruence between values which is owned by organizations and millennials values. The organization which has respect to the employee make millennials have an interest in applying job to the organization. Slaughter and Greguras (2009) state idea that the values of job applicants influence their initial attraction to an organization.

H2: Internal CSR is related to Person-Organization Fit

3.3. The Relationship of Person-Organization Fit (P-O Fit) to Job Pursuit Intention

Slaughter and Greguras (2009) state idea that values of job applicant influence their initial attraction to an organization. Cable and Judge (1996) argue that job seekers pursue fit between their work orientation and their future work environment. Research on person-organization fit (P-O fit) demonstrates that employees are attracted and committed to organizations that better fit their values. The Attraction – Selection – Attrition (ASA) model supports the idea that job seekers will be more attracted to organizations whose values match their own (Schneider et al., 1995).

H3: Person-Organization Fit is related to Job Pursuit Intention

3. Research Methodology
3.1. Sample

This study respondent is an undergraduate student at state university in Surabaya, Indonesia who will have graduation in September 2018 by using purposive sampling. The criteria which is used, is the undergraduate student has been internship on the multinational company. Their age separated between 21-23 years old and they are job-seeker. They are asked to value 3 multinational company which has developed good CSR. The questionnaire has been done by an online survey about 250 questionnaire sent and the answered questionnaire is 213 students. This study uses Partial Least Square (PLS) analyze with SmartPLS 2.0 program to examine hypothesis.
3.2. Measurement

*External CSR* is a firm moral responsibility to the society. Measurement 6 indicators which is developed by [26], Indicator is company implements special programs to minimize its negative impact on the natural environment, supports the non-governmental organizations working in the problematic areas, contributes to the campaigns that promote the well-being of the society, company targets a sustainable growth which considers to the future generation, the company implements special programs to minimize its negative impact on the natural environment.

*Internal CSR* is a firm moral responsibility to the employees. Measurement 6 indicators which are developed by [26], Indicators are company policies encourage the employees to develop their skills and career, supports employees who want to acquire additional education, company implements flexible policies to provide a good work and life balance for its employees, Company encourages its employees to participate in the voluntary activities, the management of the company primarily concerns with employees needs and wants, the management decisions related to the employee are usually fair.

*Person-Organization Fit (P-O fit)* is a congruence value, objective, and characteristic with jobs and congruence to employee’s needs with organization systems. Measurement has 4 indicators which are developed by Kristof-Brown (2000) such as congruence between individual value and organizational value, congruence objectives between individual and coworkers, congruence preference or individual needs with structure and organization systems, congruence between individual self-characteristic and organizations.

*Intention to Apply* is a job applicants motives to apply their jobs to the organization and actively involved in the recruitment process on the organization which has positive values to them. Measurement has 5 indicators which is developed by Highhouse et al., (2003) such as will receive jobs offering by organizations, will make the organizations becoming their first choices, will come when they get interview invitation from the organization, will have much effort to get the jobs in the organization, and they will recommend the organizations to others.

4. Results

The first sections are Outer Model test to test validity and reliability construct of this study. indicators will be valid if it has loading factor values > 0.5. Variable will be reliability if it has Composite reliability> 0.7. The validity test result (see, Table 1), that all indicators has outer loading value > 0.05. The reliability test result (see, Table 2), that all variables has reliability value > 0.7. Table 3 explains hypothesis test.
Table 1. Outer Loading Values

<table>
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<tr>
<th>Variable</th>
<th>Outer Loading Value</th>
<th>Result</th>
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<td>X1.2</td>
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<tr>
<td>X1.3</td>
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<td>X1.4</td>
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<td>X1.5</td>
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<tr>
<td>X1.6</td>
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<td><strong>Internal CSR</strong></td>
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<td>Z4</td>
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Table 2. Composite Reliability

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</table>

Table 3. Hypothesis Test

<table>
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<th>t-statistic</th>
<th>Result</th>
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</thead>
<tbody>
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</tr>
<tr>
<td>Internal CSR → P-O fit</td>
<td>0.399</td>
<td>0.075</td>
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<tr>
<td>P-O fit → Job Pursuit Intention</td>
<td>0.422</td>
<td>0.082</td>
<td>5.176</td>
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</tbody>
</table>
5. Conclusions

The result of this study states that all hypothesis is supported. External CSR is significantly influenced by P-O fit, Internal CSR is significantly influenced by P-O fit and P-O fit is significance influenced among Job Pursuit Intention. This is indicated with T Value > 1, 96. Even External CSR or Internal CSR is significantly influenced by P-O fit but also Internal CSR will have more contribute than External CSR. Organizational policy on the opportunity employee development, opportunity to have continuous study, flexible work practices, family support work practices, and work-life balance makes attracting millennials to apply for a job on those organizations. The organizational policy for human resources appears to be of significant value to Millennials and may attract Millennial applicants to an organization that advertises such policies. Ng, Schweitzer and Lyons (2012) concluded that the Millennials have realistic expectations about career and pay advancement when it comes to the first job after graduation. Organizations who have positive Internal CSR policies are more attractive to potential applicants because the organizations are seen to "care for" its employee (Highhouse et al., 2003). External CSR refers to an organization's interest in social responsibility, as well as social policies that aid in improving its relationship with society. External CSR is an integral aspect of an organizational image. External CSR is viewed as a means of enhancing corporate image and organizational attraction for job seekers in competitive environments (Adetunji and Ogbonna, 2013). This study proves to attracting millennials job-seekers so the organizations expected to understand their values such as career development, challenges, meaning of work, and work life balance. Our study did have some limitations. First, all data were cross-sectional or one – shoot data collection, for the next study, could be performed using different timescales to investigate the causal relationship between variables in order to obtain better results when testing the causal relationship between the variables. Second, this study focuses on millennials employee, However, our results need to be reproduced in other generation for validation.

References


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BUILDING AN ECONOMETRIC MODEL OF SELECTED FACTORS’ IMPACT ON STOCK PRICE: A CASE STUDY

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Abstract. Fluctuation of stock price in commercial banks in developing countries such as Vietnam will reflect the business health of bank system and the whole economy. Good business management requires us to consider the impacts of multi macro factors on stock price, and it contributes to promoting business plan and economic policies for economic growth and stabilizing macroeconomic factors. By data collection method through statistics, analysis, synthesis, comparison, quantitative analysis to generate qualitative comments and discussion; using econometric method to perform regression equation and evaluate quantitative results, the article analyzed and evaluated the impacts of seven (7) macroeconomic factors on stock price of a joint stock commercial bank, Sacombank (STB) in Vietnam in the period of 2014-2019, both positive and negative sides. The results of quantitative research, in a seven factor model, show that the increase in GDP growth, reduction in CPI and lending rate has a significant effect on increasing STB stock price with the highest impact coefficient, the second is decreasing the risk free rate. This research finding and recommended policy also can be used as reference in policy for commercial bank system in many developing countries.

Keywords: bank stock price; GDP growth; inflation; risk free rate; market interest rate


JEL Classifications: M21, N1

1. Introduction

Commercial bank system in Vietnam in recent years plays a key role in helping the whole economy. In the context that GDP growth in Vietnam has been increasing during 2014-2019 and inflation goes down and up and Vietnam stock market has been growing much, it is necessary to evaluate impacts of internal and external macro economic factors on bank performance, esp. bank stock price. From these analytical results, we could suggest bank and government policies to encourage and stabilize the growth of bank system and stock market in developing countries such as Vietnam.

Looking at the below chart, we find out that Sacombank (STB) stock price moves in the same trend with VN Index and GDP growth, although it fluctuates in a smaller range.

Why we choose Sacombank (STB)? STB is one of strong commercial banks in Vietnam, though it has some scandals but it still has strong historical business operating and respond well to economic growth and crisis. In Vietnam, Sacombank, ACB, MB, Eximbank are among good brands in banking industry, under the form of joint-stock commercial bank with strong support from private sector as well as foreign funds.
This study will calculate and figure out the impacts of the following selected seven macroeconomic factors, such as: inflation, GDP growth, market interest rate, risk free rate, VNIndex, S&P500 and exchange rate on Vietcombank stock price (VCB).

This selection has to be theoretically modeled in the figure 2 presented below.

Figure 1. Movement of STB stock price, VNIndex, SP500 and GDP growth

Figure 2. Model of macrofactors’ impact on bank (STB) stock price
The paper is organized as follows: after the introduction it is the research issues, literature review and methodology. Next, section 3 will cover methodology and data and section 4 presents main research findings/results. Section 5 gives us some discussion and conclusion and policy suggestion.

2. Research literature review

2.1 Research issues

The scope of this study will cover:

Issue 1: What are the correlation and relationship among many economic factors: STB stock price, interest rate, exchange rate, inflation, VNIndex, S&P 500 and GDP growth?

Issue 2: What are the impacts of above 7 macro economic factors on Sacombank stock price?

Issue 3: Based on above discussion, we recommend some solutions regarding to commercial bank management in incoming period.

This paper also tests two (2) below hypotheses:

Hypothesis 1: An increase in lending rate will make STB stock price declines.

Hypothesis 2: An increase in inflation can increase pressure in STB stock price.

2.2 Literature review

There is a lot of literature devoted to factors impacting stock prices. Some authors put emphasis on major macroeconomic indicators (e.g. Kaluge, 2019; Vigliarolo, 2020). Other authors point to external shocks, such as terrorism activities (Masood et al., 2020), change of oil prices (Masood et al., 2019). Some authors point to impact of performance of industries and companies (Ahmed et al., 2018; Hilkevics, 2017; Hilkevics, Semakina; 2019), other stress dividend policy (Kumaraswamy et al., 2019).

Then, Sadia and Noreen (2012) found out exchange rate, and Short term Interest Rate have significant impact on Banking index. Macroeconomic variables like Money Supply, Exchange Rate, Industrial Production, and Short Term Interest Rate affects the banking index negatively where as Oil prices has a positive impact on Banking index.

Ozlen and Ergun (2012) indicated that exchange rate and interest rate are the most significant factors in the stock price fluctuations of the companies. Stock returns of the companies in any industry are very sensitive to the changes in exchange rate and interest rate. Krishna (2015) investigated the nature of the causal relationships between stock prices and the key macro economic variables in BRIC countries. The empirical evidence shows that long-run and short-run relationship exists between macro economic variables and stock prices, but this relationship was not consistent for all of the BRIC countries. Kulathunga (2015) suggested that all macroeconomic factors influence the stock market development. More precisely, volatile inflation rate and exchange rate together with higher deposit rate have curtailed the stock market development in Sri Lanka. Moreover, positive optimism created by the economic growth and the stock market performance during the previous periods tend to enhance stock market performance. Moreover, Duy (2016) mentioned through the evolution of interest rates and the VNI could see that the relationship between these two variables in the period 2005-2014 is the opposite. This relationship is shown in specific periods of the year the stock market proved quite sensitive to interest rates. When interest rates are low or high but the bearish stock market rally, and vice versa when the high interest rates the stock market decline.
Last but not least, Quy and Loi (2016) found that 3 economic factors (inflation rate, GDP growth rate, and exchange rate) impact significantly on real estate stock prices; but the relationship between 10-year Government bond yield and trading volume, and real estate stock prices was not found. Ahmad and Ramzan (2016) stated the macroecononic factors have important concerns with stocks traded in the stock market and these factors make investors to choose the stock because investors are interested to know about the factors affecting the working of stock to manage their portfolios. Abrupt variations and unusual movements of macroeconomic variables cause the stock returns to fluctuate due to uncertainty of future gains. Simbolon and Purwanto (2018) finds that interest rate, inflation rate, exchange rate, and GDP growth rate, as composite variables, have a significant influence on stock price. A partial test revealed that interest rate, inflation rate, and exchange rate have significance on stock price, while GDP growth rate is found to be nonsignificant.

Within the scope of this paper, we measure impacts of both internal and external macro factors on Sacombank stock price and suggest policies for bank system, Vietnam government, Ministry of Finance, State Bank and relevant government bodies. We also analyze data through out time series from 2014-2019.

3. Research methodology

This research paper establishes correlation among macro economic factors by using an econometric model to analyze impacts of seven (7) macro economic factors in Vietnam such as: GDP growth, inflation, interest rate, exchange rate, VNIndex, risk free rate, SP500 on Sacombank (STB) stock price.

In this research, analytical method is used with data from the economy such as inflation in Vietnam and market interest rate, GDP growth rate, exchange rate (USD/VND). Data are included from 2014-2019 with semi-annual data (10 observations in total). Data is estimated based on exchange rate and lending interest rates of commercial banks such as: Vietcombank, BIDV, Agribank, Vietinbank… (average calculation). S&P 500 index data is from USA Stock exchange, data source (inflation, GDP) is from Bureau of Statistics. Beside, econometric method is used with the software Eview. It will give us results to suggest policies for businesses and authorities.

We build a regression model with Eview software to measure impacts of factors. Sacombank stock price is a function with 5 variables as follows:

\[ Y (STB\ stock\ price) = f (x1, x2, x3, x4, x5, x6, x7) = ax1 + bx2 + cx3 + dx4 + ex5 + fx6 + gx7 + k \]

With: \( x1 \): GDP growth rate (g), \( x2 \): inflation, \( x3 \): VNIndex, \( x4 \): lending rate, \( x5 \): risk free rate (Rf), \( x6 \): USD/VND rate; \( x7 \): SP500

Besides, this paper also uses analytical and general data analysis method to measure and generate comments on the results, then suggest policies based on these analyses.
4. Main Findings

4.1. General data analysis
First of all, The chart 1 below shows us that Y has a negative correlation with GDP growth:

![Chart 1. Sacombank stock price (Y) vs. GDP growth in Vietnam (G)](chart1)

Next we found out that, based on the below scatter chart, Y (STB stock price) has slightly negative correlation with inflation (CPI).

![Chart 2. Sacombank stock price (Y) vs. Inflation (CPI)](chart2)
Looking at the chart 3 below, we also recognize that STB stock price (Y) and VNIndex have negative correlation.

We see that, STB stock price (Y) and lending rate have negative correlation (see Chart below):

In addition to, the below scatter graph shows us that BIDV stock price (Y) and risk free rate (Rf) also have positive correlation (see Chart).
The Chart 6 below shows us that Y and USD/VND rate have a negative correlation.

On the other hand, we could see statistical results with Eview in the Table 1 below with 6 variables:
Table 1. Statistics for macro economic factors

<table>
<thead>
<tr>
<th></th>
<th>Sacombank stock price</th>
<th>GDP growth</th>
<th>Inflation (CPI)</th>
<th>VN Index</th>
<th>Lending rate</th>
<th>Risk free rate</th>
<th>USD/VND rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>12.55</td>
<td>0.06416</td>
<td>0.02588</td>
<td>758.875</td>
<td>0.09856</td>
<td>0.050485</td>
<td>22611.7</td>
</tr>
<tr>
<td>Median</td>
<td>12.4</td>
<td>0.0648</td>
<td>0.0264</td>
<td>720.67</td>
<td>0.1</td>
<td>0.05435</td>
<td>22757.5</td>
</tr>
<tr>
<td>Maximum</td>
<td>15.34</td>
<td>0.0708</td>
<td>0.0474</td>
<td>984.24</td>
<td>0.1115</td>
<td>0.06535</td>
<td>23350</td>
</tr>
<tr>
<td>Minimum</td>
<td>9.45</td>
<td>0.0552</td>
<td>0.0063</td>
<td>545.63</td>
<td>0.0886</td>
<td>0.0297</td>
<td>21405</td>
</tr>
<tr>
<td>Standard dev.</td>
<td>1.795</td>
<td>0.005549</td>
<td>0.013884</td>
<td>176.4835</td>
<td>0.007636</td>
<td>0.014066</td>
<td>610.2313</td>
</tr>
</tbody>
</table>

Looking at the above table, we recognize that standard deviation of exchange rate and VNIndex are the highest values. Whereas standard deviation of GDP growth and lending rate are the lowest values.

If we want to see correlation matrix of these 8 macro variables, Eview generate the below result in Table 2.

Table 2. Correlation matrix for seven (7) macro-economic variables (GDP growth, inflation in VN, market interest rate, Risk free rate, exchange rate and STB stock price)

<table>
<thead>
<tr>
<th></th>
<th>Y</th>
<th>G</th>
<th>CPI</th>
<th>VNINDEX</th>
<th>R</th>
<th>RF</th>
<th>EX RATE</th>
<th>SP500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>1.000000</td>
<td>-0.192663</td>
<td>-0.309560</td>
<td>-0.363638</td>
<td>-0.06396</td>
<td>0.195982</td>
<td>-0.666303</td>
<td>-0.365972</td>
</tr>
<tr>
<td>G</td>
<td>-0.192663</td>
<td>1.000000</td>
<td>-0.056354</td>
<td>0.653067</td>
<td>-0.39083</td>
<td>-0.47407</td>
<td>0.654582</td>
<td>0.534488</td>
</tr>
<tr>
<td>CPI</td>
<td>-0.309560</td>
<td>-0.056354</td>
<td>1.000000</td>
<td>0.146060</td>
<td>-0.220567</td>
<td>-0.158705</td>
<td>0.082310</td>
<td>0.183659</td>
</tr>
<tr>
<td>VNINDEX</td>
<td>-0.363638</td>
<td>0.653067</td>
<td>0.146060</td>
<td>1.000000</td>
<td>-0.440372</td>
<td>-0.634969</td>
<td>0.777514</td>
<td>0.983824</td>
</tr>
<tr>
<td>R</td>
<td>-0.06396</td>
<td>0.39083</td>
<td>-0.220567</td>
<td>-0.440372</td>
<td>1.000000</td>
<td>0.302601</td>
<td>-0.154750</td>
<td>-0.374293</td>
</tr>
<tr>
<td>RF</td>
<td>0.195982</td>
<td>-0.47407</td>
<td>-0.158705</td>
<td>-0.634969</td>
<td>0.302601</td>
<td>1.000000</td>
<td>-0.521420</td>
<td>-0.677534</td>
</tr>
<tr>
<td>EX RATE</td>
<td>-0.666303</td>
<td>0.654582</td>
<td>0.082310</td>
<td>0.777514</td>
<td>-0.154750</td>
<td>-0.521420</td>
<td>1.000000</td>
<td>0.755250</td>
</tr>
<tr>
<td>SP500</td>
<td>-0.365972</td>
<td>0.634460</td>
<td>0.105569</td>
<td>0.983244</td>
<td>-0.374293</td>
<td>-0.677534</td>
<td>0.755250</td>
<td>1.000000</td>
</tr>
</tbody>
</table>

The above Table 2 shows us that correlation among 8 macro variables. An increase in exchange rate and increase in lending rate might lead to a decrease in STB stock price. It also indicates that correlation between STB stock price (Y) in Viet Nam and VNIndex in Viet Nam and S&P 500 in the US (-0.36 and -0.35) is higher than that between Y and lending rate (-0.06) or between Y and CPI (-0.3).

The below Table 3 shows us that covariance matrix among eight (8) macro economic variables. STB stock price (Y) has a negative correlation with exchange rate and lending rate but has a positive correlation with risk free rate (RF).

Hence, an increase in RF may lead to an increase in STB stock price.

Table 3. Covariance matrix for 7 macro economic variables

<table>
<thead>
<tr>
<th></th>
<th>Y</th>
<th>G</th>
<th>CPI</th>
<th>VNINDEX</th>
<th>R</th>
<th>RF</th>
<th>EX RATE</th>
<th>SP500</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>2.900144</td>
<td>-0.001729</td>
<td>-0.005932</td>
<td>-103.6093</td>
<td>-0.000844</td>
<td>0.004454</td>
<td>-656.8568</td>
<td>-170.0927</td>
</tr>
<tr>
<td>G</td>
<td>-0.001729</td>
<td>2.77E-05</td>
<td>-3.50E-06</td>
<td>0.575578</td>
<td>-1.49E-05</td>
<td>-3.33E-05</td>
<td>1.720538</td>
<td>0.934488</td>
</tr>
<tr>
<td>CPI</td>
<td>-0.005932</td>
<td>-3.50E-06</td>
<td>0.000173</td>
<td>0.329068</td>
<td>-2.10E-05</td>
<td>-2.79E-05</td>
<td>0.627814</td>
<td>0.676548</td>
</tr>
<tr>
<td>VNINDEX</td>
<td>-103.6093</td>
<td>0.575578</td>
<td>0.322068</td>
<td>28031.78</td>
<td>-0.534085</td>
<td>-1.418033</td>
<td>75361.46</td>
<td>46087.69</td>
</tr>
<tr>
<td>R</td>
<td>-0.000844</td>
<td>-1.49E-05</td>
<td>-2.10E-05</td>
<td>0.534085</td>
<td>5.25E-05</td>
<td>2.35E-05</td>
<td>0.648952</td>
<td>-0.756912</td>
</tr>
<tr>
<td>RF</td>
<td>0.004454</td>
<td>-3.33E-05</td>
<td>-2.79E-05</td>
<td>1.418033</td>
<td>2.93E-05</td>
<td>0.00179</td>
<td>-4.028086</td>
<td>-2.596999</td>
</tr>
<tr>
<td>EX RATE</td>
<td>-656.8568</td>
<td>1.720538</td>
<td>0.627814</td>
<td>75361.46</td>
<td>-0.534085</td>
<td>-4.028086</td>
<td>33514.00</td>
<td>122334.5</td>
</tr>
<tr>
<td>SP500</td>
<td>-170.0927</td>
<td>0.934488</td>
<td>0.676548</td>
<td>46087.69</td>
<td>-0.575612</td>
<td>-2.596999</td>
<td>122334.5</td>
<td>78285.05</td>
</tr>
</tbody>
</table>
4.2. Regression model and main findings

In this section, we will find out the relationship between eight macro economic factors and STB stock price.

4.2.1 Scenario 1: Regression model with single variable: analyzing impact of GDP growth (G) on STB stock price (Y)

Note: C: constant

Using Eview gives us the below results:

Dependent Variable: Y
Method: Least Squares
Date: 01/31/20  Time: 13:31
Sample: 1 10
Included observations: 10

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td>-62.35318</td>
<td>112.2309</td>
<td>-0.555936</td>
<td>0.5935</td>
</tr>
<tr>
<td>C</td>
<td>16.55715</td>
<td>7.224928</td>
<td>2.291670</td>
<td>0.0511</td>
</tr>
</tbody>
</table>

Hence, \( Y = -62.3 \times g + 16.5 \), \( R^2 = 0.04 \), \( SER = 1.86 \)

Within the range of 10 observations (2014-2018) as described in the above scatter chart 1, coefficient -62.3, when GDP growth increases, STB stock price will decrease.

4.2.2 Scenario 2 - Regression model with 2 variables: analyzing impact of GDP growth (G) and Inflation (CPI) on STB stock price (Y)

Running Eview gives us below results:
Therefore, \( Y = -67.6 \times g - 41.3 \times CPI + 17.9 \), \( R^2 = 0.14 \), SER = 1.88

Hence, this equation shows us STB stock price has a negative correlation with GDP growth and inflation in Vietnam. Esp., it is highly negatively affected by GDP growth rate.

4.2.3. Scenario 3 - Regression model with 3 variables: adding lending rate (r) into the above model

Eviews generates below statistical results:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td>-104.0123</td>
<td>129.7759</td>
<td>-0.801451</td>
<td>0.4534</td>
</tr>
<tr>
<td>CPI</td>
<td>-50.02595</td>
<td>48.95460</td>
<td>-1.021886</td>
<td>0.3463</td>
</tr>
<tr>
<td>R</td>
<td>-65.86682</td>
<td>96.66921</td>
<td>-0.679987</td>
<td>0.5219</td>
</tr>
<tr>
<td>C</td>
<td>26.99412</td>
<td>15.38824</td>
<td>1.754205</td>
<td>0.1295</td>
</tr>
</tbody>
</table>

Hence, \( Y = -104 \times G - 50 \times CPI - 65.6 \times R + 26.9 \), \( R^2 = 0.2 \), SER = 1.96
The above regression equation shows us that STB stock price (Y) has a negative correlation with GDP growth (G) and inflation (I) and lending rate (R). And the coefficient (with GDP) is the highest, the 2nd highest is with lending rate. Lending interest rate increases will reduce investments and lead to a decrease in STB stock price.

4.2.4. Scenario 4 - regression model with 4 macro variables

Eviews presents the below results:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td>-22.68739</td>
<td>166.7204</td>
<td>-0.136080</td>
<td>0.8971</td>
</tr>
<tr>
<td>CPI</td>
<td>-42.52165</td>
<td>51.21836</td>
<td>-0.830203</td>
<td>0.4442</td>
</tr>
<tr>
<td>R</td>
<td>-83.71237</td>
<td>101.8253</td>
<td>-0.822118</td>
<td>0.4434</td>
</tr>
<tr>
<td>VNIINDEX</td>
<td>-0.004337</td>
<td>0.005320</td>
<td>-0.815089</td>
<td>0.4521</td>
</tr>
<tr>
<td>C</td>
<td>26.65168</td>
<td>15.84315</td>
<td>1.682222</td>
<td>0.1534</td>
</tr>
</tbody>
</table>

R-squared 0.294436, Mean dependent var 12.65400, Adjusted R-squared -0.27001, S.D. dependent var 1.795100, S.E. of regression 2.022905, Akaike info criterion 4.553079, Sum squared resid 20.46236, Schwarz criterion 4.705172, Log likelihood -17.76540, F-statistic 0.521633, Durbin-Watson stat 1.249643, Prob(F-statistic) 0.725696.

Therefore, \( Y = -22.7G - 42.5CPI - 83.7R - 0.004*VNIINDEX + 26.6 \), \( R^2 = 0.29 \), SER = 2.02

We find out impacts of 4 macro variables, with the new factor: VNIINDEX, shown in the above equation, STB stock price (Y) has negative correlation with GDP growth, inflation, lending rate and VNIIndex. When inflation goes down, VNIINDEX and interest rate decline, this will increase public savings and investment in stock market, as a result, STB stock price will increase.

4.2.5. Scenario 5 - regression model with 5 macro variables

Running Eviews gives us results:
Y = -26.3*G – 43.5*CPI - 83.8*R - 0.004* VNINDEX – 11.4* Rf + 27.8, R² = 0.29, SER = 2.25

Here we see impacts of 5 macro factors, with the new variable: risk free rate (Rf), the above equation shows that STB stock price (Y) has negative correlation with GDP growth, inflation, lending rate, VNIndex and risk free rate. We also recognize that GDP growth, CPI and lending rate have the highest impact on STB stock price. When risk free rate declines, it will increase investment in stock market, then it will lead to an increase in STB stock price.

4.2.6. Scenario 6 - regression model with 6 macro variables:

Running Eviews gives us results:
Y = 19.9*G – 39.9*CPI – 25.3*R + 0.002* VNINDEX – 16.2* Rf - 0.003*EX_RATE +77.5, 
R² = 0.61, SER = 1.93

Therefore, we see impacts of 6 macro factors, with the new variable: exchange rate USD/VND (EX_RATE), the above equation shows that STB stock price (Y) has negative correlation with and VNINDEX. We also recognize that GDP growth, CPI and lending rate, then risk free rate have the highest impact on STB stock price, while exchange rate just has a slightly impact on stock price.

4.2.7. Scenario 7 - regression model with 7 macro variables

Running Eviews gives us results:
Y = 18.8*G – 41.2*CPI - 30.3*R + 0.0006* VNINDEX – 13.9* Rf - 0.003*EX_RATE + 0.001*SP500 + 75.7,

\[R^2 = 0.61, \text{SER} = 2.37\]

Therefore, we see impacts of 7 macro factors, with the new variable: SP500, the above equation shows that STB stock price (Y) has negative correlation with inflation, lending rate and risk free rate and exchange rate, whereas it has positive correlation with GDP growth, SP500, VNINDEX. We also recognize that GDP growth and inflation, then lending rate have the highest impact on STB stock price, while exchange rate just has a slightly impact on stock price.

5. Discussion and further researches

Through the regression equation with above 7 macroeconomic variables, this research paper used updated data from 2014-2019 to analyze the regression equation via Eview in order to show that an increase in GDP growth and decrease in CPI have a significant impact on increasing STB stock price (Y) with the highest coefficient of impact, followed by a decrease in lending rate and decrease in risk free rate, then an increase in VNINDEX, as well as a little reduction in exchange rate.

Data are from observations in the past 10 years, it is partly based on the market economic rules, and the research results are also affected by socio-economic characteristics in Vietnam such as: efficiency of public investment, waste of public investment, enterprise bankruptcy, and investment in areas that increase GDP such as production, electricity, etc. or investing in healthcare, environment and education sectors. We have not yet considered the impact of these factors.

Besides, we can analyze impact of another macro factor, for example, deposit rate when we add this variable into our regression model of public debt. Furthermore, we can add unemployment rate or public debt increase into our econometric model to measure the impact of these extra factors on STB stock price.
5. Conclusions

Based on the above data analysis from our regression model, although low inflation during 2015-2016 is a good signal for STB stock price, we would suggest the government, Ministry of Finance and State Bank of Vietnam consider to control inflation more rationally, i.e. not increasing much and suitable with each economic development stage. Governmental bodies and bank system also need to apply macro policies to stimulate economic growth, however not increasing lending rate too much, together with credit, operational and market risk management, corporate governance and controlling bad debt.

Next, it is necessary to coordinate synchronously between the management and administration of commercial bank policies with fiscal policies, monetary policies (used as effective tools to stimulate bank stock price) and other economic development policies to limit the negative effects of lending rate, risk free rate and CPI, i.e. not increasing much. Lending policy of bank system need to be selective and increase interest rates for acceptable high risk high return projects.

Generally speaking, managing STB stock price depends on many factors, so the government need to use fiscal policy combined with monetary policies and socio-economic policies to reduce unemployment and stimulate economic growth, toward a good stock price management.

Finally, this research paper also helps to direct further future researches, for instance, we could add deposit rate and unemployment rate into our above econometric model to measure impacts of them on commercial bank stock price.

References


FACTORS AFFECTING THE APPLICATION OF CONSERVATISM PRINCIPLE IN ACCOUNTING OF LISTED COMPANIES ON THE STOCK MARKET: AN EMPIRICAL INVESTIGATION IN VIETNAM

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Abstract. In this study, we test the effect of financial leverage, remuneration management, operating company, risk of litigation on the application of conservatism principle in accounting of listed companies on the stock market. Using a sample of 699 firm-year in 3 years 2014-2016, our results indicate that three in four factors in the model are significantly related to the application of conservatism principle; they are Remuneration management, Operating company, Risk of litigation. In detail, Remuneration management is negatively related to the application of conservatism principle, Operating company, Risk of litigation are positively related to the application of conservatism principle. Based on the research results, we also propose some quite useful recommendations relating to the application of conservatism principle for state institutions, business owners, users of the information on the financial statements, financial analysts and researchers.

Keywords: conservatism; financial leverage; remuneration management; financial statement


JEL Classifications: G00, G390

1. Introduction

Conservatism is one of the basic principles of accounting, affecting the recognition, valuation, and presentation of elements in the financial statements. According to the definition in Vietnamese accounting standard No. 1 - General standards, conservatism principles in Vietnamese accounting standard require: (1) Provision must be made but not too large; (2) Not rated higher than the value of assets and income; (3) Not rated lower than values of liabilities and costs; (4) Revenue and income are recognized only when there is strong evidence of potential economic benefits but costs must be recognized when there is evidence of potential costs. The conservatism principle is a topic that has caused quite a lot of debate in accounting field in the early XX century. Until now, the debate about the application of this principle still exists. The recognition of accounting objects through conservatism principle will generally result in the book value of the company being assessed lower than their market value (Feltham and Ohlson, 1995; Zhang, 2000; Beaver and Ryan, 2000; Penman and Zhang, 2002). Therefore, this principle was criticized by some studies and these studies suggest that it conflicts with the requirement of accounting information neutrality. Meanwhile, studies of Ahmed et al. (2002), Watts (2003a), Francis et al. (2004), Nikolave (2006), Ahmed and Duellman (2007) point out that conservatism principle is still very useful, it contributes to protecting the interests of creditors and shareholders. Basu (1997) asserted that the conservatism principle has affected accounting practice for at least five hundred years, and Sterling (1970) emphasizes the important effect of conservatism principle on the valuation principle in accounting. Its long-
standing existence demonstrates that, despite arguments against it, the conservatism principle plays an important role in accounting practice.

Facing the trend of more and more studies supporting the application of fair value accounting in accounting practice and criticizing conservatism principle, the analysis, evaluation as well as understanding the factors affecting the application of conservatism principle in the current economic context of Vietnam is really necessary and important. However, in Vietnam, conservatism in accounting is largely limited to explaining the concept, in-depth studies as well as scientific discussions on the principle of conservatism are still quite few. Moreover, these studies are primarily qualitative. Therefore, the authors conduct research to provide a more complete and comprehensive view of the conservatism principle.

In addition, based on the research results, we also propose some quite useful recommendations relating to the application of conservatism principle for state institutions, business owners, users of the information on the financial statements, financial analysts and researchers.

2. Research literature review

2.1 Theoretical framework

2.1.1 Contracting theory

The contracting theory was proposed first by Jensen and Meckling in 1976. This theory emphasizes that accounting targets are an integral part of the agreement between the parties in the relationship with the company. Accounting criteria are frequently used in contracts, so these indicators tend to be "adjusted" to meet the conditions required in the contract. In studies of accounting theory, two types of contracts are concerned and researched especially: contracts between shareholders - managers and contracts between companies - creditors.

2.1.2 Agency Theory

The agency theory was proposed first by Ross (1973). Subsequently, Jensen & Meckling (1976) further developed. The content of this theory refers to the relationship between the principal and the agent through contracts. The agent will perform some work to represent the principal and they are expected to act in the direction creating the greatest benefit to the principal. However the representatives themselves also pursue their own interests, which is the motivation for managers to commit acts of adjusted profits of the business. The agency relationship appears clearly in two important cases: first, between shareholders and corporate managers who operate directly the activities of the company and second, between creditors and shareholders.

2.1.3 Use contracting theor and agency theory to explain the application of conservatism principle

The agency theory and contracting theory form the basis for information asymmetry between the parties, which is also the main basis for the existence of conservatism principles. Based on these theories, the application of the conservatism principle is further explained by Watts (2003a, 2003b) through three theories: The contracting debt theory, The contracting compensation theory and The contracting governance theory.

2.2 Literature review about Conservatism principle

According to the definition in Vietnamese accounting standard No. 1 - General standards, conservatism principles in Vietnamese accounting standard require: (1) Provision must be made but not too large; (2) Not rated higher than the value of assets and income; (3) Not rated lower than values of liabilities and costs; (4) Revenue and income are recognized only when there is strong evidence of potential economic benefits but costs must be recognized when there is evidence of potential costs. Thus, this principle requires that accountants always stand on a conservatism point of view. Accordingly, accountants will record a "loss" or reduce the capital as soon as it is thought to be possible but only recognize a "profit" or capital increase when it becomes certain. The recognition
of accounting through conservatism principle will generally result in the book value of the company being assessed lower than their market value, because this principle records bad news more timely than good news, leading to disproportionate recognition of income (Basu, 1997; Ball et al., 2000; Givoly and Hayn, 2000; Holthausen and Watts, 2001; Ball et al., 2003; Watts, 2003a; Tamulevičienė, Mackevičius, 2019). This principle recognition benefits creditors, companies and management agencies (Ahmed et al., 2002; Watts, 2003a, Francis and colleagues, 2004; Nikolave, 2006; Ahmed and Duellman, 2007; Zhang, 2008; Bozgulova et al., 2019).

Conservatism is also one of the principles that cause quite a lot of controversy in International Accounting Standards, it is reflected in changing, modifying, eliminating and reintroducing this principle in the various editions of the Concept Framework in International Accounting Standards system. In the Framework for preparing and presenting financial statements issued first by International accounting standards committee in 1989, conservatism is considered a basic requirement, to ensure the credibility of accounting information. However, after consideration of the effects of conservatism on the credibility and neutrality of accounting information, International accounting standards committee decided to eliminate this requirement from Concept Framework in 2010. After that, although there is no longer a basic requirement, the presence of conservatism in specific accounting standards as well as in the practice of accounting shows the necessity of this principle in the preparation and presentation of financial statements. In 2015, International accounting standards committee proposed to bring conservatism back as a requirement of accounting information. However, conservatism is now taken in a new approach, avoiding conflicts with basic requirements. Accordingly International accounting standards committee divided conservatism into two types: (1) Conservatism means caution in assessing, reviewing and considering in general uncertain conditions; (2) Asymmetric conservatism relates to loss recognition earlier than interest recognition. Thus, International accounting standards committee has decided to return conservatism as one of the requirements of accounting information, supporting neutrality with a new understanding of "Conservatism in assessing, reviewing and considering in uncertain conditions". That means, accounting is neutral. This is a major change in the understanding of conservatism, ensuring a balance in in handling accounting. It can be seen that the conservatism view of Vietnamese accounting standard is asymmetric conservatism. The conservatism principle in this study is therefore also to refer to asymmetric conservatism.

Conservatism principle can be divided into two different types: unconditional conservatism principle and conditional conservatism principle (Ball and Shivakumar, 2005; Beaver and Ryan, 2000). Unconditional conservatism principle is the application of the conservatism principle according to uniform accounting policies have been defined previously. Many research results show that the application of unconditional conservatism principle may involve motivation to avoid tax obligations, avoid the risk of corporate litigation, or merely to comply with accounting regulations on conservatism principle in accounting policies of some countries (Qiang, 2007). Conditional conservatism principle require that the recording of information in uncertain conditions must be based on consideration of the impact of that event on the financial statements of the company (Watts, 2003). Thus, it can be seen that both conditional conservatism principle and unconditional conservatism principle tend to reduce the company's book value and income. However, measuring unconditional conservatism principle requires more complex data and calculations (Lara et al., 2009). Therefore, within the limit, this study only conducts in-depth empirical studies for the type of conditional conservatism. Moreover, Alfraih (2017) showed that independence, diversity and size are statistically significant and increase the likelihood that a KSE-listed company selects a high-quality (Big 4) audit firm. Then, Martin and Herrero (2018) analyzed board structure impacts on corporate performance and suggested that the performance of the advisory and monitoring functions are factors that determine the composition of boards. With respect to the performance of the company, we note that there is a negative and significant relationship with the independence of boards. Last but not least, Ftouhi and Dabboussi (2019) found that board independence, board diversity, and CEO’s dual functions have a significant and negative effect on the relationship between tax planning and firm value. And Freihat et al. (2019) showed that ownership concentration, board meeting, and CEO duality, have a positive significant impact on the performance of
Jordanian manufacturing companies. On the other hand, the empirical results revealed that board size and board independence had an insignificant relationship with Tobin’s Q., also firms’ size and firms leverage had an insignificant relationship with firms performance.

3. Research methodology

3.1 Empirical model and Hypothesis Development

We have researched a lot of previous studies related to this topic to refer about factors are included in the research models as well as their direction of the impact on application of conservatism principle. Then we build the research model with the independent variables mentioned in almost all previous studies. Figure 1 illustrates the proposed model.

Figure 1. Factors affecting the application of conservatism principles of listed companies in Vietnam stock market

3.1.1 Contracting relationship

Most studies explain the application of conservatism principle through the company's contractual relationships, such as studies of Ahmed et al. (2002), Watts (2003a, 2003b), Ball et al. (2008), Zhang (2008), Wittenberg-Moerman (2008)… These studies provide empirical arguments and/or evidences that explain the application of conservatism principle based on the company's contractual relationships. Accordingly, most of the research is based on the argument that the main motive of applying the conservatism principle in contractual relations is to reduce agency cost and adjust the motives of the parties accordingly. Watts (2003) argued that financial statements users will benefit from reports prepared on a conservatism basis. Therefore, they require the application of conservatism principle in preparing and presenting financial statements. In the contractual relationship between shareholders and managers, the separation between ownership and control, between shareholders and managers creates agency cost (Jensen and Meckling, 1976). In order to reduce this agency cost, shareholders create contractual agreements with managers, which require the application of conservatism principle in the preparation and presentation of financial statements (confirmed in studies of Watts (2003), LaFond and Roychowdhury (2008), etc.). The study of Ahmed and Duellman (2007) also provides evidence that the quality of corporate governance is closely related to the degree of application of conservatism principle. These findings show that companies with higher operating quality will have a higher degree of application of the
conservatism principle to improve shareholders’ monitoring performance. Studies of Beekes et al. (2004), LaFond and Roychowdury (2006) and Lim (2006) have similar results. In the contractual relationship between creditors and shareholders, creditors can also benefit from conservatism principle, because their repayment agreements are not related to the company's performance. Many empirical studies have demonstrated the benefits of conservatism principle for the effectiveness of loan contracts. Wittenberg-Moerman (2008) argued that the application of conservatism principle reduces the level of information asymmetry between shareholders and creditors. In addition, the studies of Ahmed et al. (2002), Zhang (2008) demonstrated that the application of the conservatism principle can reduce borrowing costs, which can be considered as incentives of creditors in encouraging companies to adopt conservatism principle.

Based on the contractual relationship of shareholders, managers and creditors of the company, Watts (2003a) details the contract elements into three different theories to explain the application of the conservatism principle, they are: debt theory, compensation theory and governance theory. These theories will be used as a basis for building the research model.

3.2 Risk of litigation and the application of conservatism principle

Some studies of company's litigations show that litigations mostly involve cases where income or net assets are exaggerated (research by Kellogg, 1984 and St. Pierre and Anderson, 1984) or when companies record accruals that income increase significantly and abnormally (Heninger's study, 2001). The researchers argue that by carefully recording income and net assets, the company could reduce the likelihood of being involved in shareholder litigations. With the scope of international research, the research of Seetharaman, Gul and Lynn (2002) argues that the risk of litigation of each company is assessed according to the legal regime or the ability to protect investors of the legal system in each country. Ball et al. (2000), Bushman and Piotroski (2006), Giner and Rees (2001) also provide evidence that the conservatism principle differs from country to country, and it is judged according to the law system of that country. Regarding changes in the application of conditional conservatism over time, the evidence in studies of Basu (1997), Holthausen and Watts (2001) in the United States have demonstrated that the degree of application of conservatism principle has increased (decreased) whenever there are events that increase (reduce) the risk of litigation of these companies. In addition, Chung and Wynn (2008) also demonstrated that conservatism principle can be used by administrators as a protection method to reduce the risk of litigation. Studies of Skinner (1994), Kasznik and Lev (1995), Skinner (1997) also demonstrated the risk of litigation creating incentives for administrators to apply conservatism principle at a higher level (to reduce risk of litigation). Therefore, the author also proposed to include this factor in the research model.

Based on the proposed research model, the results of the relevant studies and the relationship of factors to the application of conservatism principle are presented in the above background theories, authors built 4 hypotheses in Table 1 below:
Table 1. Research hypotheses and relationships with relevant foundational theories

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>The content of the hypothesis</th>
<th>Related theories</th>
<th>Expectation</th>
</tr>
</thead>
<tbody>
<tr>
<td>H₁</td>
<td>Financial leverage is positively related to the application of conservatism principle, which means that the higher the companies’ financial leverage, the higher the degree of application of conservatism principle.</td>
<td>- Contracting theory (The contracting debt theory)</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Agency theory</td>
<td></td>
</tr>
<tr>
<td>H₂</td>
<td>The fewer shares held by the managers, the higher the degree of application of conservatism principle.</td>
<td>- Contracting theory (The contracting compensation theory)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Agency theory</td>
<td></td>
</tr>
<tr>
<td>H₃</td>
<td>The more closely controlled companies are, the higher the degree of application of conservatism principle.</td>
<td>- Contracting theory (The contracting governance theory)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Agency theory</td>
<td>+</td>
</tr>
<tr>
<td>H₄</td>
<td>Companies with higher risk of litigation, the higher the degree of application of conservatism principle.</td>
<td>- Agency theory</td>
<td>+</td>
</tr>
</tbody>
</table>

Notes:
*+: Positive impact;
-: Negative impact.

3.3 Sample selection, data collections

Data used for empirical analyzes in this study were collected from the annual report (which includes the financial statements) of the company. In addition, the share market price data of companies were collected directly on VCCorp’s website. The sample was collected in the period of 2014 - 2016. There were 733 companies listed on two stock exchanges, of which 344 were listed on HOSE and 389 were listed on HNX. The study uses a convenient method of sampling. Specifically, the research sample was collected based on the following criteria:

- Companies are listed on HOSE or HNX continuously in the period 2014-2016.
- The company's annual accounting period is from January 1 to December 31 according to the calendar year and does not change the financial year in the period 2014-2016.
- The companies do not belong to the banking, finance and insurance industries.
- The companies's annual reports have fully disclosed the data to be collected, the market price of the company's shares is available at some points of time to be collected.

Therefore, the official study sample includes 233 companies for each year of observation, it means there are 699 observations in the period 2014 - 2016.

The study uses statistical analysis tools to analyze data, thereby testing research hypotheses. The analysis results are done with the support of STATA 13 and Excel 2013 software.

3.4 Measurement of application degree of conservatism principle

There are many methods used to measure the degree of conservatism principle, in which there are 5 methods used commonly: (1) The method of Basu (1997) with a measure of asymmetric timeliness (AT) of income (hereinafter referred to as Basu method), (2) The method of Ball and Shivakumar (2006) with a measure of asymmetric-accruals-to-cash-flow (AACF), (3) The method measure Market-to-Book ratio (MTB), (4) The method of Penman
and Trigger (2002) measure Hidden Reserves (HR), (5) The method of Givoly và Hayn (2002) measure Negative Accruals (NA). The study used the method of measuring asymmetric timeliness (AT) of Basu (1997) to measure the application degree of conditional conservatism principle. Because the authors found that the Basu method was used in most studies, this method has a simple and direct explanation as well as feasibility in the data collection process. And many studies support this measurement method (such as Ryan, 2006; Ball and Kothari, 2006).

The following Basu regression model is used to measure the application of conservatism principle:

\[ X_t = \beta_0 + \beta_1 D_t + \beta_2 R_t + \beta_3 R_t D_t + \epsilon_t \]  

Where:
- \( X_t \): The ratio of income to market price of each share of the company in year \( t \), accordingly \( X_t = \frac{\text{EPS}_t}{P_t} \)
- \( \text{EPS}_t \): Earnings per share
- \( P_t \): Market share price of the company at the beginning of the year \( t \)
- \( R_t \): The change in the share price of the company in the market in year \( t \).

According to Parkinson (1980), \( R_t \) is measured by the natural log of the share price at period \( t \) compared to period \( t-1 \). Specifically, \( R_t \) is calculated as follows:

\[ R_t = \log(P_t) - \log(P_{t-1}) = \log\left(\frac{P_t}{P_{t-1}}\right) \]

\( D_t \): Dummy variable, which is equal to 1 if the change in the share price of the company in the market in year \( t \) is negative (\( R_t \leq 0 \)), and equal to 0 in the other case (\( R_t > 0 \)).

3.5 Measurement of Independent variables

<table>
<thead>
<tr>
<th>Variable name</th>
<th>Symbol</th>
<th>Measure</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remuneration management</td>
<td>COM</td>
<td>The ratio of ordinary shares owned by the administrator</td>
<td>Blunck (2013), LaFond and Roychowdhury (2008), LaFond &amp; Watts (2008)</td>
</tr>
<tr>
<td>Operating company</td>
<td>GOV</td>
<td>The ratio of independent members in the Board of Directors</td>
<td>Klein (2002), Krishnan (2005), Ahmed and Duellman (2007)</td>
</tr>
<tr>
<td>Risk of litigation</td>
<td>LIT</td>
<td>Dummy variable, which is equal to 1 if the company has the high risk of litigation, and equal to 0 in the other case (companies using Big4 audit services are considered high risk of litigation)</td>
<td>Francis et al (1994), LaFond and Roychowdhury (2008), Lara et al (2009), Menon and Williams (1994)</td>
</tr>
</tbody>
</table>

3.6 Measure the influence of factors on the application of conservatism principle

To study the effect of each factor on the application of conservatism principle, based on the study of Lara et al. (2009), authors apply a combination indicators model for each factor and include in the Basu model as follows:

\[ X_t = \beta_0 + \beta_1 D_t + \beta_01 F_t + \beta_11 D_t F_t + \beta_2 R_t + \beta_21 R_t F_t + \beta_3 D_t R_t + \beta_31 D_t R_t F_t + \epsilon_t \]  

Where: \( F \) is each of the four factors assumed to affect the application of the conservatism principle, the remaining variables are measured according to the model (1). This model is applied separately for each factor. In this model, the values of the coefficient \( \beta_{31} \) represent the level of influence of each factor on the application of the conservatism principle.

In addition, to measure the combined effect of factors on the application of conservatism principle, based on the model of Lara et al. (2009), authors used Basu combination method with all factors in one model as follows:

\[ X_t = \alpha + \beta_0 D_t + \beta_1 DR + \beta_01 LEV + \beta_11 DLEV + \beta_21 RLEV + \beta_3 DRLEV + \beta_{12} COM + \beta_11 DCOM + \beta_22 RCOM + \beta_32 DRCOM + \beta_03 GOV + \beta_13 DGOV + \beta_23 RGOV + \beta_33 DRGOV + \beta_{04} LIT + \beta_14 DLIT + \beta_24 RDLIT + \beta_34 DRLIT + \epsilon_t \]
In particular, the values of the coefficients $\beta_{31}, \beta_{32}, \beta_{33}, \beta_{34}$ signify respectively the influence level of factors of Financial leverage, Remuneration management, Operating company, Risk of litigation to the extent of applying conservatism principle.

4. Research results

4.1 Descriptive Statistics

The process of data analysis will begin with the calculation of descriptive statistics for the variables used in this research. Table 2 below describes the research sample by sector. It shows that the Manufacturing and processing industry has the highest proportion in the research sample (accounting for 25%, corresponding to 59 companies) and the mining industry has the lowest proportion in the research sample (accounting for 5%, corresponding to 11 companies).

<table>
<thead>
<tr>
<th>No.</th>
<th>Sector name</th>
<th>Sector code</th>
<th>Quantity</th>
<th>Ratio (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Agriculture, forestry and fisheries</td>
<td>A</td>
<td>15</td>
<td>6%</td>
</tr>
<tr>
<td>2</td>
<td>Extractive</td>
<td>B</td>
<td>11</td>
<td>5%</td>
</tr>
<tr>
<td>3</td>
<td>Manufacturing and processing industry</td>
<td>C</td>
<td>59</td>
<td>25%</td>
</tr>
<tr>
<td>4</td>
<td>Production and distribution of electricity and gas</td>
<td>D</td>
<td>16</td>
<td>7%</td>
</tr>
<tr>
<td>5</td>
<td>Construction</td>
<td>F</td>
<td>50</td>
<td>21%</td>
</tr>
<tr>
<td>6</td>
<td>Wholesale and retail</td>
<td>G</td>
<td>25</td>
<td>11%</td>
</tr>
<tr>
<td>7</td>
<td>Transportation and storage</td>
<td>H</td>
<td>14</td>
<td>6%</td>
</tr>
<tr>
<td>8</td>
<td>Information and communication</td>
<td>J</td>
<td>20</td>
<td>9%</td>
</tr>
<tr>
<td>9</td>
<td>Real estate business</td>
<td>L</td>
<td>23</td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>233</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 3 below describes the research sample according to the stock exchange of companies in the sample and the audit service used by these companies.
The statistical results show that the sample consists of 233 companies, including 157 listed companies on the HOSE (accounting for 67.38%) and 76 listed companies on the HNX (accounting for 32.62%). Regarding the audit services used by these companies, in 233 companies, there are 70 companies using audit services of Big4 audit firms (respectively 30.04%) and 163 remaining companies (respectively 69.96%) use audit services of other auditing companies.

4.2 Test the effect of factors to the degree of applying conservatism principle

The study uses data of 233 listed companies on Vietnam stock market in the three-year period (2014, 2015, 2016), forming panel data. For panel data, to select the appropriate model for the test results, before conducting the test, authors perform estimation analyzes to select the appropriate model among the three models: Pooled OLS, FEM and REM. The following results are from the most appropriate model.

4.2.1 Financial leverage

The results of OLS estimation are shown in table 4 below, R2 adjusted coefficient = 12%, Prob> F = 0.0000 (statistically significant at 5%). This suggests that OLS estimates may be a suitable estimate. According to this model, not as expected, the test results show that, with significance level 5%, there is not enough statistical basis to affirm that the financial leverage factor affecting the application of conservatism principle. (value p = 0.931, p> 0.05).

Table 4. Regression results of the Pooled OLS model for the model of measuring the impact of financial leverage

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>Number of obs = 659</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>3.35996719</td>
<td>7</td>
<td>.47982546</td>
<td>F(  7,   651) =   13.56</td>
</tr>
<tr>
<td>Residual</td>
<td>23.041657</td>
<td>651</td>
<td>.03539425</td>
<td>Prob &gt; F =  0.0000</td>
</tr>
<tr>
<td>Total</td>
<td>26.4006242</td>
<td>658</td>
<td>.040122529</td>
<td>R-squared =  0.1272</td>
</tr>
</tbody>
</table>

| X      | Coef. | Std. Err. | t    | P>|t|   | [95% Conf. Interval]   |
|--------|-------|-----------|------|-------|---------------------|
| D      | .0233099 | .0328772 | 0.71 | 0.479 | -.0412483 | .0878682 |
| LEV    | -.0322555 | .0846082 | -0.38 | 0.703 | -.1983934 | .1338824 |
| DLEV   | -.0415824 | .1217413 | -0.34 | 0.733 | -.2806353 | .1974706 |
| R      | .5352723 | .1012392 | 5.29 | 0.000 | .3364775 | .734067 |
| RLEV   | .1017709 | .2890388 | 0.35 | 0.725 | -.46579 | .6693318 |
| DR     | -.2956667 | .1592834 | -1.86 | 0.079 | -.608438 | .0171045 |
| DRLEV  | -.0445464 | .5178319 | -0.09 | 0.931 | -.1061369 | .9722759 |
| Cons   | .0893839 | .0226592 | 3.94 | 0.000 | .04489 | .1338778 |
The results of OLS estimation according to Table 5 below show the estimation of $\text{Prob} > F = 0.0000$ (statistically significant at 5%). This suggests that OLS estimates may be a suitable estimate. The test results show that, as expected, with significance level 5%, there is sufficient statistical basis to confirm that remuneration management factor affecting the application of conservatism principle (value $p = 0.007$, $p < 0.05$). On the other hand, the coefficient $\beta_{31}$ ($\beta_{31} = -0.03494$) also affirmed the negative influence of this factor to the application of conservatism principle.

Table 5. Regression results of the Pooled OLS model for the model of measuring the impact of remuneration management

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>Number of obs = 402</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>3.41351023</td>
<td>7</td>
<td>.487644318</td>
<td></td>
</tr>
<tr>
<td>Residual</td>
<td>18.1223236</td>
<td>394</td>
<td>.045995745</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>21.5358338</td>
<td>401</td>
<td>.053705321</td>
<td></td>
</tr>
</tbody>
</table>

| X        | Coef.   | Std. Err. | t    | P>|t|     | [95% Conf. Interval] |
|----------|---------|-----------|------|---------|---------------------|
| D        | .0199233| .0357869  | 0.56 | 0.578   | -.0504339 - .0902804|
| COM      | -.0033125| .0016216 | -2.04| 0.042   | -.0065005 - -.0001244|
| DCOM     | .0009834| .0016216 | 0.40 | 0.690   | -.003863 - .0058299 |
| R        | .00681828| .00144658| 2.55 | 0.011   | .0037844 - .0525811 |
| RCOM     | .02418 | .0067309 | 3.59 | 0.000   | .0109471 - .037413  |
| DR       | -.0288099| .00555476| 0.14 | 0.889   | -.0035293 - .0092171|
| DRCOM    | -.0349447| .00128281| -2.72| 0.007   | -.0065005 - -.0001244|
| _cons    | .1088755| .025562   | 4.26 | 0.000   | .0586206 - .1591304 |

4.2.2 Operating company

The results of OLS estimation according to Table 6 below show the estimation of $\text{Prob} > F = 0.0000$ (statistically significant at 5%). This suggests that OLS estimates may be a suitable estimate. The test results show that, as expected, with significance level 5%, there is sufficient statistical basis to confirm that operating company factor affecting the application of conservatism principle (value $p = 0.000$, $p < 0.05$). The coefficient $\beta_{31}$ ($\beta_{31} = 2.008$) also affirmed the positive influence of this factor to the application of conservatism principle.

Table 6. Regression results of the Pooled OLS model for the model of measuring the impact of the operating company

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>Number of obs = 584</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>4.70073837</td>
<td>7</td>
<td>.671534053</td>
<td></td>
</tr>
<tr>
<td>Residual</td>
<td>21.0234090</td>
<td>576</td>
<td>.036499012</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>25.7241693</td>
<td>583</td>
<td>.044123789</td>
<td></td>
</tr>
</tbody>
</table>

| X        | Coef.   | Std. Err. | t    | P>|t|     | [95% Conf. Interval] |
|----------|---------|-----------|------|---------|---------------------|
| D        | .1205676| .0626267  | 1.93 | 0.055   | -.0024368 - .2435721|
| GOV      | .1684431| .072903   | 2.31 | 0.021   | .025555 - .316313  |
| DGOV     | -.2210156| .1074412 | -2.06| 0.040   | -.4320399 - -.009993|
| R        | 1.641461| .1962667  | 8.36 | 0.000   | 1.255976 - 2.026947 |
| RGOV     | -2.099009| .3472978 | -6.04| 0.000   | -2.781134 - 1.416885|
| DR       | -1.329423| .3139175 | -4.23| 0.000   | -1.945985 - -.7128601|
| DRGOV    | 2.008009| .5290812  | 3.80 | 0.000   | .9688451 - 3.047172 |
| _cons    | -.0009592| .0406079 | -0.02| 0.981   | -.0807176 - .078984 |

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4.2.3 Risk of litigation

The results of OLS estimation according to Table 7 below show the estimation of Prob > F = 0.0000 (statistically significant at 5%). This suggests that OLS estimates may be a suitable estimate. The test results show that, as expected, with significance level 5%, there is sufficient statistical basis to confirm that risk of litigation factor affecting the application of conservatism principle (value p = 0.030, p <0.05). The coefficient β31 (β31 = 0.668) also affirmed the positive influence of this factor to the application of conservatism principle.

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>Number of obs = 659</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>4.98477565</td>
<td>19</td>
<td>.262356613</td>
<td>5.51</td>
</tr>
<tr>
<td>Residual</td>
<td>3.51065716</td>
<td>640</td>
<td>.005434699</td>
<td>3.652953</td>
</tr>
<tr>
<td>Total</td>
<td>21.2308316</td>
<td>659</td>
<td>.038584892</td>
<td>1.304977</td>
</tr>
</tbody>
</table>

4.2.4 Effect of synthesizing factors to the application of conservatism principle

a) Select the appropriate model

The results of OLS estimation according to Table 8 below show the estimation of Prob > F = 0.0000 (statistically significant at 5%). This suggests that OLS estimates may be a suitable estimate. The test results show that, as expected, with significance level 5%, there is sufficient statistical basis to confirm that risk of litigation factor affecting the application of conservatism principle (value p = 0.030, p <0.05). The coefficient β31 (β31 = 0.668) also affirmed the positive influence of this factor to the application of conservatism principle.

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>Number of obs = 361</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>4.98477565</td>
<td>19</td>
<td>.262356613</td>
<td>5.51</td>
</tr>
<tr>
<td>Residual</td>
<td>3.51065716</td>
<td>341</td>
<td>.010312863</td>
<td>0.986785</td>
</tr>
<tr>
<td>Total</td>
<td>21.2308316</td>
<td>360</td>
<td>.058974532</td>
<td>2.25745</td>
</tr>
</tbody>
</table>
The authors have conducted Breusch and Pagan tests to compare the appropriateness of the OLS Pooled estimates with FEM and REM in the model to measure the combined effects of factors to the extent of applying conservativismal principles. The results show that the OLS Pooled estimation model is the most appropriate estimate.

b) Inspection of the model's disability cases

To ensure the statistical significance of the model, authors conduct assumptions by examining possible disability cases of the model. According to the tests of the four assumptions of the model, there are three assumptions that are not violated: multi
collinearity, normal distribution of residuals and autocorrelation. However, the assumption of constant variance is violated. To overcome these violations, the author must perform regression by feasible generalized least squares estimators FGLS. Regression results are presented in table 9 below.

Table 9. Regression results FGLS estimate of model

Cross-sectional time-series FGLS regression

| X | Coef. | Std. Err. | z | P>|z| | [95% Conf. Interval] |
|---|-------|-----------|---|-----|------------------|
| D | .0496897 | .0191916 | 2.59 | 0.010 | [.0120748 .0873045] |
| R | -.7748619 | .1926085 | -4.02 | 0.000 | [-1.152368 -.3973562] |
| LEV | -.0368614 | .0194686 | -1.89 | 0.060 | [-.0750191 .0012964] |
| DLEV | -.7748619 | .1926085 | -4.02 | 0.000 | [-1.152368 -.3973562] |
| RLEV | .2639247 | .1943688 | 1.36 | 0.175 | [.117031 .648805] |
| DRLEV | -.7748619 | .1926085 | -4.02 | 0.000 | [-1.152368 -.3973562] |
| COM | -.0015979 | .0004925 | -3.24 | 0.001 | [.0001266 .0102796] |
| DCOM | -.0015979 | .0004925 | -3.24 | 0.001 | [.0001266 .0102796] |
| RCOM | .0050765 | .0026547 | 1.91 | 0.058 | [.0012666 .0009285] |
| DRCOM | -.0015979 | .0004925 | -3.24 | 0.001 | [.0001266 .0102796] |
| GOV | .0493781 | .0200095 | 2.47 | 0.014 | [.0101601 .088596] |
| DGOV | -.0483772 | .0200095 | -2.47 | 0.014 | [.0101601 .088596] |
| RG | -.0573538 | .2042598 | -0.00 | 1.000 | [.00057944 .00057944] |
| DROP | .1482965 | .2707032 | 5.48 | 0.000 | [.9523963 .2.013533] |

The data analysis results show that, according to expectation, remuneration management factor (p = 0.026, β32 = -0.0118), operating company (p = 0.000, β33 = 1.4830), risk of litigation (p = 0.000, β34 = 0.5722) affect the degree of application of conservatism principles. However, the above results show that the factor of financial
leverage does not affect the application of conservatism principle as expected (p = 0.311). This research result is consistent with the results of the models measure the effect of each factor on the application of conservatism principles.

5. Conclusions

The relationship among creditors, shareholders and managers, the asymmetry of information among them is the main basis creating the need to apply conservatism principle. The study provides empirical evidence on the factors affecting the application of conservatism principle based on data collected from 2014 to 2016 of listed companies in the stock market in Vietnam. Data analysis results show that financial leverage does not affect the application of conservatism principle. In addition, factors: remuneration management, operating company and risk of litigation affect the application of conservatism principle of listed companies on Vietnam's stock market in the period of 2014 - 2016. Data analysis results show that there is a difference in the level of application among sectors through the research periods.

From research results obtained after the analysis process, we also suggest some recommendations and solutions. The first is the recommendations for listed companies. Companies need to promulgate specific policies and regulations on the recognition of accounting objects carefully. Policies that regulate and guide accounting in uncertain conditions are built in accordance with their business characteristics. Companies applying the conservatism principle need to strengthen the disclosure of information on the way to record and detail the information presented in the financial statement explanation. This is the basis for the users of financial statements to properly evaluate the company's business performance.

The second is the recommendations for State management agencies. State management agencies should promulgate specific regulations to suit the business characteristics of each branch. Management agencies in particular and legislature in general need to create a legal environment to prioritize the protection of interests for small investors and the motivation for the application of companies’ conservatism principle. The development and issuance of a unified legal document on protection of investors help create a solid legal basis, a premise for the birth of investors protection funds - one of the last remedies when legitimate rights and interests of investors are violated.

The last one is for those who use the information on the financial statements to evaluate the operation situation of the companies to make related decisions (e.g. investors, creditors, banks, tax authorities). They must consider and require the application of conservatism principle in the preparation and presentation of the company's financial statements. In addition, information users must learn more about the company's accounting policies. On the other hand, to limit the effects of asymmetric information, users need to consult many other sources of information such as creditworthiness, business plan of the company because this is the main source of repayment of the company. ... Understanding the accounting recognition method of companies will help users of financial reports can make appropriate decisions.

Limitations and research directions in the future

First, there are still some other factors that affect the application of conservatism principle but have not been synthesized and verified in Vietnam. Second, the scope of research is limited to listed companies on the Vietnam stock market. There is no research for unlisted companies, small and medium enterprises. These restrictions may become future research directions. Accordingly, further understanding and verification of other factors affecting the application of conservatism principle in Vietnam, or changing the scope of research for unlisted companies, SMEs will provide a comprehensive theoretical background on conservatism principle in Vietnam.
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Register for an ORCID ID:
https://orcid.org/register

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THE OPTIMIZATION OF THE TAX SYSTEM, AS ONE OF THE DETERMINING FACTORS OF PRODUCTION GROWTH

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Abstract. Legal tax optimization is an element of an organization’s financial management. It enables increasing the efficiency of economic activities of enterprises. At the same time, it is important to take into account the economic interests not only of taxpayers, but also of the States in whose markets enterprises operate. The article discusses the issues of optimizing the tax burden of an enterprise by constructing a diagram reflecting the dependence of the total amount of taxes and the amount of profit received. The analysis option proposed by the authors will make it possible to identify enterprises with an excessively low tax burden, thereby providing an opportunity for regulatory authorities to more clearly determine the objects of inspections. The proposed method can be used as an instrument of fiscal policy.

The purpose of this research was to create a graph-analytical method that would evaluate various options for optimizing taxation and find options that meet the needs of both the state and taxpayers. The novelty of this study lies in the creation of a universal method that would rationally and reasonably combine the necessary criteria for taxation optimizing and achieve parity in the “justice - efficiency” system and, thereby, ensure maximum efficiency of state regulation.

Keywords: taxes, tax system; fiscal policy; discretionary fiscal policy; non-discretionary fiscal policy


JEL Classifications: M21, M40, G32.

1. Introduction

Taxes are one of the most difficult to optimize items of expenditure of economic entities and at the same time the main source of revenue for the state budget. Improving the financial condition of an enterprise by optimizing taxation is often either not carried out, or is carried out without assessing the consequences of these actions in the long term. Moreover, qualified improvement of the financial state of the enterprise using a set of measures, including tax optimization, is not always implemented. The economic well-being of a country or society, based on the experience of developed countries, has shown that appropriate fiscal policy should be formulated and implemented for positive market dynamics. It will create favorable conditions for business and will help to attract investment, as well as ensure investment security (Krasniqi, 2013; Baltgailis, 2019; Chehabeddine, Tvaronavičienė, 2020; Vigliarolo, 2020).

In particular, as regards the issue of the policy responsiveness to economic fluctuations – which is often referred to as “cyclical sensitivity” – the standard approach in the fiscal policy literature is to estimate fiscal policy rules linking (levels or changes of) cyclically adjusted fiscal variables, as measures of the discretionary component of
fiscal policy, to business-cycle indicators (generally, the output gap) and other explanatory variables, such as, in particular, the public debt (Agnelloa and Cimadomo, 2012; Tarman, 2016; Popok et al., 2019; Zhuravlev et al., 2019). Tax optimization is a tool used by many countries to legally reduce the tax burden of a certain segment of taxpayers.

Research objectives: to create a graph-analytical method that allows you to evaluate various options for taxation optimizing, find options that are acceptable to both the state and taxpayers, and assess the impact of various approaches to taxation on business.

Research tasks: conducting theoretical research and building combined charts to assess and predict the optimal revenue side of the budget, taking into account the interests of the state and taxpayers.

2. Literature review

In order to resolve the contradictions of justice and efficiency, various studies were conducted, during which it was noted that when the State has no other opportunity to improve the position of some taxpayers without simultaneously worsening the position of others, they speak of achieving Pareto optimality or achieving Pareto efficiency (Stiglitz, 1987). The concept of “utility” is used in the specialized literature on optimal taxation, no less, and maybe even more often, than the concept of “income”. K. Heidi specifically investigated this phenomenon (Heidi, 2001).

The concept of proportional taxation of income is widespread as meeting the criteria for optimal taxation. J. Mirrlees considered it axiomatic that earned income of industrial and labor origin for reasons of public welfare should not be taxed on a progressive scale (Mirrlees, 1971). However, the optimal taxation of the total income in any system of social criteria according to J. Bentham and according to J. Rawls should be progressive (Andrushchenko, 2000). If, from the point of view of J. Mirrlees, the maximum proportional tax rate can reach 60%, then in the opinion of his compatriot J. Merly - no more than 20%. Obviously, from the standpoint of the priority of efficiency, the state should choose a proportional, or even better, lump-sum tax, but there is no question of any fairness in this case. Tax evasion distorts expected effect of tax system and therefore hinders achieving social goals (Luzgina, 2017; Vandina et al., 2018; Osipov et al., 2018).

3. Materials and Methods

In the course of the study, the authors studied regulations, as well as scientific papers in the field of tax burden optimization. As research tools, methods of system, complex, and retrospective analysis, as well as economic and mathematical, and statistical methods, trend analysis, and coefficient analysis are used; for constructing tax prism models we used: expert assessment methods, absolute, relative and average methods, regression analysis and multiple ANOVA regression analysis, statistical significance analysis, data standardization for determining the significance of regressors, mathematical modeling method, as well as geometric similarity methods, mathematical analysis, including methods of graphic differentiation and integration.

4. Results

Fiscal policy is the basis of financial policy and is an integral part of the economic policy of any state. According to Keynes, the essence of fiscal policy is to manage aggregate demand by manipulating taxes and government spending. Modern economic science distinguishes two types of fiscal policy: discretionary and non-discretionary (automatic) fiscal policy.
Discretionary fiscal policy uses a method of solving economic problems, which is that individuals, as well as decision-makers, act mainly at their own discretion, depending on their vision of economic conditions. Regulators manipulate public spending and taxes to manage aggregate demand for the purpose of incentive or restrictive policies (Ivanova et al., 2019; Shatunova et al., 2019; Derkho et al., 2019; Vertakova et al., 2019).

Restrictive policy is a reduction in public procurement and an increase in taxes. Incentive policy – implies growth of public procurement and reduction of taxes.

The inclusion of rising public expenditure in aggregate demand causes the aggregate expenditure curve to shift upwards and leads to an increase in the net national product (NNP). There is also an inverse relationship when the NNP with the reduction of public expenditure in aggregate demand (Fig. 1).

The increase in taxes causes a reduction in spending, and hence a decrease in consumer spending and savings (in this case, there is also an inverse relationship). The size of the reduction is determined by the value of the marginal propensity to consume and save (MPC and MPS, respectively).

Discretionary fiscal policy has a significant drawback. It operates with a time lag (delay), because the budget is approved once a year, but the situation can change greatly over the year. Therefore, in such a situation, an automatic policy, i.e. a policy of “immediate response”, is desirable.

Non-discretionary fiscal policy provides the introduction of changes in the level of public spending and taxes through the so-called “built-in stabilizers”. The size of automatic stabilizers is commonly approximated by the ratio of general government expenditure to GDP (Debrun and Kapoor, 2010). One of them is tax stabilizer. Its action is based on the fact that the state establishes tax rates, but cannot set the amount of tax revenues, because these revenues, in addition to the tax rate, also depend on the tax base.
Analysis of dependencies, shown in Fig. 2, leads to the conclusion that – public expenditure is set for the current year \((G=\text{const})\) and is independent of the NNP, taxes revenues vary in the same direction as the NNP. The graph shows that the economy itself creates a stabilization effect (Fig. 2).

![Graph showing non-discretionary fiscal policy](image)

**Figure 2.** Non-discretionary fiscal policy  
*Source: authors’ research*

If there is a rise in the economy (recorded growth of the NNP and inflation), the tax system increases the exemptions, i.e., a restrictive policy. If a recession occurs (recorded decrease of the NNP), then the withdrawals are automatically reduced, i.e. a stimulating policy is applied. Thus, the built-in stabilizers, regardless of strong-willed intervention, automatically maintain such a level of state revenue and expenditure, which is desirable at this stage of the cycle. However, in practice, built-in (automatic) stabilizers tend to only mitigate the severity of economic fluctuations, but do not eliminate unwanted changes in production volumes.

There are different theoretical approaches to tax policy. The Keynesian approach relies on strong government regulation of the economy and requires large tax revenues, but this depends on a certain phase of the cycle. In the classical theory, economists believe that in order to stimulate investment, it is necessary to lower taxes. At the same time, it is necessary to abandon the system of progressive taxation, since the recipients of large incomes are traditionally leaders in the renewal of production. When rates are reduced, the tax base eventually grows. High rates reduce the base from tax revenues to the state budget. The transition from Keynesian tax policy to conservative policy is linked to tax reform.

In the framework of Keynesian theory, the Laffer curve model is considered, in which it is assumed that the excess of income over the value of total autonomous costs is taxable, i.e. the tax revenue function is: \(T = t(D-Ea)\), where \(t\) is the marginal tax rate, \(Ea = Ca + Ia + G - MPC \times Ta\) is the autonomous expenditure.

Then, under balance conditions, the Laffer curve is given by the formula \(T(t) = t(M*Ea-Ea)\), или \(T(t) = MPC \times Ea \times t^2/(MPS + MPC \times t)\). When the marginal tax rate is 0 or 1, the tax revenue is 0. The optimal rate is called \((t_0)\), at which tax revenues are optimal. Tax revenue increases with the marginal rate if it is less than the optimal rate and decreases if it is greater than the optimal rate.

It is worth noting that to assess the impact of certain changes on the economy, it is not enough to evaluate only the correlation between the indicators of interest. In the United States of America, the right firmly believes that low taxes are the key to economic success, but in practice, when assessing the correlation between the share of taxes in GDP and unemployment, it turns out that in years when the share of taxes could be called high, unemployment was low and vice versa. This shows that it is necessary to take into account not only the “dry” figures of individual indicators, but also the overall economic situation and the factors affecting their formation to avoid the appearance of a false correlation, an example of which was given above (Krugman, 2012). It is also worth noting that
sometimes developed countries face a “problem” when there is no political constituency for paying more in tax (Friedman, 2012; Shebashev et al., 2019).

When optimizing the taxation system, it must be remembered that this task will always face the opposite of taxpayer and state requirements, because the taxpayer always seeks to minimize the amount of deductions to the state, while the state, in turn, seeks to maximize fees while not making the taxpayer to seek tax shelters. The second part, unfortunately, is not always performed. The State benefits from the increase in revenue due to taxes. This will allow for a painless increase in government expenditure to stimulate the growth of the economy and employment, creating new jobs. Moreover, it should not ruin taxpayers. Taxpayers benefit from the lowest tax rate. Withdrawal from a taxpayer of a significant amount of income (about 40-50%) is the limit beyond which incentives for entrepreneurial initiative and the expansion of production are eliminated. Entire groups of taxpayers, engaged in the search for methods of avoiding taxation and striving to concentrate financial resources in the shadow sector of the economy, are being formed. A clear answer to the question “what effective bid value is critical?” does not exist. The introduction of certain taxes and the establishment of their size is a complex multifactorial task. Attempts to achieve the necessary and mutually acceptable solutions by trial and error leads to significant costs and most often does not give the necessary result. However, among all possible tax options there should be one (or a group of those) that would meet the requirements of the taxpayer and the needs of the state. The tax prism method can be used to determine these options. (Leontyev and Verovska, 2017; Fedulova et al., 2019; Valentim et al., 2019).

The tax prism is a geometric figure, the volume of which corresponds to the volume of taxes received by the state in the current (reporting) period, and the side corresponds to the total amount of taxes (Verovska and Leontyev, 2018). For the convenience of research, it can be divided into state-oriented and business-oriented, but in this research is described only a general concept.

Based on the described concept of the tax prism and the Laffer curve (when the Laffer curve came on the scene in the 1970s, it seemed very new. But it quickly became apparent that it was not an original idea at all. Its antecedents date back hundreds of years (Bartlett, 2012), the graphs are created, (Fig. 3,4,5,6,7). It is a graphical interpretation of the tax prism, which allows to assess and predict the impact of possible tax changes on the tax situation of the enterprise.

<table>
<thead>
<tr>
<th>Taxpayer's situation</th>
<th>Tax burden</th>
<th>Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>A0</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>A1</td>
<td>None</td>
<td>Maximum</td>
</tr>
<tr>
<td>B</td>
<td>Minor</td>
<td>Significant</td>
</tr>
<tr>
<td>C1-C2</td>
<td>Optimal level</td>
<td>Optimal level</td>
</tr>
<tr>
<td>D</td>
<td>Significant</td>
<td>Less than optimal level</td>
</tr>
<tr>
<td>E</td>
<td>Very high</td>
<td>None</td>
</tr>
<tr>
<td>After point E</td>
<td>Exorbitant</td>
<td>Loss</td>
</tr>
</tbody>
</table>

Source: Compiled by the authors.
Let’s consider every situation. While the taxpayer is at point A₀ (Fig. 3), there is no tax burden, as well as there is no profit. This initial provision indicates that at the time of the study the subject of taxation does not conduct any activity. In this case, the tax prism does not exist. If the taxpayer moves to point A₁ (Fig. 3), it means that the volume of profit is not taxed, or the studied subject applies illegal methods of the tax optimization. Either way, it should provide interest to regulators. At point A₁, the tax prism also does not exist, it degenerates into a plane (i.e., there is no height, which characterizes the value of the tax burden).

When moving to point B (Fig. 4), the tax burden will be negligible. The area marked in pink (tax zone) represents the amount of tax burden, and the area marked in green (profit zone) shows the amount of profit after payment of all taxes established by the current legislation. The position B on the graph will correspond (in general) to the tax prism with a small height and a significant base.

The points C₁ and C₂ (Fig. 5) mark the boundaries of the "optimal corridor" in which the level of tax burden allows the state to perform its functions, and the taxpayer – to be interested in continuing activities in the territory of the state without the use of illegal ways to reduce the tax burden. Point C is one of the variants of the optimal ratio of the tax zone and the profit zone. The tax prism corresponding to this position on the graph will also be optimal, representing one of the best combinations of height and base.

At point D (Fig. 6) the tax burden begins to exceed the upper limit of the optimal corridor and, as a result, there is a decrease in business motivation. At the same time, the subject of taxation begins to look for ways to reduce the tax burden to return to the zone of optimality C₁-C₂. In the absence of illegal ways to reduce tax costs, the search for criminal solutions begins. In this situation (point D) the tax prism will have a significant height and a small base. Point t on the graph indicates a "turning point" when due to the tax burden the taxpayer has no profit, including for its refinancing, aimed at the continuation of the current activities of the enterprise.
When the taxpayer reaches point E (Fig. 7), the profit for the accounting period tends to zero, the tax burden will be the maximum in comparison with all previously considered situations. The tax prism in this case will degenerate into a straight line passing through the applicate axis. This will entail the closure of enterprises, capital outflow or withdrawal of business to the shadow economy.

Consider the falling portion of the curve, located to the right of the point $t$ does not make sense, because the tax burden on this side continues to grow, and, at the same time, the company instead of profit has a loss. The base of the prism with this approach will go into the area of negative values of the adopted coordinate system. Each option on the curve corresponds to its own unique tax prism, which will be individual for each individual enterprise.

**Discussion**

It should also be noted that the tax conditions of the enterprise are directly affected by its financial conditions and its financial stability. In the considered variants of the tax prism, it was believed that the enterprise conducts effective activities. If the company has problems, the size of the base of the tax prism will differ from the analyzed models. It is known that financial stability is the ability of an enterprise to finance its activities in the required amounts at the expense of its own or borrowed capital.

The financial stability of the legal entity in the framework of this study will be considered its capacity to maintain the ability to continue its main activity on the same scale after payment of all taxes. The subject of taxation with good financial stability, when changing any external conditions (when it is exposed to various shocks from the outside) should, first of all, stay afloat and have a margin of safety that does not allow the termination of its normal functioning. Financial stability is one of the elements of the enterprise’s viability, since its loss is associated with the most severe consequences – violation of the current rhythm of the enterprise, staff reduction, inability to fulfill its obligations to creditors.

All this has a negative impact not only on individual economic entities associated with this enterprise, but also on the entire economy as a whole, so ensuring financial stability is one of the most important tasks for both the enterprise and the state. A set of measures to maintain financial stability should be provided at all stages of the existence of the enterprise.

**Conclusion**

The combination of justice and efficiency of tax policy is a serious problem, which until now does not have a final solution, which complicates government regulation of the economy. The state should carry out an objective analysis of individual industries included in industrial production. In order to establish the most effective tax regime and stimulate industrial production, segregation can be carried out on a different basis or simultaneously on a group of criteria (for example, on a subject of the Federation). It is possible to determine the position of a certain percentile from all enterprises that fall under the specified criteria. This analysis can be carried out for each individual tax paid by the enterprise, which will allow more effective adjustment of the tax system. The state, on the basis of forecasts of the budget expenditure, establishes requirements for the tax burden. On the basis of the analysis of the financial and tax conditions of the enterprise (or enterprises belonging to the industry), the search of the optimal tax burden zone is carried out. In the case of irretrievable incompatibility of claims, it is advisable to use the method of successive concessions. This approach will make it possible to more clearly define the permissible limits of the tax burden on a group of enterprises, minimizing the desire of managers to move to the shadow sector of the economy or stop investing (and/or this type of activity) due to excessive tax burden.
Also, the proposed version of the analysis will identify enterprises with an excessively low tax burden, which will enable the regulatory authorities to more clearly identify the objects of inspections. When using the option with discrete consideration of taxes, it becomes possible to identify the area of activity of the enterprise in which it carries out tax evasion. The proposed method can be used as a tool of fiscal policy. Depending on the final purpose of application, it can act as both a discretionary and non-discretionary tool.

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Abstract. The present study attempts to examine the impact of C.E.O Financial Literacy on Corporate financial performance of SMEs through mediating role of sources of investment decisions comprising accounting information, advocate information and neutral information. The primary data has been collected from 301 executives of the SMEs in Indonesia. To examine the impact of incorporated variables on the corporate financial performance, Confirmatory factors analysis and Structural equation modeling approach are incorporated in the study, several tests were applied including descriptive analysis, KMO and Bartlett’s test, rotated component matrix, convergent and discriminant validity. The direct effects indicated that the financial literacy of C.E.O is the significant and positive drivers of corporate financial performance. While the indirect effects show that all incorporated sources of investment decisions significantly mediated the relationship of C.E.O financial literacy and financial performances. It is indicated that accounting information, neutral information and advocate information acts as a significant mediator between financial literacy of C.E.O and corporate financial performance. Also, the study embraces several theoretical, practical and policy-making implications for the financial management practitioners and strategy developers to attain high levels of financial performance and implement informed financial decisions. In the last, various limitations have been given along with the recommendations for in-depth findings by future researchers.

Keywords: C.E.O Financial Literacy; Corporate Financial Performance; Sources of Investment Decisions; Indonesia


Jel Codes: M1, M12

1. Introduction
The executives of a company are considered as the key source of human capital that determines the success of firms and their overall performance (Agyei, 2018; Gerasimov et al., 2019). According to (Hambrick 2016), the financial performance of firms can be predicted with managerial characteristics and literacy levels in the governing board. It is argued that executives analyze the situations through their personalized lenses in terms of strategic scenarios and events, these personalized interpretations are shaped through experiences and values (Volonté & Gantenbein, 2016). The financial performance of a firm is indicated with financial measures such as competitive position, profitability of the firm, return on assets, equity, investment and net margin as these indicators capture the performance and effectiveness of the implemented financial strategies and approaches for a firm or a specific brand (Friede, Busch, & Bassen, 2015). In the financial literature, the determinants of corporate financial performances is a widely researched concepts in the domain of financial management (Karadag, 2015). Among the other drivers like diversity in executives, their personality characteristics, the levels of financial literacy possessed by senior executives is one of the major significant drivers of a firm’s financial performance (Chen & Gavious, 2016; Fitri et al., 2019). In
order to gain high profitability and preserve the financial performance, high levels of financial knowledge is mandatory among the executives for the strategic policy development as these policies determines the rules and regulations and operating procedures of a firm in view of financial positions and requirements which leads towards effective financial performance (Asaad, 2015).

As in the current era, corporations are facing the challenge of dynamic business environment associated with technological advancement, high competition, changing business practices and financial reporting standards, which requires the possession of expertise in financial knowledge to develop and implement approaches and strategies to survive in the business industry (Khan, Li, Safdar, & Khan, 2019; Nugraha & Hakimah, 2019). Also, the changing investment trends and availability of alternatives makes it difficult for the firms especially for the small medium enterprises to preserve their financial performance and identify the right and fruitful investment ventures that generates the high profitability for the firms, only the executives who holds sound financial knowledge are able to grasp the investment opportunities (Frydman & Camerer, 2016). For the response to this challenge, several studies explored the drivers of financial performance. It is claimed that financial knowledge affects the financial behaviors of a firm (Purnomo, 2019). Also, it was highlighted by (Steiner-Khamsi, Appleton, & Vellani, 2018) that financial background of the executives in terms of their financial knowledge determine the growth levels of the firms and their financial performance and in the long run the economic growth of a country. Similarly, an essential role is played by SMEs in the growth levels in Indonesia. It is reported that Indonesian SMEs are responsible for the 97% of the domestic employment as shown in figure 1. Moreover, SMEs contributed highly in GDP of Indonesia i.e. 59 % and holds 56% of the total business investment (Nasution & Sarkum, 2019).

![ASEAN Today](Figure 1. SME Contribution to GDP)

Therefore, in view of the discussed importance of SMEs in Indonesia and the findings in the domain of financial performance drivers, it is observed that the researches have been focused on the impact of financial literacy of managers, board of directors on overall business performance, but no such study have been conducted to specifically analyze the role of C.E.O’s financial literacy on firm’s financial performance particularly. Also, the mediating role of investment decisions in the relationship between C.E.O financial literacy and corporate financial performance was not examined earlier. These observations highlighted the literature gap which needs to be fulfilled, therefore in order to fulfill the identified gap, by following the suggestions of previous studies of (Hamza & Arif, 2019; Rivera, Muñoz, & Moneva, 2017) the present study proposed the following research objectives:
1. To determine the impact of C.E.O’s financial literacy on the corporate financial performance of SMEs in Indonesia.

2. To analyze the mediating role of accounting information in the relationship between C.E.O’s financial literacy and corporate financial performance of SMEs in Indonesia.

3. To explore the mediating role of advocate information in the relationship between C.E.O’s financial literacy and corporate financial performance of SMEs in Indonesia.

4. To investigate the mediating role of neutral information in the relationship between C.E.O’s financial literacy and corporate financial performance of SMEs in Indonesia.

Similarly, the other contribution was the inclusion of Indonesia’s SMEs to investigate the impact of C.E.O’s financial literacy on corporate financial performance with the mediating role of investment decisions sources as no study has been analyzed the corporate performance of this sector earlier. Moreover, unlike previous studies, the current study incorporated advanced methodological techniques such as Structural equation modeling and confirmatory factor analysis. The explanation of the proposed mechanism is significant for practitioners of financial management to develop financial strategies with the alignment of business vision for the prominent growth and performance of a firm. Thus, the rest of the research covered the relevant literature and formulation of hypotheses, in section 3 the methodology of the study is discussed, whereas in section 4 data analysis and results are discussed while section 5 includes a conclusion and future policy implications.

2. Literature Review and Theoretical Background

In order to analyze the role of investment decisions and C.E.O on the corporate financial performance, the study incorporated the “Theory of Planned Behavior”. The TPB is the managerial framework that considers behavior as the result derived from the attitude and behavioral controls of an individual (Ajzen, 1991). The TPB model focuses on the intention, beliefs and subjective norm of an individual as the sources of a behavior. Several scholars provide the support of positive statistical associations between TPB framework and underlying behavioral mechanisms (Ajzen, 2015). As in view of this, these elements are necessary for the determination of an individual behavior towards a particular situation or object (Yadav & Pathak, 2017). Several studies have incorporated this theory for an in-depth understanding of behavior drivers (Abraham & Sheeran, 2017; De Leeuw, Valois, Ajzen, & Schmidt, 2015). Thus, the present study proposed the following conceptual model presented in figure 3 by taking into consideration the C.E.O financial literacy level (independent variables) as the determining factor of corporate financial performance (dependent variable) (Haseeb et al., 2020). The study also assumed that sources of investment business decisions acts as a significant mediator in the relationship between C.E.O financial literacy and corporate financial performance.

3. C.E.O Financial Literacy and Corporate Financial Performance

Financial performance is the key to success for every business which is why accelerated amount of research is being done on the topic (c.f., Galdeano, Ahmed, Fati, Rehan & Ahmed, 2019). Financial literacy is defined as “the possession of the set of skills and knowledge that allows an individual to make informed and effective decisions with all of their financial resources” (Sulaiman, 2016). These knowledge sets determines the financial rules and regulations and operating procedures of a firm by conforming to the laws and regulations implemented globally (Noordin & Kassim, 2017). Basically, the level of financial knowledge of an executive results in fruitful investment decisions as this knowledge enables the critical evaluation and understanding of alternative investment ventures, their associated potential benefits and risks, thus the calculated benefit and risk approach leads towards high profitability of the firm (N. Khan, Latif, Sohail, & Zahid, 2019). Moreover, the financial knowledge and expertise assist in maintaining and monitoring the financial controls for the detection of compliance levels followed by firm and whether the enforced reporting standards are followed or not (Ripain, Amirul, & Mail, 2017; Fitri et al., 2019).

As the firms are required to meet audit requirements for financial reporting through financial policy making with
the alignment of regulative regulations to maintain the profitability levels and overall financial performance (Chiu, Fischer, & Friedman, 2019).

The skills and financial expertise and knowledge possessed by executive’s plays a prominent role in determining the financial strategies of a business and aims to find solutions in order to achieve the high financial performance (Hussain et al., 2020). A well-literate executive in term of accounting knowledge and knowledge about financial laws and regulations develops the business strategy aligned with market policies and rules which results in the effective insights to cope up with the dynamic environment and leads towards effective financial performance (Scafarto & Dimitropoulos, 2018). Many studies have emphasized the importance of possession of financial knowledge by the senior management for the success and profitability of a firm as it fosters effective earnings management (Kouaib, Jarboui, & Mouakhar, 2018). While studying the major determinants of financial performance and effective investment decisions with high market shares, the findings of (Adams, Debrah, Williams, & Mmied, 2015) highlighted that for the favorable investment avenues and for high returns, the utilization of financial knowledge is mandatory and creates a high momentum for financial growth of a firm. Therefore, based on the reviewed literature and the recognition of importance of financial literacy in the determination corporate financial performance, the current study hypothesized that:

H1: C.E.O Financial Literacy has a significant impact on corporate financial performance.

a. Mediating role of Accounting information

The possession of accounting information refers to the knowledge about past performance of the firm, the number of expected bonus shares, the expected corporate earnings and the marketability of the stock (Alfraih, Alanazi, & Alanzi, 2015). It includes the understanding of current financial needs and detection of potential areas that need to be targeted for the effective growth of the company. It is based on the existing financial knowledge and financial experiences, which allows the firm to work on its profitability practices and potential profitable avenues (Roslan et al., 2018). It facilitates in on improving current financial business practices and ultimately effective financial performance. Moreover, the accounting information allows the understanding of economic behaviors and expected stock returns in view of the economic conditions, as the possession of financial literacy enables an individual to examine its business environment for determining the effectiveness of any decision, as the knowledge and expertise about the current financial trends and information gives a competitive strength in maximizing the corporate earnings (Ahmed, Ramakrishnan, & Noreen, 2017). Also, accounting information generates solutions to the underlying financial problems faced by the firm (Asif, Arif, & Akbar, 2016). Without the possession of this knowledge, the companies are unable to resolve immediate problems and fulfill its profitability needs and it has a significant impact on financial performance of the firm (Hussain, Salia, & Karim, 2018; Masnita et al., 2019). With the utilization of the financial knowledge, and individual analyzed the expected market condition and performances of the stock and determines the investment decisions accordingly after the critical evaluation of potential consequences of a financial decision before its implementation, so that the firms are able to integrate effective financial policies and fulfill the needs of investors and shareholders (Estelami, 2016). Therefore, based on the reviewed literature and the recognition of interrelated role of financial literacy, and accounting information in the determination of financial performance, the current study hypothesized that:

H2: Accounting Information has a significant mediating role in the relationship between C.E.O financial literacy and Corporate Financial Performance.

b. Mediating role of Advocate information

The capacity to analyze the recommendations of brokers and the opinions of financial analysts or members in order to respond to investment and financial alternatives lies in the category of advocate information (Xiao & Porto, 2017). The capability of analyzing the market and given opinion is associated with identifying present and future financial needs of the company and dispersion of these learning over the financial operations and designing
responsiveness strategies as per the market dynamics (Arthur, 2016). The examination of financial alternatives is possible with the inclusion of financial knowledge as these decision have a significant influence on financial performance of the firms (Eniola & Entebang, 2016). Moreover, the findings of (Mindra & Moya, 2017) stated that the possession of financial information and ability to select the most suitable alternative is crucial for the informed financial decision as it affects the overall performance indicators of the firm and determines the competitive position in the industry. Therefore, in view of the reviewed literature and the interrelationships of financial literacy, advocate information and corporate financial performance, the current study hypothesized that:

**H3:** Advocate Information has a significant mediating role in the relationship between C.E.O financial literacy and Corporate Financial Performance.

c. **Mediating role of Neutral Information**

In the context of investment decisions, neutral information is considers the possession of knowledge of routine coverage’s in the media, current economic indicators, the holdings by the government and the fluctuation levels of stock index (Jonsson, Söderberg, & Wilhelmsson, 2017). The possession of financial knowledge enables an executive to understand the investment environment with the analysis of the business environment in the firm is operating. Also, this financial expertise assisted in critical evaluation of the investment options available for the firm, the effective evaluation results in high profitable investment decisions and ultimately facilitates the financial growth of the firm (Arif, 2015). Moreover, the financial literacy allows the understanding of economic behaviors of various indicators like GDP, inflation, interest rates to determine the effectiveness of any decision, as the scrutiny of any implemented or upcoming decision is possible when the executive itself have the knowledge and expertise about the current financial trends and information (Jariwala, 2015). According to (Friede et al. 2015) the most effective way of attaining investment knowledge that aid in decision making is the ability to sense present market financial situations as it boosts the tendency of a firm to identify opportunities and improve their financial decisions for high levels of financial performance.

In addition, it is argued by the authors that financial knowledge and the possession of investment related information are interrelated for determining the financial performance (Masnita et al., 2019). With the utilization of the knowledge, and individual analyzed the specifications and potential consequences of a financial decision before its implementation, so that the firms are able to integrate effective financial policies and fulfill the needs of investors and shareholders as these decisions has a significant influence on profitability of the firm (Mazieres & Boespflug, 2017). Also, a well-researched investment decision results in the effective recognition of opportunities and provides ways for the successful financial strategy according to market insights to cope up with the dynamic environment and leads towards high corporate financial performance (Deepak, Singh, & Kumar, 2015) Thus in view of the existing relationship between possession of financial literacy, possession of neutral information and corporate financial performance, the present study hypothesized that:

**H4:** Neutral Information has a significant mediating role in the relationship between C.E.O financial literacy and Corporate Financial Performance (See figure 2)
4. Research Methodology

Population and Sampling

For observing the impact of C.E.O financial literacy on corporate financial performance, in mediating role of investment decisions sources such as accounting, advocate and neutral information, researcher carried out this specific research study. Researcher takes into account manufacturing sector of Indonesia as population of study, as industrial sector of Indonesia consists of two sub-sectors mining and manufacturing. Manufacturing industry get disturb due to the Asian crisis and it lag behind mining industry, Indonesian government efforts a lot to enhance productivity of manufacturing sector and its result positive as many manufactured products exported and contribute a lot in GDP of Indonesia. In current scenario, manufacturing sector productivity is average, not outclass or extraordinary that’s why researcher proposed that whether contribution of C.E.O financial literacy and effective investment decision sources increased financial performance of manufacturing sector of Indonesia or not. Researcher considered the agriculture industry and textile industry as sampling frame of this study because these industries overtook Asian crisis and increased their productivity and contributes a lot in economy of Indonesia. Further, researcher selects the managers, C.E.O and owners of firm as sample respondents through purposive sampling technique as only top management and owners can fulfill the objective of study and this study tailored to improve their productivity. Survey questionnaire has been distributed among 400 respondents but out of which only 376 agreed to responded, after data collection researcher performed data cleaning process and discarded invalid and incomplete responses, at the end only 301 valid responses received.

Data Collection Procedure

Questionnaire has been considered most appropriate data collection procedure, as it helps in collecting primary, quantitative and numeric data from respondents. It has been categorized into two closed ended questions such as demographic items and variable scale items. Researcher performed the pilot study on 33 respondents for verifying that whether items wording, structure of questionnaire is understandable by respondents or not understandable. Afterward, researcher minimize the errors and rectified mistakes in questionnaire on the bases of collected feedback. Further, researcher checked the content validity of measures through industrial professional and verified that language of questionnaire must be understandable by native Indonesian people. Finalized form of questionnaire

Figure 2. Conceptual model
then administered through self-administering and online-administering technique, as it allows respondents to respond appropriately and conveniently to survey items asked in questionnaire.

**Measures**

Researcher measured role of dependent, independent and mediating variable through those survey items, which have already been used for the measurement of such variables in the previous literature. As researcher considered them more authentic and reliable for measurement of variables such as C.E.O financial literacy has been measured through 14 survey items, which have been adapted from research work of (Bongomin, Munene, Ntayi, & Malinga, 2018) and for the measurement of corporate financial performance, 6 survey items have been adapted from research work of (Li & Zhang, 2007), (Luk et al., 2008) & (Venkatraman & Ramanujam, 1986). Further, investment decisions sources dimensions have been measured through different survey items such as for accounting information researcher adapts 4 survey items, for advocate information 4 survey items have been adapted and for neutral information 4 survey items have been adapted, from research work of (Al-Tamimi, 2009). To measure the responses of all these measurement items, researcher takes into account 5-point Likert scale, in which response ranges from 1 (strongly disagree) to 5 (strongly agree).

**Measurement Model**

In the measurement model, reliability of measures has been assessed through SPSS, by examining two criteria (1) Composite reliability and (2) Cronbach’s α, both of them must have the values greater than threshold limit 0.70, as it ensured internal consistency and items reliability respectively. Further, AMOS has been accompanied to assess convergent and discriminant, by examining different criteria such as for convergent validity two criteria have been examined such as (1) items loading, its values have to be greater than cutoff value 0.70 and (2) average variance extracted, its values have to exceed threshold limit 0.50. For discriminant validity assessment, criterion examined states that square root of AVE has to exceed, when compared with all other correlated constructs. Researcher has also been accompanied AMOS for running structure equation modeling, which assessed that which hypothesis get accepted or which get rejected through path analysis of structure model.

5. **Results and Analysis**

The description here indicates that there have been 124 male participants and 177 female participants. The total number of participants were 301. The education chart shows the education levels of the participants. The table above implies that most of the participants had post-graduate education level. The above table shows that most of the participants were in the age between 31 and 40.

<table>
<thead>
<tr>
<th>Table 1. Descriptive Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>FinanPerf</td>
</tr>
<tr>
<td>AccInfo</td>
</tr>
<tr>
<td>AdvInfo</td>
</tr>
<tr>
<td>NeuInfo</td>
</tr>
<tr>
<td>CEOFinLit</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
</tr>
</tbody>
</table>

The first output of the analysis shows the descriptive statistics including all the variables of the study. This table above explains the description of the respondents that participated for this research purpose. The table above implies that there had been no outliers in detection. The results indicate that the distribution of this sample has been normal (table 2).
Table 2. KMO and Bartlett's Test

<table>
<thead>
<tr>
<th>Kaiser-Meyer-Olkin Measure of Sampling Adequacy</th>
<th>.937</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bartlett's Test of Sphericity</td>
<td></td>
</tr>
<tr>
<td>Approx. Chi-Square</td>
<td>11672.739</td>
</tr>
<tr>
<td>df</td>
<td>496</td>
</tr>
<tr>
<td>Sig.</td>
<td>.000</td>
</tr>
</tbody>
</table>

The KMO is conducted to check the sampling competence and for that the threshold is above 0.7 and below 1 and is 0.937 here depicting adequacy of sample. The Bartlett’s test measures how strong is the relationship between the variables chosen for the study. The value for this test in our analysis comes out to be significant (table 3).

Table 3. Rotated Component Matrix

<table>
<thead>
<tr>
<th>Component</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>FP1</td>
<td>.723</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FP2</td>
<td>.771</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FP3</td>
<td>.843</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FP4</td>
<td>.837</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FP5</td>
<td>.826</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FP6</td>
<td>.806</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AC1</td>
<td></td>
<td>.778</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AC2</td>
<td></td>
<td>.821</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AC3</td>
<td></td>
<td>.820</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AC4</td>
<td></td>
<td>.813</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AD1</td>
<td>.803</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AD2</td>
<td>.835</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AD3</td>
<td>.872</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AD4</td>
<td>.796</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NE1</td>
<td></td>
<td></td>
<td>.770</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NE2</td>
<td></td>
<td></td>
<td>.812</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NE3</td>
<td></td>
<td></td>
<td>.801</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NE4</td>
<td></td>
<td></td>
<td>.787</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FL1</td>
<td>.843</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FL2</td>
<td>.850</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FL3</td>
<td>.861</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FL4</td>
<td>.890</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FL5</td>
<td>.883</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FL6</td>
<td>.875</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FL7</td>
<td>.853</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FL8</td>
<td>.841</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FL9</td>
<td>.866</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FL10</td>
<td>.853</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FL11</td>
<td>.811</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FL12</td>
<td>.837</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FL13</td>
<td>.867</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FL14</td>
<td>.876</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

125
Here all the variables have loading higher than the threshold which is 0.7 in this case, therefore, there has been no overlapping of the factors and there has been no cross-loading as well (table 4).

**Table 4. Convergent and Discriminant Validity**

<table>
<thead>
<tr>
<th></th>
<th>CR</th>
<th>AVE</th>
<th>MSV</th>
<th>MaxR(H)</th>
<th>FL</th>
<th>AC</th>
<th>FP</th>
<th>AD</th>
<th>NI</th>
</tr>
</thead>
<tbody>
<tr>
<td>FL</td>
<td>0.920</td>
<td>0.779</td>
<td>0.244</td>
<td>0.981</td>
<td><strong>0.883</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AC</td>
<td>0.938</td>
<td>0.791</td>
<td>0.373</td>
<td>0.985</td>
<td>0.387</td>
<td><strong>0.889</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FP</td>
<td>0.945</td>
<td>0.743</td>
<td>0.366</td>
<td>0.988</td>
<td>0.494</td>
<td>0.605</td>
<td><strong>0.862</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AD</td>
<td>0.937</td>
<td>0.787</td>
<td>0.354</td>
<td>0.990</td>
<td>0.442</td>
<td>0.595</td>
<td>0.529</td>
<td><strong>0.887</strong></td>
<td></td>
</tr>
<tr>
<td>NI</td>
<td>0.919</td>
<td>0.740</td>
<td>0.373</td>
<td>0.991</td>
<td>0.494</td>
<td>0.611</td>
<td>0.567</td>
<td>0.533</td>
<td><strong>0.860</strong></td>
</tr>
</tbody>
</table>

Looking at the values of the composite reliability, we can comprehend that the variables are related with one another in reality. Furthermore, the average variance extracted value are also greater than the critical value which is 0.5. Also, the results for the discriminant validity imply that the variables hold divergent rationality.

**Table 5. Confirmatory Factors Analysis**

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Threshold range</th>
<th>Current values</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMIN/DF</td>
<td>Less or equal 3</td>
<td>2.338</td>
</tr>
<tr>
<td>GFI</td>
<td>Equal or greater .80</td>
<td>.830</td>
</tr>
<tr>
<td>CFI</td>
<td>Equal or greater .90</td>
<td>.946</td>
</tr>
<tr>
<td>IFI</td>
<td>Equal or greater .90</td>
<td>.947</td>
</tr>
<tr>
<td>RMSEA</td>
<td>Less or equal .08</td>
<td>.068</td>
</tr>
</tbody>
</table>

This table 5 above implies that the model fit is really good. The value for CMIN/DF value is 2.3 which indicates the good model fit. The other indicators also have the values in accordance with the threshold values of the determinants.
The CEO financial literacy has a significant direct effect on the financial performance of an organization. The table 6 and figure 3 and figure 4 b show that one unit increase in the CEO financial literacy can cause an increase of 22% on his financial performance. Therefore, literacy rate has been seen to be impacting the performance level of the CEO. Furthermore, the mediators accounting information, advocate information, and neutral information have been significantly mediating the relationship between the CEO literacy level and his financial performance.
6. Discussion and Conclusion

Discussion
The primary purpose of the paper is to analyze the impact of financial literacy on the corporate financial performance of the companies through the mediating role of investment decisions. The results and discussion section shows that the data has been collected through 301 individuals. Furthermore, the results show that the first hypothesis such as financial literacy has a significant impact on the financial performance of the companies. The significance value shows that the first hypothesis was accepted. A related study has also concluded that financial literacy has a significant impact on financial performance. The study further found out that financial literacy and the size of the firm had a significant positive influence on the financial performance while the influence of the amount of capital invested had insignificant influence (Hazudin et al., 2018).

The study has also analyzed the mediating effect of neutral information on financial performance. The results also prove that neutral information has a significant mediating role in the relationship between financial literacy and financial performance. Therefore, the second hypothesis of the paper accepted. Another, the hypothesis of the study also accepted. It illustrates that the advocate information at the same time has a significant mediating and positive role in the relationship between CFO financial literacy and financial performance. A related study explained that financial literacy advocacy campaigns successfully raise mainstream awareness, recognize financial education advocates, and promote financial literacy (Kamanga, 2018). Finally, the last hypothesis of the study also accepted. It is shown that besides all other factors, the accounting information has also a significant mediating role in the relationship between CFO financial literacy and financial performance. Another related study illustrates that Financial literacy is important because it equips us with the knowledge and skills we need to manage money effectively (Crawford, 2018). This shows that the role of financial literacy has a great role in the financial performance of the companies through the mediating role of other variables.

Implication
The financial literacy produces various outcomes and benefits in the Indonesian sector. The paper revealed that the benefits of financial literacy on personal financial performance includes Financial satisfaction, better management of personal finances, substantial returns, money management, budgeting and record-keeping, retirement planning...
and debt management. The implications of the study illustrate that financial literacy helps in enhancing the financial performance of the companies in a positive way. Financial literacy enhances knowledge, accounting information, advocate information, neutral information (Kanojia, Singh, & Goswami, 2018). This information affects the financial performance of companies in a significant way.

**Limitation/Recommendations**
This research was designed to determine the role of financial literacy on the financial performance of the companies in Indonesia through the mediating role of accounting information, advocate information and neutral information. After reviewing the varied responses, gaps that were outside the scope of this research have emerged. The very first limitation of the research is the sample size. The sample size is very small. The research may be more effective and significant if the sample size is great. The sample size should be 400-500. Moreover, the research does not illustrate the effect of financial literacy on financial performance. Future research must be conduct in a particular sector, industry, and sector. The research can be conduct in a financial sector that will significantly help to analyze the impact of financial literacy on performance.

**Conclusion**
The research study consists of identifying the role of financial literacy and financial knowledge o the performance value of the companies in Indonesia. The primary objective of the paper is to identify the impact of financial literacy on financial performance through a mediating role of three variables. The total sample size of the study was 301 from 177 females and 124 males. The data analysis through applied different tests such as KMO and Bartlett’s Test and other related tests. The results of the tests show that all hypotheses accepted. The financial literacy has a significant impact on the financial performance of the companies.

**References**


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POSITIVE WORDS OF MOUTH AND BETTER PERCEIVED QUALITY: ROLE OF ENVIRONMENTAL ERGONOMIC ASPECTS

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Abstract. The role of Ergonomic aspects of the brand on positive word of mouth and perceived quality of Indonesian Restaurants were investigated in the present study with the integration of customer’s convenience as a mediator. For the achievement of this purpose, primary data from 297 respondents have been drawn with the purposive sampling. Moreover, the hypothesized statistical relationships between the variables are analyzed with Confirmatory factors analysis and Structural equation modeling approach through descriptive analysis, KMO and Bartlett’s test, rotated component matrix, convergent and discriminant validity. The direct effects indicated that environmental ergonomic significantly predicts the perceived quality of the restaurant, while, Visual display and Anthropometric are the insignificant predictors of perceived quality. On the other hand, in terms of direct effects on positive word of mouth of restaurants, visual display, anthropometric and environmental ergonomic are found as significant predictors. Likewise, with regards to indirect effects, it is evidenced that customer’s convenience acts as a significant mediator in the relationship between Visual display, Anthropometric, environmental ergonomics, and perceived quality. Also the similar significant mediating role of customer’s convenience was found for the positive word of mouth. In addition, practical, theoretical and policy-making implications for fostering positive word of mouth and positive perceived quality perceptions are discussed along with the recommendations and implications for future researches in view of the study limitations.

Keywords: positive words of mouth; better perceived quality; environmental ergonomic aspects

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JEL Codes: M14

Introduction
In current highly globalized and competitive business world, it has become highly important for organizations to focus on adopting those business practices with the help of which success long term success can be ensured (Fitri, Nugraha, Hakimah, & Manihuruk, 2019). The success of an organization, especially in restaurant industry depends on high satisfaction level of customers. In order to ensure long term success of a firm, it is important for the management of a restaurant to focus on those aspects through which customers can get attracted as well as retained (Agnisarman, Ponathil, & Lopes, 2018). In restaurant industry, the most important factor which needs to be focused on is ergonomic aspect. It is important for management of restaurants to bring significant improvement in ergonomic aspects in order to make customers happy and satisfied. A firm can only gain long term success, when it gives high value and importance to its customers. When a firm makes its customers happy and satisfied, then they actually create positive word of mouth for that specific firm and the future success of business also depends on that effort (Ahn & Park, 2016; Ajina, 2019). The most important factor for a firm is ergonomic aspects. In accordance with International Ergonomic Association (IEA), ergonomic aspects refer to as the scientific discipline linked with the understanding of interactions among individuals as well as other aspects of a system, which are important for optimizing well-being of humans and overall performance of a system (Al-Kilani & Twaissi, 2017). Moreover, it is also mentioned by (Asgarpour, Hamid, Sulaiman, and Asgari 2015; Bernardi, 2019) that a holistic approach is encouraged through ergonomic aspects, which include cognitive, environmental, physical, social and other relevant factors. For example, the key goal behind the ergonomic aspects is creating jobs, systems, high satisfaction level,
ease as well as effective well-being. Previously, there has been no study conducted on analysing the impact of ergonomic aspects on positive word-of-mouth and customers’ convenience. The current study has been carried out to analyse the impact ergonomic aspects on positive word-of-mouth as well as on customers’ convenience.

Figure 1 indicated the statistics data about halal food by products in Indonesia which make able to understand the restaurant quality in the country. There are some studies conducted previously for examining the importance of ergonomic aspects, but these have focused on investigating work-related health as well as musculoskeletal disorder in workers of a restaurant (Balakrishnan, Muthaly, & Leenders, 2016; Basaran & Aksoy, 2017). However, in these studies, the variables of word-of-mouth and perceived quality have not been studied. Hence, the current study has been carried out to fill this gap. In restaurants, ergonomic aspects of customers are linked with atmosphere of the restaurant. The atmosphere of a restaurant is considered to be highly important for attracting customers. When customers perceive a restaurant to be highly attractive and classy, then they prefer to go there for spending some time and to eat something (Castellano & Dutot, 2017). (Chaouali, Ben Yahia, Lunardo, and Triki 2019) found that there is a positive impact of atmosphere of a restaurant on customer satisfaction as well as their buying behaviors. Customers always focus on ergonomic aspects of a restaurant while taking a decision of visiting a specific restaurant. Moreover, the ergonomic aspects of a hotel have a positive impact on emotions of customers and as a result of enjoying highly positive ergonomic aspects while visiting a hotel, customers start sharing positive feedback about that specific restaurant (Egresi, 2017). There is a link of five human senses with atmosphere of a restaurant, which are referred to as sound, touch, taste, sight and scent. It is important for the management of hotels to focus on improving atmosphere of hotels, which mainly include exterior design, seating arrangement, furniture, lighting, decorations and cleanliness of workers’ uniform. There is a difference between ergonomic aspects and atmosphere of a restaurant (Dale et al., 2017). It is important for the management of a restaurant to give more importance to ergonomic aspects, as these can be linked with increased number of customers (Haseeb et al., 2020). The ergonomic aspects are linked with technical, measurable and specific indicators. Moreover, there is a need of including both subjective as well as objective measurement methods in the analysis of data. There can be a use of both of these methods in laboratory as well as field research studies. As per ergonomic point of view, the indicators of atmosphere are linked with environmental ergonomic, visual display and anthropometric (Jin, Ling & Fern, 2016). On the basis of prior research studies, it can be seen that measurement from perspective of customers is relevant to customer satisfaction, positive emotion of customers and dining experience. There is an existence of no empirical study.
conducted for examining the impact of ergonomist aspects and customers’ convenience on perceived quality and positive word of mouth. Hence, current study has been carried out to fill this gap. The study is aimed at examining the impact of ergonomic aspects on positive word of mouth and perceived quality, while examining the mediating role played by customers’ convenience. The study is based on following objectives;

- To study the impact of ergonomic aspects on perceived quality.
- To examine the impact of ergonomic aspects on positive word of mouth.
- To analyses the mediating role of customers’ convenience on relationship between ergonomic aspects and perceived quality.
- To study the mediating role of customers’ convenience on relationship between ergonomic aspects and positive word of mouth.

The findings of this study have both academic as well as practical implications. The management of Indonesian restaurants can get to know about the importance of ergonomic aspects for improving perceived quality as well as positive word of mouth. As, no study has been conducted previously for analyzing the importance of ergonomic aspects, so, this research study adds value to the literature.

1. Literature Review

This chapter includes critical review of a number of studies and books relevant to ergonomic aspects and their importance for restaurants. The critical review has helped in identifying the gap in literature.

Ergonomic Aspects

Ergonomic is a process of applying scientific norms, methods as well as data collected through different disciplines towards developing engineered systems, in which a key role is played by people. In other words, the focus of ergonomic aspects is on the way of fitting a specific work, in accordance with the capability, limitation of human and ability (Filieri & Lin, 2017). There are some specific domains of specialization within ergonomic, which include physical ergonomic, cognitive ergonomic, environmental ergonomic and organizational ergonomic. There is a key link of ergonomic aspects with convenience for customers in restaurant (Guzzo, Ferri, & Grifoni, 2016). The focus of current study is on following important elements of ergonomic in a restaurant and their impact on positive word of mouth and perceived quality is studied.

Visual Display

Visual display is an ergonomic aspect, which includes human anatomy, layout of workplace, physiological, movement and posture as well as other aspects linked with physical activities of humans. There are around 80% of informational input to brain of humans, which is produced through visual stimuli (Hartono & Raharjo, 2015). In addition to this, (Hsu 2018) argued that font size has become an important factor, which affect how fast human eyes have become capable of receiving information within a planning for visual display. One of the significant fields used to analyze font size is typography. The typography is linked with a set of font characteristics. There are different font characteristics, like, ratio between height and width, font height and font type. Moreover, it is important to consider content, as an important factor while designing a visual display. It is important to ensure that content of visual display is informative, readable, concise as well as proportional between pictures and font size. As a result of any failure in visual display ergonomic, the inconvenience is resulted. (Katsikeas, Morgan, Leonidou, and Hult 2016) claimed that the visual display is considered to be highly important for making customers capable of visiting again and again and spreading positive points about the firm. Moreover, visual display can be used to create perceived quality about the brand. In order to create high perceived quality among customers, it is important to focus on improving the aesthetics of hotel, so that customers can feel satisfied.
H1: There is a significant impact of visual display on perceived quality.

H2: There is a significant impact of visual display on positive word of mouth.

**Anthropometric**

The anthropometric term is originated from the term ‘anthro’, that means human and also from ‘metrics’, that means measurement. Anthropometric is a style, which is focused on measurement of human’s body, for the purpose of formulating size differences between each person or groups (Hwang & Lyu, 2018). According to (Jin, Ling, and Fern 2016), in a dining area, there is not only need of focusing towards conformity of table and chair towards anthropometric dimension of users, but it also includes focus on space between space between tables and chairs. There is a link between standardized measurement of space between tables and chairs. Its observation can be done directly in restaurants, in which the aforementioned space between the tables also known to the chairs linked with the table. The functioning of space is not just as the space for moving, linked with customer, but also as area of server to address customers. According to (Kasemsap 2016), if there is already correspondence of product’s design with the anthropometric data from users, then there is a possibility that users perform their activities in a comfortable way. It has been argued by (Liao, Wu, Amaya Rivas, and Lin Ju 2017) that employees in a restaurant have depicted the appearance of musculoskeletal disorder felt among individuals, particularly, on those working on the kitchen. It is important for management of hotels to focus on improving anthropometric aspects. The performance of workers is considered to be highly important for the success of a hotel. In order to provide high quality to customers, it is important to focus on enhancing performance of employees. The employees are referred to as key part of an organization. The success of an organization depends on the performance of its employees. (Lin 2015) claimed that employees must be provided with equipment and skills, so that they can give high quality service to customers. When facilities as well as equipment is failed to correspond with anthropometric data, then this results in disorder. During the early stage, the anthropometric aspect is linked with low satisfaction level of customers. When the management does not give importance to anthropometric aspect, then that organization is considered to be a low quality firm and customers start spreading negative information about that firm.

H3: There is a significant impact of anthropometric on perceived quality.

H4: There is a significant impact of anthropometric on positive word of mouth.

**Environmental ergonomic**

Environmental ergonomic is an ergonomic study, which investigates the link between individuals and their limitations within working environment. There is an impact of environmental ergonomic on health of humans and their willingness of performing their job duties (Mpinganjira, 2015). Physical working environment includes air circulation, sound, climate and illumination. With the help of air circulation, fresh air gets entered in to the building in the desired amount. The fresh air is considered to be highly important for ensuring high satisfaction level of customers. The air circulation can be in the form of natural and mechanical. With the help of proper circulation of air, customers can be attracted as well as retained for longer time period (Shah & Attiq, 2016). In order to create positive environment, the management focuses on using mechanical air circulation, through air conditioner. The climate of restaurant consists of air temperature, radiation, humidity and movement of air (Sneller, Choi, & Ahn, 2018). However, it has been argued by (Sperková, Vencovsky, and Bruckner 2015) that comfortability of people gets affected through air temperature. Humidity means the amount of water contained within the air, evaluated through relative humidity in percentage. In addition to air, light is also an important factor which affects perceived quality as well as positive word of mouth. Illumination refers to the amount of light in a working platform required for running a specific activity in an effective manner.

According to (Xue 2019), a decent illumination makes an individual capable of seeing his or her working objects in a clear manner as well as quickly. Due to high level of intensity in illumination, glare gets triggered, that is an
impact caused through an excessive amount of light absorption. Generally, customers prefer to visit those places for dining, where there is enough lighting. In addition to this, customers use to focus on sound, as an important ergonomic aspect. Sound is heard whenever a difference is detected in pressure, longitudinal, mechanical or compression wave creeping with the help of specific medium.

**H5:** There is a significant impact of environmental ergonomic on perceived quality.

**H6:** There is a significant impact of environmental ergonomic on positive word of mouth.

**Convenience**

The convenience is the standard to determine that the concerning research related to ergonomic can be considered successful. Some definitions about convenience are as follows, as realized through health and ergonomic studies perception in accordance with (Lin 2015), the condition in which the holistic as well as individual basic requirements of the human have been satisfied is known as convenience. (Hartono and Raharjo 2015) stated that the convenience is the feeling which depends upon the behavior of the human while bearing the situation. Moreover, it is described that the convenience of the product depends upon both the product’s physical functionality itself as well as the perception of individual. According to the given definitions, one can say that the convenience is the perception of an individual towards an individual’s surrounding environment or situation whether it is psychological, spiritual or physical. Humans judge the environment depends upon the incentive in them by six senses, later supplied by nerves, after that brain processed in to finally conclude the result. Physical biological problems are not only involved in it but the feelings are also involved. Illumination, temperature, smell, sound and other stimulating substances are engaged instantaneously earlier as being managed by the brain. According to (Jin et al. 2016), a proper judgement will be provided by the brain that either a specific situation is convenience or it is not convenience. In accordance with (Hsu 2018), at the time of purchase the main consideration of the customer is not only cost but they also consider satisfaction, convenience as well as service all of them are the basic standards that influence the decision of the customer at the time of shopping. The sense of convenience that the customers felt at the time of shopping will help in continuous as well as positive interaction in transactions of service and goods. It can be considered that the convenience has become an important factor for the customers at the time of executing the transaction. The given research measures the reviews of the customers in restaurants from psychological as well as physical aspects. Physical convenience is considered as a situation where there is no pain in the body of human, and no handicap can be seen performing any kind of activity. In the meantime, psychological convenience is the situation where the mind of the human is totally free from uncertainty, tense, fear or concern, insecurity and any other kind of negative unpleasant feelings.

**H7:** There is a significant mediating impact of customers’ convenience on relationship between environmental ergonomic and perceived quality.

**H8:** There is a significant mediating impact of customers’ convenience on relationship between environmental ergonomic and positive word of mouth (see figure 2).
2. Research Methodology

Population and Sampling
This research study has been conducted with the objective to observe impact of ergonomic aspects of brand such as visual display, anthropometric and environmental ergonomic on positive word of mouth and perceived quality, in mediating role of customer’s convenience. Population of study in this research study is Indonesian restaurants because food service industry in Indonesia is growing immensely due to tourism but to spread positive word of mouth about Indonesian restaurants, food service industry has not taken significant steps. Due to these reasons, researcher proposed that ergonomic aspects and customer convenience can be significant driver for Indonesian restaurants positive word of mouth. For data collection, researcher selects Tugu Kunstkring, Plataran Menteng and Sriwijaya Restaurant as sampling frame because these restaurants have very strong customer base and these are leading restaurants which provide excellent quality and services to customer that’s why researcher choose these for collecting data about perceived quality and positive word of mouth parameters. Convenience sampling technique has been taken into consideration for selecting managers and employees as respondents as these restaurants have huge number of employees, so this technique enables researcher to select only those which can easily be assessed. For data collection about role of concerned variables, researcher distributes 540 questionnaires between respondents, out of which only 498 responded or filled questionnaire. Researcher considered only 459 responses as valid because rest of them has been discarded due to incompleteness and invalidity.

Data collection Procedure
Questionnaire has been selected as most suitable option for collecting primary, quantitative and objective data, which can easily be analyzed through statistical analysis tools. Survey questionnaire has been composed of two types of closed ended questions which are (1) Demographic information and (2) variable scale items. Researcher writes questionnaire originally in English language but for data collection procedure, it translated into native Indonesian language. After collecting data researcher accompanied back translation method for again converting it into English language as data analysis can easily be performed in English language. Further, researcher takes into account pretest approach for verifying understandability of items wording and questionnaire structure and collect feedback from industrial practitioner about content validity of measures. After rectifying mistakes in questionnaire, researcher administered finalized form of questionnaire through online and self-administering technique because it helps to collect more appropriate responses, in more convenient way.

Figure 2. Theoretical Framework
Measures
Due to authenticity and reliability of measurement items used by different authors for measuring role of concerned variables in their specific research study, researcher adapts these measurement items for measuring impact of variables in this specified research study. For measuring customer’s convenience construct, researcher takes into account researcher work of (Kolcaba, 2003) for adapting 3 survey items, researcher measured perceived quality through 3 survey items taken from (Chitturi, Raghunathan, & Mahajan, 2008), and positive words of mouth has been measured through 2 measurement items, which have been adapted from (Sanders & McCormick 1998). As far as ergonomic aspects of brand is concerned, researcher adapts 10 survey items for measuring visual display, which have been taken from (Sanders & McCormick 1998), (Kroemer 2017) and (Niebel & Freivalds 2003). Anthropometer construct has been measured through 6 survey items, which have been adapted from (Panero & Zelnik 1979) and for environmental ergonomic measurement, 8 survey items adapted from research work of (Sanders & McCormick 1998) and (Kroemer 2017). To measured responses of respondents for all these measurement items, researcher takes into account 5-point Likert scale, which ranges from 1 = strongly disagree to 5 = strongly agree.

Data Analysis
Researcher takes into consideration two software (1) SPSS and (2) AMOS for data analysis procedure, under them researcher performed various tests such as validity, reliability and data analysis tests. Structural equation modelling approaches have been commonly used these days across prominent studies in social sciences (c.f., Umrani, Siyal, Ahmed, Ali Arain, Sayed & Umrani, 2019). SPSS has been accompanied for performing regression test, correlation test, reliability test and descriptive statistics test, for running diagnosis of reliability test two criteria have been examined such as Cronbach’s alpha and composite reliability. For ensuring items reliability and internal consistency respectively, both these criteria must have values greater than 0.70 cutoff value. Further, AMOS has been considered for performing confirmatory factor analysis (which assessed model fitness, discriminant validity and convergent validity) and structure equation modeling (which assessed hypotheses and reports that which hypothesis is accepted, or which get rejected).

3. Results and Analysis
The people involved in data collection process were 297 and all of them belonged to Indonesia as the study is being conducted there. 124 males and 173 females were included in the process. They all have different educational qualifications such as graduation, post-graduation, masters and other educational qualifications and all are having different age groups (table 1).

<table>
<thead>
<tr>
<th>Table 1. Descriptive Statistics</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>SD</th>
<th>Skewness</th>
</tr>
</thead>
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<td>Statistical</td>
<td>Statistical</td>
<td>Statistical</td>
<td>Statistical</td>
<td>Statistical</td>
<td>Statistical</td>
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<td>3.5926</td>
<td>1.06388</td>
<td>-.873</td>
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<td>5.00</td>
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<td>3.4529</td>
<td>1.11869</td>
<td>-.571</td>
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<tr>
<td>CustConv</td>
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<td>5.00</td>
<td>3.5993</td>
<td>1.13103</td>
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<tr>
<td>PosWOM</td>
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<td>5.00</td>
<td>3.6734</td>
<td>1.08418</td>
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<tr>
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<td>6.33</td>
<td>3.3692</td>
<td>1.13611</td>
<td>-.255</td>
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<td>Valid N (listwise)</td>
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<td></td>
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</tbody>
</table>

It is necessary to check the normal distribution as well as the absence of outliers in the collected data before further testing it. The descriptive analysis performs this function. The results shown in table 1 indicate that the data is normally distributed and the skewness is within the standard range (-1 to +1). The results also show that outliers are absent in the collected data as the maximum and minimum values of responses are also within the standard range (5 points Likert scale). The mean and standard deviation values have been evidently shown in the table 2.
Table 2. KMO and Bartlett’s Test

| Kaiser-Meyer-Olkin Measure of Sampling Adequacy | .943 |
| Bartlett’s Test of Sphericity | Approx. Chi-Square | 11058.320 |
| df | 496 |
| Sig. | .000 |

As the next step, the author has used KMO and Bartlett’s test so that the adequacy of sample size of the data can be determined. As the value of KMO test is 0.943 which is in the standard rage i.e. between 0.8 and 1, the sample size is considered to be adequate. The within range value of Bartlett’s test has also confirmed the adequate nature of the collected data sample size.

Table 3. Rotated Component Matrix

<table>
<thead>
<tr>
<th>Component</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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</thead>
<tbody>
<tr>
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<tr>
<td>VD2</td>
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<tr>
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<tr>
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<td></td>
<td>.781</td>
</tr>
</tbody>
</table>
Factor loading must be evaluated for the items that are produced as a result of variable transforming. Rotated component matrix results have been shown in table 3. These results show that the value of factor loading of all the items of the variables is greater than 0.7. As the threshold value is being satisfied, it indicates that cross loading is absent. The overlapping has also not been found in the items.

Table 4. Convergent and Discriminant Validity

<table>
<thead>
<tr>
<th></th>
<th>CR</th>
<th>AVE</th>
<th>MSV</th>
<th>VD</th>
<th>PW</th>
<th>PQ</th>
<th>CC</th>
<th>AN</th>
<th>EE</th>
</tr>
</thead>
<tbody>
<tr>
<td>VD</td>
<td>0.949</td>
<td>0.745</td>
<td>0.323</td>
<td>0.863</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PW</td>
<td>0.873</td>
<td>0.775</td>
<td>0.323</td>
<td>0.559</td>
<td>0.881</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PQ</td>
<td>0.866</td>
<td>0.684</td>
<td>0.480</td>
<td>0.568</td>
<td>0.468</td>
<td>0.827</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CC</td>
<td>0.924</td>
<td>0.801</td>
<td>0.332</td>
<td>0.524</td>
<td>0.556</td>
<td>0.438</td>
<td>0.895</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AN</td>
<td>0.910</td>
<td>0.805</td>
<td>0.332</td>
<td>0.563</td>
<td>0.568</td>
<td>0.401</td>
<td>0.576</td>
<td>0.897</td>
<td></td>
</tr>
<tr>
<td>EE</td>
<td>0.907</td>
<td>0.784</td>
<td>0.480</td>
<td>0.521</td>
<td>0.518</td>
<td>0.693</td>
<td>0.441</td>
<td>0.386</td>
<td>0.885</td>
</tr>
</tbody>
</table>

There are two tests i.e. convergent and discriminant validity, the results of which have been shown in table 4. According to these results, the composite reliability of all the variables is greater than 0.7 which satisfies the threshold range in this case. It can also be seen that the average variance extracted values of all variables is also greater than 0.5 which is also in the range. In addition, the results of discriminant validity are also satisfactory and indicate that the variables are very closely associated with one another.

Table 5. Confirmatory Factors Analysis

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Threshold range</th>
<th>Current values</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMIN/DF</td>
<td>Less or equal 3</td>
<td>2.158</td>
</tr>
<tr>
<td>GFI</td>
<td>Equal or greater .80</td>
<td>.828</td>
</tr>
<tr>
<td>CFI</td>
<td>Equal or greater .90</td>
<td>.953</td>
</tr>
<tr>
<td>IFI</td>
<td>Equal or greater .90</td>
<td>.953</td>
</tr>
<tr>
<td>RMSEA</td>
<td>Less or equal .08</td>
<td>.063</td>
</tr>
</tbody>
</table>

According to the results of model fitness test shown in the table 5, all the current values of indicators are within the range of threshold therefore the model is considered to be fit and the hypotheses may be moved further for testing purposes (figure 3).
In Table 6, the results of SEM have been evidently shown. In the direct effects portion, the impact of visual display and anthropometric on perceived quality are insignificant. In the same way, the impact of environmental ergonomic is insignificant on positive words of mouth. All other impacts in this portion are significant. The impact of mediator, customer’s convenience has also been found as significant in indirect effects portion (Figure 4).
4. Discussion and Conclusion

Discussion

The objective of the given paper is to analyze the impact of ergonomic aspects of brand image on positive word of mouth as well as the perceived quality value with the help of mediating variable customer convenience. The results tables and figures explained the relationship. The results indicate that visual display in a product has a significant impact on perceived quality. It has shown that the visual display has a significant relationship with perceived quality and positive word of mouth. A study also examined that Word of mouth (WoM) is argued to be an informal tool of communication between private parties in which evaluation of a product or service takes place (Siqueira Jr, García, ter Horst, & Molina, 2019). The word of mouth contribute to customer-based brand equity and it directly affected by a visual display of the product (Mathur, 2018). Secondly, the results also indicate that anthropometric has a negative or insignificant impact on customer perceived value as well as positive word of mouth.

Furthermore, the third hypothesis of the study also rejected, which means that the environmental ergonomics has also an insignificant impact on perceived value and word of mouth. This is due to most of the companies manufacture a product that pollutes the environment. Environmental ergonomics effects of workplace heat and cold, vibration, noise level and lighting condition on the health, comfort, and performance of human beings (Andargie & Azar, 2019). As a result, it directly affects the perceived value and positive word of mouth regarding the company. The goodwill, as well as reputation of the companies, hurt in this way and it creates negative outcomes (Lin-Hi & Blumberg, 2018). At the same time, customer convenience has a crucial role in visual display, environmental ergonomic and anthropometric.

The tables and results measure that customer convenience has a positive mediating role in the relationship between visual displays and perceived quality. At the same time, a study illustrates that Convenience is first and foremost a matter of perception. What can be perceived as convenient by one individual might differ in many ways from what others experience as pleasing. Additionally, customer convenience also has a significant impact on relationships with anthropometric and creating positive word of mouth and perceived value. The results show that this hypothesis of the study also accepted. Finally, according to the results, the convenience of customers has also a significant impact on enhancing the relationship between environmental ergonomic and word of mouth.
Implication
The results and discussion examined that the ergonomic aspect of a brand positively affect the word of mouth and perceived value in Indonesian restaurants. The characteristic of word of mouth message usefulness is linked to the aspects of the message content and used language. The strong word of mouth communication of the sender is important for users because it includes the usage of persuasive words or phrases. The ergonomic aspects have a strong and influential effect on perceived value and positive word of mouth of the restaurants.

Limitation/Recommendations
The very limitation of the given research is the lack of previous studies aspects. The previous studies have been explained but not in a determined way. Moreover, the entire research focused on customer convenience, perceived value as well as word of mouth. While, it is recommended that future studies must be focuses on other relatable variables such as public relations, event sponsorships, etc. to get reliable results.

Conclusion
The study mainly focuses on analyzing the impact of ergonomic aspects on positive word of mouth and perceived values for the Indonesian restaurant. The data majorly collected through restaurants. The data collected from only 297 individuals including males and females. The average age of the individuals from the data that has been collected is 31-40 years. The results and findings section of the study illustrate that all hypotheses accepted instead of the role of environmental ergonomic and anthropometric with word of mouth and perceived values. While the visual display has a positive impact on word of mouth and perceived benefits.

References


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KNOWLEDGE SHARING BEHAVIOR BETWEEN SELF-LEADERSHIP AND INNOVATIVE BEHAVIOR

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Abstract. Purpose examine and analyze the internal factors are knowledge sharing self-efficacy, self leadership, knowledge sharing behavior which is a determinant of innovative behavior. Innovative behavior is the variable of interest in the company that produces classic and this becomes a success and a means to sustain in the competition for very competitive industry. Design / methodology / approach This research method uses a quantitative approach to structural equation model of partial least square (PLS-SEM) as a tool to test and analyze, the respondents in this study amounted to 90 from various divisions. Internal factors that have a role to innovative behavior. Findings This study get the result that knowledge sharing self-efficacy and self-leadership has a direct influence on knowledge sharing behavior. Only the self-efficacy of knowledge sharing behavior does not have a direct influence on innovative behavior. Variable knowledge sharing behavior in this study could be the moderator of knowledge sharing self-efficacy and self-leadership to innovative behavior. Research limitations / implications The study was limited to one company that has been selling its products to foreign countries in the form of a classic product. The existence of multiple variables of a strong internal factors that become determinants of innovation behavior and is coherent with other studies but still on innovation behavior. Practical implications Companies that introduce innovative behavior must consider the importance of internal factors that can sustain the company in the face of competition is already clear today is globalization. Globalization is not inevitable, to achieve and maintain their co-factors needed to become an influence. Originality / value The research indicates the difference variables on internal factors, as it explores the innovative behavior in terms of behavior, because behavior is the feedback to be received directly by the company. On the other hand is expected to be added in the form of moderator variables gender difference (female or male) that will get the results (male and female) is more dominant.

Keywords: innovative behavior; knowledge sharing behavior; knowledge sharing self-efficacy; self leadership


JEL Codes: O35

1. Introduction

One product that was environmentally friendly products made from natural ingredients derived from nature, one watches. This product can be regarded as an innovation eco watch. The term eco watch itself is an environmentally friendly product, this is because Matoa in producing products by using scrap materials selection timber industry (wood industry waste). The reason is because the ebony wood waste is not easily damaged, especially not easily perforated or Tropos. In addition, this species including black wood, strong and visible has its own charm that is so more memorable exotic premium and elegant when seen. Another reason made from wood waste,

The process to get something that is unique and has its charms required an innovative behavior. Innovative behavior is the ability of individuals in completing tasks and assignments using the workings of combining procedures, practices and techniques. The innovative behavior of individual behavior that everyone focused on the circumstances, deliver, and the application of new things that will bring benefits in the organization. Can say.
something new in the form of a creative idea or technology in new product development and the development of the administration with the main objective to improve the working relationship (Haseeb et al., 2020).

There two (2) factors that form the innovative stimulus behavior is internal and external factors. The internal factors may be viewed on the type of personality and individual style in solving the problem. External factors in this case the leadership, support for innovation ber, and psychological demands of the job. In this study, more focused on the internal factors are knowledge sharing self-efficacy (Hsiao, Brouns, Bruggen, & Sloep 2012), self-leadership (Asfar B, Mamoon M 2017); Carmeli 2006), and knowledge sharing behavior (Tseng, & Kuo, 2014; Ofori, Osei, Mensah, Affum, 2015)

Knowledge sharing behavior is an activity or process by which tacit and explicit knowledge conveyed or for all other individuals (Becerra et al 2016). According (Madanchian, M et al 2015) knowledge sharing is very important because it could be competitive for the company, in this case the innovation is obtained from the sharing of knowledge from one person to another person in an organization. The knowledge sharing, then it could have a significant influence on an individual's competence in the organization. On the other hand, other than as a stimulus of innovation behavior turned out to be knowledge sharing self-efficacy and self-leadership as antecedents of knowledge sharing behavior. Knowledge sharing behavior can be described as part of the formulation of strategies formulated to reduce or avoid the obstacles that will occur either within the organization or outside the organization, either by an organization or the employee himself. Processing knowledge can be through knowledge sharing behavior which is a mandatory requirement is owned by an organization, because organizations that have confidence in the ability to absorb knowledge can manage them and exploit the knowledge on the resources which will generate a competitive advantage that will have an impact on the existence of organizations working in the midst of competition and changes that can not be predicted.

Other internal factors, namely knowledge sharing self-efficacy by (Kurbago 2010) "efficacy beliefs play a central role in the cognitive regulation of motivation". In this case the efficacy has an important role in regulating one's motivation. (Kurbago, S 2010) "Perceived self-efficacy contributes to motivation ", which means that the efficacy of a person having major impact on the behavior of individuals, one of which is motivation. Self-efficacy in this study explained to three (3) dimensions of self-efficacy magnitude, generality and strength. Magnitude itself is a level or a level where when someone believes that effort or behavior can be performed. Strength is a self-confidence that are within the individual that can make happen for getting individual performance. Generality is the freedom of self efficacy form that is in the individual to be used in other situations are different. So to say that the higher the level of self-efficacy individuals, the higher the level of an individual adjustment to the situation at hand. Knowledge sharing is an individual's perception of self-efficacy will be able to perform his belief sharing behavior or actions. Knowledge sharing self-efficacy may affect the actions to be carried out, the amount of effort and resilience when faced with obstacles or difficulties. So to say that people with high self-efficacy choose to do business bigger and unyielding. So to say that the higher the level of self-efficacy individuals, the higher the level of an individual adjustment to the situation at hand. Knowledge sharing is an individual's perception of self-efficacy will be able to perform his belief that sharing behavior or actions. Knowledge sharing self-efficacy may affect the actions to be carried out, the amount of effort and resilience when faced with obstacles or difficulties. So to say that people with high self-efficacy choose to do business bigger and unyielding. Knowledge sharing is an individual's perception of self-efficacy will be able to perform his belief that sharing behavior or actions. Knowledge sharing self-efficacy may affect the actions to be carried out, the amount of effort and resilience when faced with obstacles or difficulties.
Self leadership is a process that affects the self (self influence) through a behavior or action that may or able to be done by an individual or a person to reach a destination (self-direction) and motivation (self motivation) are required to complete the work (Manz, 1986, Manz and Neck, 2004). Self leadership is composed of specific behavioral and cognitive strategies designed to influence personal wherein effectively. In general in this strategy are grouped into three main categories, namely strategy centered on the behavior (behavior focus strategy), natural reward strategies, and strategic thinking patterns konstruktiff (constructive thought pattern strategies) (Manz and Neck, 2004). Von Glinow on the other hand, mentions that self leadership includes mental exercise (mental practice), designing natural rewards, monitor themselves (self-monitoring), self-reinforcement and self-cueing. The first part in self leadership is to develop expectations for one's work (personal goal setting). This section to identify particular expectations to be achieved, relevant and challenging expectations. Something that makes this case different is the expectation itself was compiled, so not a result of joint discussions with the boss or colleagues. (Mc Shane & Von Glinow, 2003), the next step is a constructive thought patterns (constructive thought patterns). So before starting an activity and when people would carry it out, employees should have positive thoughts about the job and as well as the completion of the work. So that employees will be more motivated and ready to finish the job once they have made 'positive self-talk' and 'mental imagery' (Mc Shane & Von Glinow, 2003)

2. Literature Review and Hypotheses Development

Innovative Behavior
Innovative behavior something that often arise when employees face a challenge in the activities or work, getting ample opportunity to carry out their duties and responsibilities. (Begonja 2016) states a series of innovative behavior of an activity or behavior that gradually work done by workers or by individuals who are working to develop and improve the behavior of an effective and efficient work. There are several steps in creating innovative behavior that includes: 1. To know and properly interpret the scope of employment and potential problems being faced and that could be a strong sense.2. Have a high awareness of the quality of work and creative has a solution if it has problems.3. Creating a network of cooperation and agreement together to bring innovative proposal of any improvement in the process of group work together. 4. Applied or implementing the recommended improvements in employment.

According to (George and Zhou 2001) stated that the character of innovative behavior include the desire of knowledge about new technologies, processes, new ideas and generate creative ideas, promote and to strive idea possessed to others, investigate and provide the necessary resources to realize the new ideas you have, develop plans and schedules are pretty good to realize new ideas. Innovative behavior has an indicator which, according to (Begonja 2016) that there are three (3) consisting of: 1) Opportunities, saw opportunities for employees to identify various possibilities or opportunities, it can be seen problems in work patterns already in progress, the needs of consumers (customers) are not met, or an indication of the changing trends. 2) Idea, at this stage, employees said the new concept is expected to improve the destination. It issued a new idea or renew services, meeting with clients and supporting technology. The key in issuing the idea is to combine and reorganize information and concepts that have been there before to solve problems or improve performance. 3) Defend, in this case to develop dan implement new ideas, the employee must have a behavior or actions based on the outputs (results). Convergen innovative behavior consists of effort and work hard to become champion. So individuals who have behavioral champions will remove all creative ideas. It's become a champion is to have a positive influence on employees to be able to create or attract customers.

Knowledge Sharing Behavior
Managing knowledge is important and should be done by the organization if the organization wants to have the advantage competitive (Wang and Noe, 2010; Wichitsathian, SNakruang, 2019). So an organization that already has something interesting and unique knowledge, it will have a chance to get in the competitive industrial market. Knowledge management is based on systematic activity offer management through the acquisition, use, sharing,
storage, retrieval and knowledge development in order to generate new ideas that generate innovation. The success of knowledge management practices rely heavily on knowledge sharing behaviors that occur among employees within an organization. Knowledge sharing behavior a behavior that is displayed by the members of the group to receive or provide the resources, knowledge, experience or something positive to or from other members (Wasko & Faraj, 2000, 2005; Tseng, & Kuo, 2014).

Knowledge is a combination of several elements, which consist of insight expertise, experience, contextual information, and values that provide a framework for evaluating and incorporating new skills and information. Knowledge can be defined as “information in the form of ideas, facts, expertise and judgment are processed by an individual which includes ideas, facts, skills, and assessment relevant to the individual, team, and organizational performance” (Wang and Noe 2010 ). Knowledge is derived and applied in one's mind, it is reflected in organizational routines, processes, practices, and norms that exist. Experts have outlined two (2) types of knowledge (Penrose, 2009; Jain et al, 2015; Wang and Noe, 2010). First, explicit knowledge which is a kind of knowledge of concrete, usually with simple and well expressed in the form of language (words, numbers and other symbols) or codified, easily articulated and easily transferred to others through writing or verbal communication. Secondly, tacit knowledge that is not like explicit knowledge, tacit knowledge, based on the knowledge that is embedded in the mind about a man, is not easy and nice to be transferred to another person (Jain et al, 2015).

Lin, 2007 states that knowledge sharing can be defined as a culture of social interaction involving knowledge transfer, sharing of experiences and skills among members of the organization. All kinds of knowledge sharing behavior can occur on both levels, individuals (members of the organization) and the organization itself. (Hoof and Weenen 2004) states that knowledge sharing is a process by which individuals mutually mempertuarkan their knowledge (tacit and explicit knowledge). Knowledge sharing individuals in the information system or information technology, the longer will be able to provide updates to the overall knowledge of the organization, which in turn will provide a unique organizational characteristics for the company's competitors and can further improve performance. In line with research conducted by (Lin 2007); (Yu, Fang and Chieh 2013).

**H1:** knowledge sharing behavior significantly influence innovation behavior on employees of PT. Matoa Indonesia in Bandung.

Knowledge sharing self-efficacy

Self-efficacy is a complex cognitive assessment of the ability of a person or individual in the days to come to organize and choose behaviors or actions required to achieve certain goals. self-confidence is one's belief in his ability to provide valuable knowledge for others, as stated by (Shaari, Rahman and Rajab 2014). Self-efficacy are stronger in person or individual underlying patterns of thought, feeling, and encouragement in itself that would reflect all the skills that individuals have. Self-efficacy also provide a strong heavy foundation for individuals to evaluate themselves in order to face or resolve the demands of work and dynamic competition. Self-efficacy alone can bring a sense of optimism that the end goal can cause overflow or positive emotions and avoid individual or a person of emotions negative emotions such as depression (Luszczynska, Scholz & Schwarzer, 2005). Individuals or someone who has a high self-efficacy will build a good emotional condition and conducive for themselves to solve the problem at hand. So with a good emotional state, then that person will be more capable and accept whatever the problems and overcome the stress they felt.

Self-efficacy can be referred to as a trigger for individuals to perform the behavior in order to achieve the desired goal. Self-efficacy in the field of crafts or skills related to belief employees or individuals ability to complete activities or tasks, with their own organizations and others, so it can be concluded that the higher self-efficacy which is owned by the individual, then the individual will self-efficacy behavior can increase when getting achievement which experienced individual or that individual, the experience gained individual or person when he saw other people with
characteristics similar to him in achieving success while completing a specific task, verbal support to someone in order to complete the task well and psychological turmoil when people are in a state of distress. Self-efficacy in this case affect the selection task can be trusted, effort, perseverance, joy and accomplishment Schunk, D. H., & Zimmerman, B. J. 1998 . Innovation itself requires a sense of ductile behavior of a self-efficacy. Innovation requires a great effort for a long period but with uncertain outcome Bandura, 1994. This is supported by research that mentions the existence of a positive relationship between self-efficacy and innovation behavior of a teacher in Taiwan (Hsiao HC, et al, 2011). Innovation itself requires a sense of ductile behavior of a self-efficacy. Innovation requires a great effort for a long period but with uncertain outcome Bandura, 1994. This is supported by research that mentions the existence of a positive relationship between self-efficacy and innovation behavior of a teacher in Taiwan (Hsiao HC, et al, 2011). Innovation itself requires a sense of ductile behavior of a self-efficacy. Innovation requires a great effort for a long period but with uncertain outcome Bandura, 1994. This is supported by research that mentions the existence of a positive relationship between self-efficacy and innovation behavior of a teacher in Taiwan (Hsiao HC, et al, 2012).

H2: Self-efficacy significantly influence innovation behavior on employees of PT. Matoa Indonesia in Bandung

Self-efficacy the self-confidence of the individual or someone in his ability that can contribute valuable knowledge for others, as stated by (Shaari, Rahman and Rajab 2014), and (Momeni, Ebrahimpour and Ajirloo 2014). In some studies, self-efficacy is a self-evaluation and self-confidence in the skills and personal ability to respond to inquiries undertaken by other members, and to provide knowledge. Through knowledge sharing useful, people feel more confident in the activities (Bandura, 1982). Self-efficacy is a form of self-evaluation that affect decisions about what behaviors should be done (Igbaria & Iivari, 1995). Self-efficacy has received tremendous attention across various disciplines (c.f., Mozammel, Ahmed, Slade & Zaman, 2018). In general, the perceived self-efficacy plays an important position in influencing the motivation and knowledge sharing. The findings showed that self-efficacy had a significant positive effect on knowledge sharing, it is supported also by (Alhady et al 2011) that knowledge sharing is influenced by self-efficacy.

H3: Self-efficacy significantly influence knowledge sharing the employees of PT. Matoa Indonesia in Bandung.

Self Leadership

The concept of self-leadership is a set of behaviors that is based on social learning theory and the theory of goal setting. (Mc Shane & Von Glinow, 2003). Self leadership describe the process of influencing oneself (self influence) through an act that the person is able to do and achieve a direction of self (self-direction) and motivation (self motivation) are required to complete the work (Manz and Neck, 2004).

It is too soon to say that self-leadership has components that are useful, but the reality says that implementation of the 'self-leadership' itself generally can increase confidence in yourself, motivation and performance. A research on "sports psychology" indicates that the "self-set goals" and "constructive thought process" improve individual performance. One example is a young ice skater who trained the "self-talk" can get an increase in achievement year. You could say in a study showing that the average or nearly all Olympic athletes rely on mental exercise and positive self-talk that is used to get the performance he wanted. (Baughman, 2000). So any one of the advantages that dipelorle of self leadership, that leadership can be learned self. Training programs can help workers to improve their ability of self leadership. Organizations can also improve self leadership by providing adequate autonomy and rewards to encourage self leadership behaviors (Bradshaw, R. et al 2015).

Self leadership is a process where employees are motivated and reaching out to achieve the expected behavior (Kor, 2016). According (Oduntan 2014), self leadership and work tasks have a positive relationship. Self-leadership
refers to the internal process, where an individual knowledge and constructive move towards the creation of the thoughts and intents of the desired changes, improvements and innovation behavior (Carmeli, Weisberg & Meiter 2006). In this case supported by several studies showing that self positive effect on innovation leadership behavior (Tasan 2013); (Khodaverdi 2015); (Widyani, Sugianingrat, and Sarmawa 2016); (Kor 2016); (Park, Moon and Hyun 2014); (Hosseini, Bathae and Mohammadzadeh 2014); (Widyani 201), (Ziyae and Heydari 2016)

H4: Self leadership significantly influence innovation behavior on employees of PT. Matoa Indonesia in Bandung

Self leadership a combination of the theory of self-regulation, self-control and self-management which according to (Manz and Neck 2004) is divided into three categories consisting of behavior focused strategies, natural reward strategies and strategies of constructive thought patterns. According to (Manz 1986) self leadership process whereby a person makes a decision based on the capacity and ability, although someone motivated to carry out and complete the task, but not everyone is able to demonstrate his knowledge sharing at its final destination on the innovation behavior. Self leadership is a process whereby a person motivated and reaching out to get the desired behavior (Kor, 2015). Based on research conducted by (Masood, Shahzad and Nosheen, 2011)

H5: Self leadership significant effect on knowledge sharing the employees of PT. Matoa Indonesia in Bandung

The research model

The current study has a framework in which this framework as the basis for the preparation of this hypothesis is as follows (see figure 1).

4. Methodology

The population there is 90 employees of PT. Matoa Indonesia, each variable has several indicators. Variables of innovative behavior has seven indicators, knowledge sharing has six indicators, knowledge sharing self-efficacy consists of six indicators, self leadership consists of 9 indicators. All items within each indicator is measured using a Likert scale (1 = strongly disagree, 5 = strongly agree). Data analysis in this study using structural equation modeling (SEM) partial least square (PLS) with smart PLS (3.0).
5. Result and Discussion

The result showed that all indicators in the study variables knowledge sharing self-efficacy, self leadership, knowledge and innovative behavior sharing have a consistent and valid measurement. Can say the value of coefficient loading outer has a range of 0.567 to 0.916, the value of Cronbach alpha coefficient of 0.839-0.915 and an observed value of reliability shows 0.876-0.935. Based on the results of that indicators and variables valid and reliable research suggests. Here is a table determinant coefficient (R2).

<table>
<thead>
<tr>
<th>Dependent variables</th>
<th>R2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge sharing</td>
<td>0.570</td>
</tr>
<tr>
<td>Innovative behavior</td>
<td>0.655</td>
</tr>
</tbody>
</table>

Based on Table 1, it can be explained that the value of knowledge sharing coefiensi determinants of self-efficacy and self knowledge sharing leadership towards 0.570. it is clear that 57.0% of the knowledge sharing knowledge sharing is affected by self-efficacy and self-leadership and the rest are other factors beyond the study models. While 65.5% of innovative behavior is influenced by knowledge sharing self-efficacy, self leadership and knowledge sharing, the remaining 34.5% were other factors beyond the study models.

Model fit in this study using Q Square Predictive Relevance (Q2) with the following formula:

\[ Q2 = 1 - \left[ (1-R^2_Y1)(1-R^2_Y2) \right] \]
\[ = 1 - [(1-0.570)(0.655)] \]
\[ = 1 - [(0.43)(0.345)] \]
\[ = 1 - 0.148 \]
\[ = 0.852 \]

The results of Q2 shows that the model fit quite strong, with 85.3% of knowledge sharing relationship between self-efficacy, self leadership and knowledge sharing towards innovative behavior can be explained by this model.

<table>
<thead>
<tr>
<th>Direct and Indirect effect</th>
<th>Total effect</th>
<th>p-value</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-efficacy of knowledge sharing to knowledge sharing</td>
<td>0.351</td>
<td>0.003</td>
<td>significant</td>
</tr>
<tr>
<td>Self leadership to knowledge sharing</td>
<td>0.458</td>
<td>0.000</td>
<td>significant</td>
</tr>
<tr>
<td>Knowledge sharing self-efficacy to innovative behavior</td>
<td>0.125</td>
<td>0.212</td>
<td>Non-Significant</td>
</tr>
<tr>
<td>Self leadership to innovative behavior</td>
<td>0.455</td>
<td>0.000</td>
<td>significant</td>
</tr>
<tr>
<td>Knowledge sharing to innovative behavior</td>
<td>0.306</td>
<td>0.002</td>
<td>significant</td>
</tr>
<tr>
<td>Self-efficacy of knowledge sharing to knowledge sharing to innovative behavior</td>
<td>0.111</td>
<td>0.013</td>
<td>significant</td>
</tr>
<tr>
<td>Self leadership to knowledge sharing to innovative behavior</td>
<td>0.131</td>
<td>0.026</td>
<td>significant</td>
</tr>
</tbody>
</table>

Based on Table 2 above can be explained that

1. The direct effect of knowledge sharing self-efficacy of the innovative behavior can be seen in the coefficient column 0.125 with a p-value 0.212> 0.05 it indicates that knowledge sharing self-efficacy does not affect significantly to the innovative behavior, this is in contrast to results of previous studies that have been done (Hsiao, Chang, Tu, and Chen 2011); (Hsu, Tsunghou and Liangfan 2011).

2. The direct effect of the innovative behavior of self leadership shown by the coefficient of 0.455 with 0.000 p value of <0.05 suggesting that self leadership has a positive and significant influence on innovative behavior, the results of this research line with previous research ever undertaken by (Tasan 2013); (Kor
The direct effect of self-efficacy of knowledge sharing to knowledge sharing in the show by the coefficient of 0.351 to 0.003 p value of <0.05 it indicates that the self-efficacy of knowledge sharing has a positive effect on knowledge sharing and significant. This is according to research conducted by (Shaari, Rahman and Rajab 2014); and (Alhady, Idris, Sawal and Azmi 2011)

4. The direct effect of self leadership to knowledge sharing behavior shown by the coefficient of 0.458 with 0.000 p value of <0.05, it is stated that self leadership has a positive and significant influence on knowledge sharing. (Masood, Shahzad and Nosheen, 2011; Bradshaw, 2015) in his study claimed that self-leadership has an influence on knowledge sharing.

5. The direct effect of the innovative knowledge sharing behavior exhibited by the coefficient of 0.306 with p value 0.002 <0.05 which indicates that knowledge sharing has a positive and significant influence on innovative behavior in which the results of this research in accordance with previous studies, (Lin 2007); (Yu, Fang and Chieh 2013); (Abdallah Khalil and Divine 2012) concluded that knowledge sharing has an influence on innovative behavior.

6. The indirect effect of knowledge sharing self-efficacy of the innovative behavior through knowledge sharing demonstrated by the coefficient of 0.111 with p value 0.013 <0.05 which means that knowledge sharing is able to be a moderator between knowledge sharing self-efficacy to innovative behavior, whereas if a direct influence knowledge of self-efficacy have influence significant to innovative behavior.

Conclusions

Knowledge sharing self-efficacy and self-leadership are antecedents of knowledge sharing behavior, because both these variables have an influence. Knowledge sharing self efficacy and self-leadership has a direct influence on innovative behavior, which means that employees at product this classic implementing a culture of sharing both information and in a positive activity, as well as self-leadership, someone who is embodied in the form of activity, so that with the knowledge sharing and self leadership embodied in the form of activity, it will directly improve the innovative behavior. Another thing with self-efficacy of knowledge sharing which can not directly affect innovative behavior, it can be said that employees at this classic products are not confident in the capabilities.

References


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Open Access
DOES IT UNREST ALTER THE EFFECT OF RISK-TAKING ATTITUDE ON THE ORGANIZATION'S PERFORMANCE?

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Abstract. The research paper investigates the intricate connection between organizations' risk-taking attitude and performance. Organizations involve are SMEs i.e., small and medium enterprises. The study significantly contributes to the field of risk management. Data was gathered through managers working in different SMEs operating in Indonesia which was then further analyzed using PLS (Partial Least Square) and Structural Equation Modeling. The idea was to investigate the impact of information technology (IT) unrest which was used as a moderating variable as well as the influence of the pricing capacity of an organization as a mediating variable. Findings were not conclusive. It cannot be said with authority that organizations that have a risk-taking attitude stimulate positive performance. However, the important point to note is that when IT unrest is at the low side, risk-taking attitude can bring about positive performance. Research paper further expands the present literature on risk management by analyzing the risk-taking attitude in the SME context, also taking into consideration the impact of IT unrest and the pricing capacity of an organization.

Keywords: attitude; Small and medium enterprises (SMEs); Information technology (IT)


JEL Classifications: F35, F42

1. Introduction

(Stein and Wiedemann 2016) argued that the risk-taking attitude of an organization very much contributes to the organizational performance as high risk may translate into high returns. Though influencing the management of an organization to engage into high-risk activities is usually the most difficult part to achieve; management has a very strategic orientation and they need to be very clear with every aspect of the project before they can make up their mind (Gupta & Wales, 2017). Managers working in different organizations lack confidence in engaging and assigning resources into a project which can be considered highly risky during IT unrest scenario (IBM, 2016).

Risk-taking, the attitude of an organization, can produce diverse consequences to fully comprehend the whole process; the situation under which management makes these decisions needs to be investigated. (Justo-Hanani & Dayan, 2015) have defined risk governance as foundations, rules and guidelines, procedures and mechanisms through which management decides activities that involve a certain level of risk factor. Board members associated with organizations usually have a separate interest which very much defines their decision-making process related to the level of risk an organization can manage (Bosse & Phillips, 2016). In reality, managing risk is still a paradox; there are multiple problems that organizations face that include choice of suitable time for identifying risk and risk aversion strategies.
Generally, SME tends to have high risk-taking attitude reason being they lack the resource power which makes sure the overall stability; to grow and outperform the competition, they take the risk (Schilke et al., 2017). They follow the very casual approach in managing the risk factor, but they vigilantly look for any source of unpredictability which might have a negative effect or high-risk potential. This informal way of dealing with the risk factor very much define their capacity to handle the turbulent environment and also very much signifies their business attitude (Pratono & Mahmood, 2015).

(Liang, Gao, and Ding 2018) highlighted the importance of having a price capacity in their study at the same time suggested that SME lacking this essential property might fail to capitalize growth opportunity, bringing about a decrease in performance and enhancing the risk probability. Analyzing the risk-taking attitude of SMEs is not only significant for literature purpose but it is also helpful in taking corrective measures which will allow SMEs to improve their overall functionality though the dearth in experiential studies related to SME risk management and counter-strategies signifies a blurred vision concerning risk attitude and its overall effectiveness (Falker & Hiebl, 2015).

This study empirically investigates the intricate connection between the risk-taking attitude of an organization and the effect it has on the performance during information technology unrest, which serves as a moderating variable. In addition, the study also explores the mediating effect of the pricing capacity of an organization which is very much significant for SME organization durability. The research was conducted on SMEs operating in Indonesia with an overall contribution of 38% to GDP in the year 2018 and the total amount exceeding US$126 Billion. The definition of SME followed in Indonesia is an organization with a sales turnover of $7.3k and not exceeding $12 Million and employee strength ranging from 5 and not exceeding 200. More than 0.9 Million SMEs are operating in Indonesia with the majority related to the service industry followed by the manufacturing and construction industry.

The diverse nature of the organizations that are classified as SME is very much taken into consideration to negate the issue of analogy. Industry-specific studies are extensive so to maintain the distinctiveness, heterogeneity of the organization has been given special consideration (Hatak et al., 2015). Another important point which needs attention was that heterogeneous organization involves threesome authority and governance, so every decision needs the consent of owners, the board of directors and lastly managers (Karoui, 2017). Therefore, research paper has mainly focused on organizations where decision making is related to a single individual who can be an owner or manager (Haseeb et al., 2020). Similarly, there is also a possibility that an owner may be working as a manager so he or she has all the administrative rights.

2. Literature Review

Conscious behavior with apparent vagueness about the consequences, at the same time intention of grabbing the opportunity in an indeterminate environment, is called risk-taking attitude or behavior (Baule & Fandel, 2016). The notion is quite diverse in comparison to imprudent behavior which is a representation of lack of thoughtfulness. Whereas risk governance involves mindfulness, availability of resources and detail research-based on that choices are made; the approach is usually associated with diversification (Francis, et al., 2014). These decisions are not made on instinct rather they represent knowledge orientation and very much nurture a balanced approach with respect to governance (Garcia-Perez-de-Lema et al., 2017).

Large organizations have established a risk management department, where every essential aspect is analyzed before making any decision as it will affect all functions of an organization (Lundqvist, 2015). These organizations follow a corporate culture which very much influences risk management; they have clearly defined objectives and attainment of these objectives depend on the capacity of risk management to change the existing environment (Stulz, 2015). Generally, the tendency of SME is to ignore opportunities that have certain risk factors but can fetch positive
results (Hess & Conttrell, 2016). Nevertheless, sometimes it gets difficult to fully comprehend the risk governance and decision-making process for practitioners due to the diverse industry sector of SMEs (Karoui, 2017).

The size of the organization very much defines resource allocation into a new venture (Wales, 2015). Similarly, organizations have well define ideology which outlines their operational path; similarly, one important aspect of ideology is the acceptance of innovation, if organizations are stirred by the inventiveness and exploring new opportunities; they will be more likely to introduced new product and will try to be the market leader. Moving into a new area can be risky but these types of organizations are very premeditated (Campbell & Park, 2017). SME tend to have social connections which is one of the important aspects of consideration while making the decision; these connections are not only customer-oriented rather different organization are also part of the network which include banks which plays a key role in backing up the new venture. Moreover, social technologies and open collaboration have also opened new doors of opportunities for SME which allow them to take advantage of new prospects.

SMEs do not have a proper mechanism in managing the risk associated with their operations; their main concern is holding proper cash (Al-Najjar, 2015; Mackevičius et al., 2017; Būmane, 2018). As highlighted earlier they have a very casual approach towards risk management. SMEs don’t have long chain hierarchy; workplace association is built on trust which can vary over time as it primarily depends on knowledge sharing (Boxer et al., 2016). SMEs mainly depends on trade financing as suppliers open credit line for them and at month-end accounts are reconcile; SMEs favor these type of financing rather than asking banks for same as they have complex procedures and high-interest rates (McGuinness, et al., 2018). Price is an important factor that allows SMEs to differentiate from others in a tough business environment or they have something to offer which is difficult to imitate.

**Assumed Hypothesis**

Presumably, entrepreneurs are risk-taker, as consciously they invest their resources into something without knowing the consequences but hoping for positive results (Boermans & Willebrands, 2017). SME entrepreneurs are inclined to take the risk and anticipate that the money they have invested and the decision they have taken will translate into something that will be beneficial for them; this approach can be considered an element of self-centeredness (Bosse & Phillips, 2016).

There is a high-risk factor associated with SMEs whereas organizations that are bigger in size have the resources to research every aspect and accordingly reducing the risk factor. In such a dynamic business environment, SME with centralized authority and simple organizational design are more likely to easily adapt and react towards business opportunities and modifications. SMEs with long term objectives and plans have more chances of succeeding as they will not be looking for short term success against the risk they have taken (Situmeang et al., 2016; Korshenkov, Ignatyev, 2020). Conversely, some organizations also look for averting any risk or uncertainty and want to remain at ease; they also wish to control their environment (Wang & Wu, 2019). The general rule that is associated with risk avoiders is that they will go for a definite outcome in comparison to greater or probable results (Wood & Mckinley, 2016). Possibility of an organization earning greater return increases when there is less competition; therefore, an organization that looks for averting risk is likely to earn less return on their investment (Zhao & Zhu, 2017).

Developing a knowledge-based structure not only allows the organization to grow in the right direction but also facilitate in taking calculated risks. Contrary to this presumption, SME seems to be disinclined to invest in such type of structure. This hesitation is mainly because of doubts regarding the volatile environment and future profit streams (Ding et al., 2016). Similarly, they holdup allocating resources in such types of activities and play a waiting game (Burger & Schwartz, 2015); which means they postpone their decision process rather than deciding at the
right moment particularly when the worst-case situation is under consideration. Based on the above presented argument, the following hypothesis can be assumed:

H1: Risk-taking attitude has a progressive effect on organizational performance

Organizational performance is the key which is why it has received significance scholarly attention (c.f., Umran, Mahmood & Ahmed, 2016). Organization profit is very much dependent on its price capacity, which allows them to set a price which is not only market competitive but also facilitate in generating income (Ngamsutti, 2018). This capacity is very much dependent on the scale of operations of an organization; the more efficient the operations are, the possibility of organization gaining cost advantage increases. Price competition intensifies with new competitors entering the market; if product properties are almost the same, the differentiating factor will be the price each company offers. In context to SME, their price capacity suggests that to appeal to consumers, they maintain their prices less than the minimal cost which can be a strategy to increase market share.

(Teece et al. 2016) highlighted that most of the SMEs could not influence prices as they don’t have the capacity or don’t have the position to negotiate prices from the supplier; similarly, they also find difficult to sustain or increase output. SME organizations that cannot influence price capacity might miss on different market openings which ultimately affect their performance and expose them to different types of risk. Organizations engaging in activities which involve certain risk factor are most likely to try to influence price (Dai & Meng, 2015). Product affected by such type of decision is less sensitive to price fluctuation and the organization also has the option of charging a premium. Prior studies suggested that financial institutes with a strong capacity of establishing prices are more likely to follow a conventional approach.

It is argued that the pricing capacity of an organization can convert into the key parameter of performance if it can demonstrate the organization’s anticipation that without the consideration of price consumer willingly purchase new offered products or services. Here the risk-taking attitude arises as to how to tackle such types of customers who might be impassive to price while making the purchase. An organization with competitive pricing strategy which includes cash backs and other discounts might able to set a price which allows them to appeal to a group of customers who show sign of loyalty (Mindruta et al., 2016).

H2: Price capacity of an organization is an arbitrator between risk-taking attitude and performance.

Prior studies examine the relationship between risks and return very much signifies the undeveloped capacity of SME to embrace information technology in consideration of environmental factors. SMEs do face issues like weak research and development capacity, limited resources; due to these limitations they look to take advantage of price variation between two markets so that they do not miss on current technological advancement. Having a strong will of capitalizing growth opportunity can play significant role in attaining performance goals during information technology unrest (Pratono, 2016).

Not investing in research and development can have a damaging effect on the performance of an organization. Updated R&D allows organizations to have a close eye on the market concerning current trends and technological advancement. (Sarah et al., 2017) debated in their paper that the unwillingness of owners to restrain from allocating resources may translate into a loss of market share and authority on the network. It becomes imperative for SME to bring about major modifications in the existing structure of risk governance in consideration of the prevailing business environment. SME is looking for progression during major technological unrest; risk management is a potent tool that not only ensures sustainability but allows the organization to grow in such a turbulent environment (Ali et al., 2017).
Due to a shortage of capital and lack of advance IT facilities, SMEs may expose to different security hazards which ultimately affect their performance. SME performance might deviate from the intensity of technological unrest. This technological unrest can stimulate different security risk for an organization which includes cyber-attack in the form malicious software, viruses which has the capabilities of altering computer programs, and worms which has the capacity of replicating itself to spread (Eling & Schnell, 2016). Environmental turbulence makes organization doubtful and influences them to embrace wait and watch strategy. So, the following hypothesis can be assumed:

H3: The connection between risk-taking attitude and organization performance is affected by IT unrest.

3. Methodology

Structural Equation Model has been used in the research paper to drive the connections amidst risk-taking attitude, developed through evaluation and present literature. Multiple advanced techniques have been used to establish the connection of latent variables. References have also been taken from previous research papers; primary data was also collected through a survey which was then further analyzed.

The study comprises four latent variables that are a risk-taking attitude, organizational performance, pricing capacity and lastly IT unrest. Subjective measurement has been used to gauge the important notion as there was the possibility of poor response or lack of intent to share private information from SME. The usual practice of SME is that they do not prepare detail financial reports rather owner returns are submitted for taxation purposes (Pratono, 2016). The Likert scale has been used in the questionnaire which allows rating the survey questions.

Parameters to gauge risk-taking attitude were selected from (Wales, 2015) research paper. The majority of the question were related to analyzing the inclination of an organization to embrace a project that is risky, it also involves thoroughly investigating the problem before resource allocation; while others were related with organization approach to avert risk through waiting game strategy. (Schilke et al., 2017) study was used to draw references that allow the development of parameters to gauge the organizational performance. Financial performance is usually measured through sales turnover, ROA, ROI, Net Profit or Gross Profit margins. Measures to evaluate information technology unrest were selected from (Pratono 2018) research paper. Recent technological advancement and Innovation, capitalizing growth opportunities, and revolution in the industry were all used to analyze IT unrest. Lastly to examine the pricing capacity of the organization references were taken from a study conducted by (Xu et al., 2016). Parameters include three main components that we're assessing, improving and enabling.

The questionnaire was pre-tested to make sure that desired objectives can be achieved, and corrections are made beforehand. Practitioners were asked to fill the questionnaire and accordingly provide the feedback. Based on the recommendations, the questionnaire was adjusted and modified. One important issue that was highlighted during pilot testing was the wording that was used to define latent variables; the possibility of respondent miss understanding the actual connotation is always there, so alterations were done considering the scenario.

Data Collection

To have a detailed understanding concerning the structure as well as the followed practice of SME, it was decided to gain the perspective of owners who were also working as managers. Not only will they be able to brief their entrepreneurial approach, but they can also share insight concerning their risk-taking attitude. As highlighted earlier, these SMEs do not have a long hierarchy; rather they follow a very simple structure where the owner has multiple roles with all the decision powers (Rothenberg et al., 2016).
SME Corporation Indonesia, Ministry of Entrepreneur Development Indonesia and Indonesia Business Link directory were used to list down the SMEs operating in Indonesia. Figure 1 very much highlights the definition of SME followed in Indonesia.

![Figure 1. The definition of SME followed in Indonesia](image)

Around 500 SMEs were contacted to take part in a research paper. These SMEs were selected randomly from the directory SME Corporation of Indonesia. 253 responses were received from the contacted SMEs; due to some disparity, 59 were neglected. The final count of the questionnaires which were used for further analysis was 194 highlighting a response rate of 38% which can be considered very compatible with research papers that have a similar structure (Hoffmann et al., 2018).

The questionnaire was sent through email detailing the purpose of the study as well as highlighting that key findings will be shared with the respondent which is one of the ways to motivate the respondent to reply. The method was preferred on one interview as there was a possibility that the respondent might be reluctant to share his honest view and may maneuver the answers.

Partial Least Square technique has been used to analyze the data, the reason being it can concurrently derive prototypes for multiple variables because of its suppleness to verify the formative as well as reflective constructs (Akter et al., 2017). Practitioners have recommended PLS for exploratory studies, investigating a problem that has not been studied previously (Nitzl, 2016). Another reason for using PLS is that it can handle variables that are gauge on scale-shaped with the unit of similar size and applies to categorical data with clear ordering. Lastly, to analyze the singularities such as inclination, attitude, behavior and how it influences performance PLS is the most suitable technique. PLS has been a great help for research papers investigating different aspects of the business but its scope is not limited to business studies rater it can be applied to diverse fields of studies with effective results.

4. Findings

The respondent profile has been demonstrated in Table: 1; the general opinion was that they have taken a significant risk to reach their current position. In terms of percentage organization with an asset value of less than $241k, 70% of the respondent claimed that they have a risk-taking attitude. 62% of the respondent with an asset value in the
range of $241k to $1.2 Million claimed they have a risk-taking attitude. Finally, 75% of the respondent having an asset value of more than $3.6 Million claimed to have a risk-taking attitude. The same was the case with sales numbers, with a high majority of respondents claiming to have a risk-taking attitude. Education level reveals that respondents who have completed their graduation or post-graduation have high risk-taking attitude.

Table 1. The respondent profile

<table>
<thead>
<tr>
<th>Features</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asset Value</td>
<td></td>
<td></td>
</tr>
<tr>
<td>less than $241k</td>
<td>34</td>
<td>18%</td>
</tr>
<tr>
<td>Between $241k to 1.2 Million</td>
<td>47</td>
<td>24%</td>
</tr>
<tr>
<td>Between $1.2 to 3.6 Million</td>
<td>59</td>
<td>30%</td>
</tr>
<tr>
<td>More than $3.6 Million</td>
<td>54</td>
<td>28%</td>
</tr>
<tr>
<td>Sales Turnover</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than $241k</td>
<td>18</td>
<td>9%</td>
</tr>
<tr>
<td>Between $241k to 1.2 Million</td>
<td>37</td>
<td>19%</td>
</tr>
<tr>
<td>Between $1.2 to 2.4 Million</td>
<td>61</td>
<td>31%</td>
</tr>
<tr>
<td>More than $2.4 Million</td>
<td>78</td>
<td>40%</td>
</tr>
<tr>
<td>Employee Strength</td>
<td></td>
<td></td>
</tr>
<tr>
<td>less than 50</td>
<td>25</td>
<td>13%</td>
</tr>
<tr>
<td>Between 50 to 100</td>
<td>39</td>
<td>20%</td>
</tr>
<tr>
<td>Between 100 to 200</td>
<td>71</td>
<td>37%</td>
</tr>
<tr>
<td>More than 200</td>
<td>59</td>
<td>30%</td>
</tr>
<tr>
<td>Education Level of Respondent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary School</td>
<td>10</td>
<td>5%</td>
</tr>
<tr>
<td>Diploma Holder</td>
<td>28</td>
<td>14%</td>
</tr>
<tr>
<td>Graduate</td>
<td>101</td>
<td>52%</td>
</tr>
<tr>
<td>Post-Graduation</td>
<td>55</td>
<td>28%</td>
</tr>
</tbody>
</table>

Since the construct itself very much causes indicators, so it can be presumed that it is a reflective prototype that not only needs internal reliability but also needs to have convergent validity. To investigate the convergent validity of the model, the average variance extract has been used. Table 2 highlights the result extracted through AVE which indicates significant variance. Cohesion was also visible between related indicators evaluated through outer loading. The heterotrait-monotrait ratio of correlations (MTMT) was used to gauge the divergent validity; results are presented in Table 4 and confirm that divergent validity did happen. Cronbach’s Alpha reliability test was conducted in order to verify consistency; results are presented in Table 2 which very much confirms internal consistency.

Table 2. Cronbach’s Alpha reliability test

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Cronbach’s Alpha</th>
<th>Composite Reliability</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk Attitude</td>
<td>0.756</td>
<td>0.825</td>
<td>0.724</td>
</tr>
<tr>
<td>Information Technology Unrest</td>
<td>0.852</td>
<td>0.898</td>
<td>0.695</td>
</tr>
<tr>
<td>Pricing Capacity</td>
<td>0.816</td>
<td>0.863</td>
<td>0.652</td>
</tr>
<tr>
<td>Organizational Performance</td>
<td>0.905</td>
<td>0.924</td>
<td>0.627</td>
</tr>
<tr>
<td>Risk x IT Unrest</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
</tr>
</tbody>
</table>

To verify that the prototype does not have multicollinearity, the variance inflation factor test was performed. VIF test not only allows observation of internal prototype but also facilitate in examining external prototype. Results are showcased in Table 3.
Table 3. VIF test

<table>
<thead>
<tr>
<th>Variables</th>
<th>Parameters</th>
<th>Loading</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk-Taking Attitude</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R1</td>
<td>Unpredictability is usually dealt with the waiting game approach to reduce the impact of risk associated with this uncertainty</td>
<td>0.847</td>
<td>1.521</td>
</tr>
<tr>
<td>R2</td>
<td>R&amp;D plays a major role before any decision is made regarding the allocation of resources</td>
<td>0.893</td>
<td>1.519</td>
</tr>
<tr>
<td>IT1</td>
<td>There is frequent advancement in IT concerning your industrial sector</td>
<td>0.792</td>
<td>2.134</td>
</tr>
<tr>
<td>IT2</td>
<td>This advancement presents great growth opportunities</td>
<td>0.835</td>
<td>2.276</td>
</tr>
<tr>
<td>IT3</td>
<td>IT advancement also facilitate in expanding existing product range</td>
<td>0.817</td>
<td>2.901</td>
</tr>
<tr>
<td>IT4</td>
<td>IT advancement also facilitate in exploring new techniques for product circulation</td>
<td>0.782</td>
<td>2.178</td>
</tr>
<tr>
<td>IT5</td>
<td>IT advancement also help in expanding existing structure regarding services</td>
<td>0.803</td>
<td>2.235</td>
</tr>
<tr>
<td>Pricing Capacity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PC1</td>
<td>Organization pricing capacity allows rapid response to market alteration</td>
<td>0.831</td>
<td>1.981</td>
</tr>
<tr>
<td>PC2</td>
<td>We have a monitoring system that is placed concerning competition prices</td>
<td>0.804</td>
<td>1.873</td>
</tr>
<tr>
<td>PC3</td>
<td>Due to organization pricing capacity, the price of the product is very much market competitive</td>
<td>0.826</td>
<td>2.465</td>
</tr>
<tr>
<td>OP1</td>
<td>Last 5 years sale growth percentage</td>
<td>0.772</td>
<td>2.563</td>
</tr>
<tr>
<td>OP2</td>
<td>Last 5 years sale growth percentage in comparison to the competition</td>
<td>0.824</td>
<td>2.319</td>
</tr>
<tr>
<td>OP3</td>
<td>ROS (Return on Sales)</td>
<td>0.796</td>
<td>2.452</td>
</tr>
<tr>
<td>OP4</td>
<td>ROI (Return on Investment)</td>
<td>0.818</td>
<td>2.671</td>
</tr>
<tr>
<td>OP5</td>
<td>Organization performance in the last 5 years</td>
<td>0.782</td>
<td>2.716</td>
</tr>
</tbody>
</table>

The criterion of (Fornell-Larcker 1981) with cross-loading has been used to examine discriminant validity. The value of organizational performance, which is the reflective construct in the prototype, has value higher than interrelation with another latent construct. The same was the case with other reflective constructs; they also have a higher value in comparison to the interrelation of the variable with another latent construct. As soon as findings seem to be consistent and conclusive, it is followed by an investigation of the structural equation model (Henseler et al., 2015).
Table 4. The divergent validity

<table>
<thead>
<tr>
<th></th>
<th>Organizational Performance</th>
<th>IT Unrest</th>
<th>Pricing Capacity</th>
<th>Risk Taking Attitude</th>
<th>IT Unrest x Risk Taking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organizational Performance</td>
<td>0.815</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT Unrest</td>
<td>0.537</td>
<td>0.847</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pricing Capacity</td>
<td>0.672</td>
<td>0.417</td>
<td>0.813</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk Taking Attitude</td>
<td>0.591</td>
<td>0.385</td>
<td>0.604</td>
<td>0.863</td>
<td></td>
</tr>
<tr>
<td>IT Unrest x Risk Taking</td>
<td>-0.432</td>
<td>-0.301</td>
<td>-0.499</td>
<td>-0.472</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Structural Equation of the measurement model is presented in Figures: 2, which deliver the approximation of loading and magnitude of the connection. There was 55% of variance estimated together for three main constructs with risk-taking attitude elucidating 34%. Statistical significance has also been validated between the construct (See Table 5). Findings also reveal that the impact of risk-taking attitude on organizational performance has t-stats of 9.015 and authenticate the proposed H1. Findings also endorse H2, with a path coefficient value smaller than 1% and statistically significant. The path coefficient for risk-taking attitude on the pricing capacity of an organization is 0.601 with a p-value smaller than 1% whereas the path coefficient of pricing capacity on organizational performance is 0.296. In consideration to VAF which exhibits the percentage of variance on the outcome variable, the result signifies that pricing capacity delivers limited mediating impact on the connection amid risk-taking attitude. Lastly, H3 has also been validated by the results; a t-value of 5.287 and a p-value less than 1% suggest that prevailing IT unrest will very much influence the risk-taking attitude and performance of the organization. During high turmoil scenarios, moderating influence explains that organizations are a force to refrain from risky activities which ultimately affect the performance of the organization.

Table 5. Summary correlation between constructs

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Co-efficient</th>
<th>t-stats</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk-Taking Attitude → OP</td>
<td>0.215</td>
<td>9.015</td>
<td>0.000</td>
</tr>
<tr>
<td>Risk-Taking Attitude → Pricing Capacity</td>
<td>0.601</td>
<td>11.098</td>
<td>0.000</td>
</tr>
<tr>
<td>Pricing Capacity → OP</td>
<td>0.296</td>
<td>7.112</td>
<td>0.000</td>
</tr>
<tr>
<td>IT Unrest → OP</td>
<td>0.327</td>
<td>8.998</td>
<td>0.000</td>
</tr>
<tr>
<td>Risk Taking Attitude x IT Unrest → OP</td>
<td>-1.468</td>
<td>5.287</td>
<td>0.000</td>
</tr>
</tbody>
</table>
Figure 2. Structural Equation of the measurement model

Theoretical Significance

Research study very much expands the theoretical scope which suggests that engaging in high-risk activity might translate into high returns; the key point is the moderating effect of IT unrest. Findings are not consistent with previously conducted studies (Boermans & Willebrands, 2017), but it does highlight that due to IT turmoil the potency of risk-taking attitude which can affect organization performance decreases. The findings validate the research work conducted by (Guo et al., 2017), which highlight that organization should not be tempted towards high return by engaging in high-risk activities rather they should go for risk-free profit during market fluctuation; this initiate a debate that why organization go for advanced technology when they are uncertain of its commercial feasibility whereas competition is using same technology.

The research paper further extends the previously associated view with the risk of IT unrest. Previous research work that claims that for SME usually, the risk arises when there is some kind of variability in demand (Sanusi & Connell, 2018); whereas research paper in hand-highlighted that SME with risk-taking attitude can attain performance goal
during the different degree of IT unrest. Therefore, the organization can be more successful by establishing a risk management approach. During information technology turmoil, organization existing practice might become outdated and lose the relevance quotient, so the organization might need to rethink their strategic approach in order to be viable and competitive.

Moreover, the mediating role of the pricing capacity of an organization elucidates how an organization with a risk-taking attitude can achieve their desired results. Organizations that have a sturdy risk-taking attitude will likely achieve benefit by establishing pricing efficacy, which will facilitate SME in attaining superlative performance. The argument very much supports the previously conducted research work which claims that ensuring risk management will allow the organization to build pricing capacity (Dai & Meng, 2015). Research paper further signifies that major concern for an SME is establishing a pricing capacity.

Findings reveal that the organization can be built pricing capacity by engaging in risky activities. In order to remain viable during IT unrest, the organization needs to thoroughly investigate the risk. Similarly, SME also needs to invest in that technological advancement which is less risky. Numerous organizations have set different compliance levels with respect to IT such as security protocols; however, these measures are not pertinent to SMEs. Lastly, organizations also need to train their employees to use risk governance which can help them making a decision in consideration of the associated risk.

**Managerial Implication**

Generally, it is believed that to be successful one needs to take some risk. Conversely, there is a certain degree of uneasiness regarding consequence when an organization engages in risky activities during information technology turmoil. SMEs are always looking for opportunities that they can grab which require a sufficient number of resources; accumulating resources can be difficult but if SME has social contacts, there is the possibility that they can manage the resources requirement (Hill & Scott, 2015). SME risk governance also needs to get align with prevailing social technologies, which allow the organization to make timely alteration concerning its existing strategic approach. This very much exemplifies that SME needs to cultivate its risk governance which can deal with every situation originated through the diverse degree of IT unrest. This will facilitate organizations to implement a very practical plan during a high turbulence period at the same time allow the organization to grab growth opportunities during a modest turbulence period.

The research paper also enlightens the importance of pricing capacity which can translate risk-taking attitude into meaningful performance. Through pricing capacity, an organization can build a competitive edge; having a pricing plan which is in alignment with risk governance of an organization can go a long way in achieving desired objectives (Dai & Meng, 2015). Organization need to nurture an environment which inspires risk-taking attitude; this will help the organization to respond to environmental turbulence in a more corrective way through a structure which is well versed with a different type of risk.

(Al-Najjar, 2015) highlighted in his research paper that the organization needs to establish a structure which allows sharing risk-related awareness across the organization. This structure will further facilitate in building a learning environment. The main idea is to minimize the risk factor associated with performance but also establishing a research base that allows the timely discovery of any risk during IT unrest and accordingly takes corrective measures. The importance of training and development cannot be ignored so it becomes imperative for managers to organize such sessions which educated employees on how to gauge the risk.
Limitation

The study has some limitations; data were gathered through a questionnaire which was sent through email, the possibility of respondents giving correct answers rather than the actual answers is always there which makes data more subjective rather than objective. Similarly, the respondents were told that findings would be shared to encourage them to reply and increase the response rate, this may also lead to subjective replies. The research was mainly focused on SMEs whose owners were also working in an administrative capacity. These types of organizations do not have strict compliance, whereas many organizations have rigid protocols to follow which include installing an IT system with stringent security. Such types of practices are usually not associated with SMEs. Having an IT system in place also pushes the organization to work on enhancing the capabilities of their employees which allow them to decide considering the risk factor. So future research papers can take note of this all-important point and dig how this procedure supports employees during decision making. Similarly, employee viewpoint will also have a fair share of importance which can infer the actual process of risk-taking attitude and performance. Data was collected from SMEs operating in Indonesia which has an industrialized economy; SMEs have a fair share of contribution in the country’s GDP. SMEs operating in Indonesia have their struggles as well as flourishing opportunities so it will be difficult to generalize the findings as every country has its unique social, cultural and environmental context.

Conclusion

The research paper has investigated an entrepreneurial approach at the same time provided experiential proof to validate that the risk-taking attitude has a progressive influence on organizational performance. The study has expanded the present scope of risk-taking attitude by adding an important factor of IT unrest in the overall scenario, similarly how different levels of IT turmoil can alter the effect risk-taking attitude has on organizational performance. The other important point of consideration was the effect of risk-taking attitude on pricing capacity, which can generate positive results. The study has used pricing capacity as a mediating variable to fully explore the intricate connection between risk-taking attitude and organizational performance utilizing risk governance as a magnifying glass to better understand this complex scenario.

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THE INFLUENCE OF ATTITUDE AND SUBJECTIVE NORM ON CITIZEN’S INTENTION TO USE E-GOVERNMENT SERVICES

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Abstract. The present study has provided insights into various factors affecting the intention to use e-government (ITUEG) services among the citizens of Indonesia. A Theory of reasoned action (TRA) has been used as an underpinning theory, based on the prior literature and the various empirical studies conducted by past researchers. The total number of 477 citizens were included in the study as a target population. The results of the present study indicated that the attitude and the subjective norms had shown a significant and positive impact on the ITUEG. Also, the additional variable of trust been investigated in the existing study and the study revealed that trust significantly influences the ITUEGS. The demographic variable including age, gender, education level and two control questions, have shown significant results. More than 37 percent of the respondents have already used these online e-government services. Additionally, the findings of the current study have shown that the citizens are not mature and also willing to avail of these online e-government services if the trust level is higher. The government authorities should draft and implement those kinds of policies that can win the trust of the common man or the end-users like citizens and that leads towards the increase in the ITUEG services.

Keywords: Trust; Theory of reasoned action (TRA); Intention to use e-Government (ITUEG)


JEL Classifications: F35, F42

1. Introduction

The concept of e-government was firstly established in the USA in 1993 and the processes of reformation of public services had been done by using this information and communication technologies (ICTs) (Kurfalı et al., 2017). As per the report of United Nation e-Government survey 2014, out of all the member countries of the world i.e. 193 UN member countries, nearly fifty (50) countries have developed online portals and the number was doubled as compared to the UN report of 2012. The era of the internet has promoted and developed the information and communication technologies (ICTs) around the globe and also provided ease towards the end-users among the stakeholders. On the mass level, the government authorities have many challenges to provide the best way to deliver government-related services to the citizens. Also, these public services offered by the government can evaluate the performance of the government among the public all over the world (Suriansyah et al., 2019; Oliński, 2020; Chrząścič, 2019; Lincényi, Čársky, 2020). ICTs had changed the way to deliver these services in almost all the sectors that are directly or indirectly influence the common man. In general, ICTs have tendency to the efficient delivery of services for the general public. Likewise, the public services offered by the government can be transformed by using this information and communication technologies in the form of e-government also known as electronic government. Technology development and changes occurring in their processes, functions and policies in various business activities and especially the public sectors, are gaining momentum periodically. E-government
is the remarkable development in the public sector by using technology development (Witarsyah et al., 2017) as it is a fundamental component of any government modernization (Answer et al., 2016). Government through e-Government can renovate their operational activities to serve public (Mateen et al., 2017). E-Government is an important issue (Alghamdi, 2017) and plays vital role to create prearranged service delivery networks with efficiency and make sure about the interactivity, transparency and accountability (Al-Shafi & Weerakkody, 2010). e-Government services have a lot of advantages over traditional ways to offer related public services to the public. In a traditional way, the limited time is available to the end-users to avail of these offered services but, on the e-government services, the citizens can avail of these offered online services 24/7 hours a day. In addition, many other benefits like time saving, transparency, the decrease in cost and most importantly the service quality and speed are there for the end-users (Atkinson & Castro, 2008). The recent report of the (United Nations e-Government survey 2018), the ranking of Indonesia is 73rd in the world.

Additionally, the e-Government rankings of Indonesia is not consistent and there are variations in these ranking as per the reports of the United Nation (2010-2018). As per the previous reports of the United Nations on e-Government Survey (2010-2018), the mixed trend regarding the rankings of Indonesia has been observed. Like, the rankings of Indonesia were at 109th place as per the report of 2010, the ranking showed a decline in the UN report of 2012 as 97th place. Also, the worse ranking and again showed a decline in the UN report as 106th place in 2014, but in the UN report the ranking improved as 116th place in 2016 among all the countries around the globe. In the recent report of UN 2018, the ranking of Indonesia is 107th among the 193 countries of the world (see in Table 1).

<table>
<thead>
<tr>
<th>SN</th>
<th>United Nations Reports</th>
<th>Rankings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2010</td>
<td>109</td>
</tr>
<tr>
<td>2</td>
<td>2012</td>
<td>97</td>
</tr>
<tr>
<td>3</td>
<td>2014</td>
<td>106</td>
</tr>
<tr>
<td>4</td>
<td>2016</td>
<td>116</td>
</tr>
<tr>
<td>5</td>
<td>2018</td>
<td>107</td>
</tr>
</tbody>
</table>

Source: (UN e-Government Survey Reports 2010-2018)

Digital governance also known as the electronic government, has a huge impact on South Asian nations since the 1990s. The government has taken very affirmative steps for the development and implementation of these e-government services to address properly the public problems and economic stability of the nations (Sagarik, Chansukree, Cho, & Berman, 2018). According to the Association of Southern Asian Nations (ASEAN), e-government plays a significant role in the development of the nations and serve the general public with effective services (Haseeb et al., 2020). Therefore, the Indonesian government has taken very positive steps towards the improvement of the delivery of these online e-government services that upgrade the current rankings of the e-government around the globe. The government of Indonesia's plan is strictly connected with the country’s economic and socio development. In social development, service delivery towards the general public is the mandatory step for the government (Sagarik et al., 2018). E-Government has become a popular phenomenon over the past few decades and has significant benefits for the citizens. The citizens can access these online services very easily and utilize or used these services with less effort, time and resources. These services are available 24/7 for the general public and the systems are transparent and fully systemized (Dwivedi et al., 2017). Intentions towards the use of technology is very important (Ahmed, Zin & Majid, 2016). Numerous prior researchers and practitioners have shown keen interest to understand the citizen’s adoption or intention to use online e-government service (ITUEG services) of the available online services of government offered to the general public (Verkijika & De Wet, 2018).
Also, the government authorities or government decision making authorities have taken a step or implement those strategies that can helpful for the middle-class people of the society and provide them easy to use services offered by the government. In the line of the present study, the TRA was used as an underpinning theory and the role of trust was investigated as an additional construct leads towards the ITUEG services. The direct relationship between the attitude and ITUEG services and the relationship between the subjective norm and ITUEG services have also been investigated in the existing study. Trust is defined as “the extent to which citizens believe that government works in their best interest” (Cleary & Stokes, 2006). The government policies regarding the offered services and mainly the online e-government services to the general public is harmful when the citizens are not able to trust or dis-trust these offered services. Therefore, this distrust of electronic services of government lowers the intention to use, decrease the expectations of the citizens. More importantly, the individual attitude and the other stakeholders of society feel uncomfortable while using these e-government services (Alharbi et al., 2016). Firstly, in this paper, the introduction along with the motivation of the study is provided. Secondly, the literature review accompanied by the hypothesis’s development were reported. Thirdly the comprehensive view of the research methodology was given, and the analysis consists of the measurement model and structural model were reported. Finally, the discussion was written with prior literature empirical evidence and future recommendation and conclusion are drawn for future researchers. While reviewing the prior studies conducted in technology adoption settings in general and particularly in the e-government settings indicated that fewer number of studies have been conducted by researchers or published using TRA as underpinning theory. Also, a very lesser numbers of literature is available where the co-relational relationships have been investigated among individuals like citizens. Therefore, the factor of trust has investigated the independent variable in the existing study.

The motivation of the Study

The United Nations has published latest report in 2018 titled as “Gearing e-Government to support transformation towards sustainable and resilient societies,” in 2016 titled as “e-Government in support of sustainable development,” “e-Government for the future we want” in 2014, “e-government for the people” in 2012 and “leveraging e-government at a time of financial and economic crisis” published in 2010. The reports have reported the ranking of Indonesia as 109th in the world in 2010, ranked 97th in 2012, 106th in 2014, 116th in 2016 and as per the latest report 2018 as 73rd in the world (see in Table1). Therefore, these rankings showed inconsistency since the last five UN Reports from 2010 to 2018 (see in Figure1). The rankings or e-government in Indonesia have shown improvement sometimes and the ranking falls in some recent years like 2014 as 116th in the 196 countries of the world. The researchers need to investigate more factors that can directly influence or have a significant and positive impact on the intention of the end-users in the e-government services of Indonesia. The public householders and supply size “the technical side of the e-government services” can also be facilitated by the proposed results.

![Figure 1. E-Government Rankings of Indonesia](source: United Nation e-Government Reports (2010-2018))
Theoretical Foundation and Conceptual Framework

The occurrences of e-government have been investigated by various prior researchers and incorporate many theories to investigate the factors that influence the ITUEG services among the citizens. Numerous prior researchers like “technology acceptance model (TAM) was used by (Lin et al. 2011) in Gambia”, “the theory of planned behavior (TPB) was used by (Ozkan and Kanat 2011) in Turkey”, “the decomposed theory of planned behavior (DTPB) was used by (Susanto, Diani, and Hafidz 2017) in Indonesia”, “the extended version of TAM (TAM2) was used by (Sang et al. 2009) in Cambodia, diffusion of innovation theory (DOI) was used by (Lawson-Body et al. 2014) in the United States, and the perceived characteristics of innovation (PCI) was used by (Boon et al. 2013) in Malaysia. Beyond these, social cognitive theory (SCT) WAS used by (Nripendra P Rana & Dwivedi, 2015) in India, the unified theory of acceptance and use of technology (UTAUT) was used by (Rabaai, Zogheib, AlShatti, and AlJamal 2017) in Jordan, and the extended UTAUT (UTAUT2) was used by (Lallmahomed, Lallmahomed, and Lallmahomed 2017) in Mauritius”.

![Conceptual Framework Diagram]

Figure 2. Conceptual Framework

Fewer amounts of empirical research in the prior works have used TRA (TRA) as an underpinning theory while investigating e-government adoption in the Indonesian context. Also, very few studies have investigated the construct of trust in ITUEG services. Therefore, in the present study, the attitude and subjective norm have been investigated directly on ITUEG services, like attitude has a significant and positive influence on ITUEG services among the citizens and subjective norms have a significant and positive influence on ITUEG services. Also, trust is incorporated in the conceptual model to investigate the causal effect of these relationships.

2. Literature Review

Intention

Numerous prior studies have reported and empirically investigated intention as a dependent variable (Rana et al., 2015; Zahid & Haji Din, 2019; Zeithaml et al., 1996; Dalle et al., 2020). As per the findings of (Westaby 2005) and (Ibrahim and Najjar 2008), the intention is considered as a foundation while investigating the individual behavior and the best predictor of individual behavior towards the technology adoption. (Ladhari 2009) defines intention as “behavioral intention of individuals can be either favorable or unfavorable.” ( Zeithaml et al. 1996) define attitude as “Favorable behavioral intention often results in bonding with the services provider, increased volume of business, expressing positive praise for the service provider, and a willingness to pay price premiums.
In contrast, unfavorable behavioral intention leads customers to display a higher probability of brand switching, plan to reduce their volume of business, engage in negative word-of-mouth, and display an unwillingness to pay premium prices”. (Also, Nor 2005) defines intention as therefore, various prior studies enthusiastic a great exertion to examine factors that affect the acceptance of IT. “Due to a lack of grounded theory in the IT field, researchers have turned to models that have been developed in other areas as a foundation for their research. In the case of predicting an individual’s intention to adopt IT, information systems (IS) researchers have borrowed intention models from social psychology as the foundation for their research”. Though, the previous researchers have reported that the intention is not carefully considered or conceptualized in the past literature (Söderlund & Öhman, 2005).

**Attitude**

Attitude is defined as “the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question” (Ajzen, 1991). As per the theoretical perspective, in TRA, the interactions of the human are firstly originated from the attitude of the individual. Two types of feelings “rather positive or negative” towards any specific behavior can be projected. In the words of (Fishbein) attitude is defined as “An individual’s positive or negative feelings about performing the target behavior.” Therefore, the (I Ajzen and Fishbein 1980) defines attitude as “attitude is favorable or unfavorable depends on its projection.” According to the findings of (Icek Ajzen 1991), attitude consists of certain beliefs and personal beliefs that come from the behavior of the individual. Also, as per the findings of (Ajzen and Fishbein 2000), “beliefs means the perceived consequences of the behavior and a person’s favorable attitude toward a specific behavior strengthens his/her desire to do the behavior. Positive or negative associations towards an object to determine the favorableness or un-favorableness of attitude towards that object”. (Doll and Ajzen 1992) defines the attitude as “Direct observations are a source of belief attainment; beliefs are also obtained indirectly by getting information from different sources or through inferences.” Numerous studies in the prior literature have shown attitude as significant and positive predictor of behavioral intention (Aziz et al., 2013; Rana & Dwivedi, 2015; Rana et al., 2015; Rana et al., 2015; Dalle & Mutalib, 2018; Shih & Fang, 2004; Baharuddin et al., 2018). One of the studies conducted in India by (Rana et al. 2015) to investigate the intention of the e-government system and 304 responses have been collected from the state of Bihar. The findings of the study determined the significance of attitude on intention among the citizens of the Bihar state of India.

Additionally, another research conducted by (Hung et al. 2006) have reported that attitude significantly and positively influences on the behavioral intention among the citizens of the “online tax filing and payment system (OTFPS)” in Taiwan. The total number of 8500 responses from the emails and by using a systematic sampling technique. Besides, (Rana et al. 2015) have conducted 377 respondents from six (6) different countries of India and reported that “attitude has a significant and positive influence on the behavioral intention towards e-government services”. In the line of the present study, the attitude has been investigated as a predictor of ITUEG services among the citizens of Indonesia. From the abovementioned empirical discussion and evidence from the prior literature of various researchers in technology adoption in general and e-government settings in particular, the succeeding hypothesis was framed towards the influence of attitude on ITUEG.

H1: Attitude has a significant and positive impact on the intention to use e-government services (ITUEG) services.

**Subjective Norms**

Fishbein “the person’s perception that most people who are important to him think he should or should not perform the behavior in question.” Besides, (Smith and Paladino 2010) defines subjective norm as “the inner view about key characters in the decision maker’s life, making the decision-maker to aspire to perform (or not act) in a certain way.” In the setting of TRA and theory of planned behavior, the individual views whether favorable or non-favorable, either positive or negative, reflects the subjective norm towards the particular behavior (Ajzen, 1991). In
other words, the norms can identify and formulate rules and regulations for the society and the individuals in the society can follow these taken for granted norms to perform particular behavior (Webster Jr, 1975). The two components i.e. normative beliefs (like others expect how the individual can perform) and motivation to comply (like positive and negative beliefs) (Ajzen, 1991). Numerous researchers from the prior literature have reported that subjective norm significantly and positively influence the intention towards the e-government settings (Bhattacherjee, 2000; Rana et al., 2015; Shih & Fang, 2004). In the study of (Al-Qeisi 2009) conducted in two countries united kingdom and Jordan by incorporating the “Unified Theory of Acceptance and Use of Technology” UTAUT model and to determine the online behavior of the individuals.

Consequently, among the various determinants of behavior, the subjective norm has shown the significant impact of intention. Additionally, the prior study conducted in Hong Kong to investigate the performance of SMEs by (Lau and Kwok 2007) has reported that the subjective norm is one of the most important predictors of intention and have a significant and positive impact. From the discussion, as mentioned earlier from the prior literature, the following hypothesis is formulated to test the impact of subjective norm on ITUEG services empirically.

**H2:** Subjective norms have a significant and positive impact on the intention to use e-government services (ITUEG) services.

**The support of the additional construct of Trust**

Trust id defined as “to the extent to which an individual believes that another individual or group will act favorably” (Mayer et al., 1995). Another definition of trust is “willingness to rely on an exchange partner, i.e. individual or service seekers whose behavior is not under its control” (Moorman et al., 1992). In e-Government, both sides (demand side as well as supply-side) of the system have equal importance. Especially the demand side plays a vital role in the success of these online integrated systems. Therefore, the factor trust is also playing a significant role in the adoption of these online e-government services and develop a relationship among the service provider and the users, i.e., the citizens (Alharbi et al., 2016).

Additionally, the trust is considered as a strong predictor of e-participation from a psychological perspective (Scherer & Wimmer, 2014). While studying the prior literature, the previous studies have reported trust as a predictor of ITUEG services among the citizens or the end-users (Bélanger & Carter, 2008; Carter & Bélanger, 2005; Schaupp & Carter, 2010). Numerous studies from the past literature have reported that trust is a strong factor that affects the end-users or service seekers or citizens towards the ITUEG services (AlAwadhi & Morris, 2009; Carter & Bélanger, 2005). Besides, (Gefen et al. 2005) concluded that trust plays a role of motivator among the citizen’s ITUEG services. Therefore, trust tends to encourage individuals to participate in and has a sense of cooperation with service providers like government authorities. So, trust is also considered as an external factor that influence the other antecedents of the ITUEG services (Alharbi et al., 2016; Park et al., 2014). (Alharbi and Kang 2014) revealed in the findings that individual’s attitude and the people around them have confident while using the e-government services and have higher level of the trust among them. The individuals in the developed nations like United Kingdom, united states of America, Germany, Indonesia and others have shown less interest while using the online services especially related to the government. Therefore, trust can impact positively on the individual’s behavior and the other stake holders of the society to improve the ITUEG services among the citizens of these developed nations (Reddick, 2011). By considering the above-mentioned discussions, the trust has been taken as an independent variable and extends the theory of TRA leads towards ITUEG services among the citizens of Indonesia. The following hypotheses have been formulated to investigate the causal relationships in the line of the present study.

**H3:** Trust has a significant and positive influence on intention to use e-government (ITUEG)
3. **Research Method**

The present study aims to investigate the co-relational relationships “attitude, subjective norm, and trust on the intention to use e-government services” among the citizens of Indonesia. To achieve the research objectives of the current study, the mono-quantitative approach was used to collect data from the citizens (Sumatera, Jawa, and Kalimantan). Also, the technique of the self-administrative questionnaire was used to evaluate the causal relationships for collecting data leads towards the analysis of the numerical dataset. For the assurance of the content validity, the questionnaire was pre-tested by the senior academic experts. These experts have evaluated the three aspects of the questionnaire. Firstly, the purpose statement that defined the objective of the existing study. Secondly, the demographic questionnaires and lastly the items of the variables of the existing study. A total of 477 responses were received from the respondents of the study and 419 responses were considered valid by eliminating 58 cases due to missing values and the outliers. The questions or items of the study’s variables have been taken from the prior literature from the domain of the e-government studies. The items of the attitude have taken from the study of (Khalid, Pahi & Ahmed, 2016; Nor & Pearson, 2008).

Additionally, the items of the subjective norm have taken from the (Nor & Pearson, 2008). On the other hand, the items of the trust and ITUEG services have been taken from (Nor & Pearson, 2008) and (Taylor & Todd, 1995), respectively to measure the variables of the present study. The items of the present study were measured by using seven Likert scale “1 = Strongly disagree to 7 = Strongly agree”. The present study employed the sampling technique of non-probability sampling. In non-probability sampling, the respondents do not have equal chances of being selected. As per the recommendations of (Calder 1981), the “non-probability sampling method is acceptable when the main concern of the study is theory generalizability rather than population.” Therefore, one of the non-probability sampling technique, the convenience sampling technique was used to collect the data from the citizens of Indonesia.

4. **Results**

In the line of the present study, SEM, also known as structural equation modeling, has been used to investigate the relationship. In the present era, the SEM is considered as most influencer and robust technique “that includes a series of statistical methods, i.e., factor analysis, regression analysis or path analysis, and discriminant analysis, which allow researchers to examine the structural relationship between the observed variable and the latent variable” (Hair et al., 2016). The researchers believed that the second-generation analysis technique SEM is more accurate as compared to the first-generation multivariate analysis techniques. Also, the findings of one of the studies conducted by (Zahid and Haji Din 2019) reported that the second-generation multivariate analysis technique SEM is more accurate, efficient and more convenient as compared to the first generation analysis techniques. SEM can be categorized into two “covariance-based (CB-SEM), partial least squares (PLS-SEM), or variance-based (VB-SEM)”. PLS-SEM is considered more efficient as compared to the CB-SEM as “it allows for testing complex relationships in the model” (Hair et al., 2011). In the existing study, PLS-SEM has incorporated by using the software of smart PLS 3.0.

**Measurement Model**

In the line of the present study, the relatability test “items reliability and internal consistency reliability” and validity test “convergent validity and discriminant validity” have been conducted for the evaluation of the measurement model of the study. Therefore, as mentioned in (Table 3), all the items or questions of the variables fall between the threshold range of 0.4 to 0.7 recommended by (Hair et al., 2011). Additionally, composite reliability has been measured to test the consistency reliability, and (Table. 2) shows that the values of composite reliability are greater than the cut-off value of 0.7. According to Hair et al. (2016), the threshold value for the average variance extracted
(AVE) of the constructs of the study should be greater than 0.5 and the results showed that the values of AVE are greater than 0.5.

![Measurement Model](image)

**Figure 2.** Measurement Model

**Table 2.** Values of Composite Reliability and AVE

<table>
<thead>
<tr>
<th></th>
<th>rho_A</th>
<th>CR</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATT</td>
<td>0.822</td>
<td>0.865</td>
<td>0.682</td>
</tr>
<tr>
<td>ITUEG</td>
<td>0.844</td>
<td>0.899</td>
<td>0.747</td>
</tr>
<tr>
<td>SN</td>
<td>0.834</td>
<td>0.899</td>
<td>0.747</td>
</tr>
<tr>
<td>TR</td>
<td>0.858</td>
<td>0.905</td>
<td>0.705</td>
</tr>
</tbody>
</table>

**Table 3.** Factor Loadings of Items of the Constructs

<table>
<thead>
<tr>
<th></th>
<th>Attitude</th>
<th>ITUEG</th>
<th>Subjective Norms</th>
<th>Trust</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATT1</td>
<td>0.853</td>
<td>0.468</td>
<td>0.606</td>
<td>0.657</td>
</tr>
<tr>
<td>ATT2</td>
<td>0.802</td>
<td>0.307</td>
<td>0.459</td>
<td>0.529</td>
</tr>
<tr>
<td>ATT3</td>
<td>0.822</td>
<td>0.298</td>
<td>0.497</td>
<td>0.542</td>
</tr>
<tr>
<td>ITUEG1</td>
<td>0.429</td>
<td>0.853</td>
<td>0.556</td>
<td>0.502</td>
</tr>
<tr>
<td>ITUEG2</td>
<td>0.394</td>
<td>0.914</td>
<td>0.574</td>
<td>0.460</td>
</tr>
<tr>
<td>ITUEG3</td>
<td>0.340</td>
<td>0.823</td>
<td>0.461</td>
<td>0.337</td>
</tr>
<tr>
<td>SN1</td>
<td>0.601</td>
<td>0.566</td>
<td>0.876</td>
<td>0.642</td>
</tr>
</tbody>
</table>
Table 4. Heterotrait-Monotrait Ratio (HTMT)

<table>
<thead>
<tr>
<th></th>
<th>Attitude</th>
<th>ITUEG</th>
<th>SN</th>
<th>Trust</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITUEG</td>
<td>0.532</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SN</td>
<td>0.780</td>
<td>0.737</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trust</td>
<td>0.850</td>
<td>0.590</td>
<td>0.802</td>
<td></td>
</tr>
</tbody>
</table>

**Structural Model**

Once the measurement model was assessed and ensured as reliable and valid, the next step is the assessment of the structural model. Therefore, the structural model has been evaluated by the testing of the proposed hypotheses and predictive accuracy of the proposed model in the study. Additionally, the bootstrapping of 5000 sub-samples can be achieved to examine the significance level of the path co-efficient among the relationships of the proposed hypotheses. Overall, the structural results have presented in (Figure 3), and the proposed conceptual model has explained 39.6 percent of the variance in ITUEG services among the citizens of Indonesia.
5. Discussion

In the line of the present study, the proposed hypotheses H1, H2 and H3 were tested by using bootstrapping of 50000 sub-samples in smart PLS. Therefore, the first hypothesis was rejected and the remaining two hypotheses H2 and H3 were accepted. Overall, the proposed model of the existing study has shown a variance of 39.6 percent to predict ITUEG services among the citizens of Indonesia. The findings of the existing study revealed that attitude has an insignificant impact on the ITUEG services among the citizens of Indonesia. The first hypothesis H1 indicated (β=0.021, p<0.05) that attitude insignificantly influences on the ITUEG services among the citizens of Indonesia. Thus, the result is dependable with the finding of the prior studies (Aziz et al., 2013; Rana et al., 2015; Rana et al., 2017; Zahid & Haji Din, 2019). Additionally, the second hypothesis “subjective norms have significant and positive influence on intention to use e-government services” was accepted (β=0.500, p<0.05) and in line with the prior studies of the technology adoption in general and e-government adoption in particular (Rana et al., 2015; Rana et al., 2017; Zahid & Haji Din, 2019). Lastly, the contribution of the study by extending the TRA with the additional construct of trust has shown a significant and positive impact on the ITUEG services among the citizens of Indonesia. Therefore, the third hypothesis H3 designated (β=0.513, p<0.05) and accepted in the present study. On the other hand, the results of the existing study can help to increase the usage of the government-related services among the citizens and enhance the ITUEG services. The positive word of mouth from the friends, family, peers and especially from the media like print media, electronic media, and the social media now a day can boost the performance of the government and can encourage the end-users i.e. citizens of Indonesia to increase the intention towards the usage of the online e-government services. The factor of trust plays an important and significant role in the usage of e-government. Trust is directly proportional to the usage of ITUEG services; higher the trust level than higher will be the intention towards usage.

Limitations and Future Recommendations

In the line of the present study, there are a lot of limitations as well as equal opportunities for the researchers to conduct future research. The present study is a cross-sectional study because the data were collected at one shot or the same period. The mono quantitative approach was used by the researcher to collect the data like self-administrative questionnaire technique. Therefore, future researchers can focus on the longitudinal study for a better understanding of the phenomena called e-government intention to use.

Moreover, the qualitative approach like focus group discussion, interviews should be conducted by the researchers in the future and mixed mode “both the quantitative and qualitative” methods must be adopted in future studies. The teachers, students, government employees and especially the information technology experts should be incorporated as respondents in future studies. Attitude, subjective norms, trust and perceived behavioral control should be investigated as a mediator in future studies.

Moreover, government support should be used as a moderator in future studies to investigate the predictors of intention in e-government settings. The researcher of the developing world in general and South Asian countries should investigate various predictors, antecedents, and determinants of the intention in e-government settings. Various nations around the globe show a decreasing graph in the development and rankings of the e-government intention among the citizens. Therefore, there is a dire need for future
researchers to conduct studies and help the government authorities to enhance the intention to use in e-government settings.

Conclusions

The main concern of the present study is to determine the antecedents “attitude, subjective norms and trust” of online ITUEG services among the citizens of Indonesia. The government should deliver many services to the general public in the traditional manner. But the trend has been changed with the last few decades like the conversion of traditional government services towards online e-government services. Therefore, it will attract new users like the citizens to use these online services. These online services can provide easy access to the general public and these are available twenty-four hours. The users can use these online services with a single click, and transparency is there for the general public with an advanced level of speed. The findings of the current study revealed that subjective norms and trust could be the predictor and significant factors towards the ITUEG services among the citizens of Indonesia. On the other hand, individual attitude has a significant impact on the intention of the usage of online e-government services. The government decision making authorities should take affirmative actions and develop policies and implement these policies for the sake of the incremental approach towards the intention of citizens towards the usage of these online e-government services.

References


FINANCIAL LITERACY, DEMOGRAPHIC DIFFERENCES AND FINANCIAL RISK TOLERANCE LEVEL: A CASE STUDY

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Abstract. This study examines the effect of the level of financial literacy on the level of tolerance for risk and to determine the role of several demographic variables, such as age, gender, income level, marital status in moderating the influence of financial literacy levels on risk tolerance levels. The data collected using a questionnaire. Questionnaires are available online (in the network) and are also distributed questionnaires offline (outside the network) to 200 individual potential investors. The results of this study indicate that the level of personal literacy does not affect the level of tolerance to risk. These empirical findings indicate that other factors determine the level of individual risk tolerance, in addition to the level of financial literacy given that investment decision making is a complex decision determined by a combination of several factors. Demographic factors are one of the factors that determine investment decision making. The next finding supports this because age has a significant influence on the level of tolerance to risk. Besides that, income and gender (Men) also have a significant influence on the level of tolerance to risk. Subsequent findings failed to prove the role of demographic factors in clarifying the benefits of financial literacy levels on risk tolerance levels.

Keywords: financial literacy; demographics; financial risk tolerance


JEL Codes: J01

I. INTRODUCTION

Financial literacy in the structure of global financial policy seems to have a real role in the financial sector. The better public literacy in the financial sector, then the better the ability of public financial planning. The Indonesian government, through the Financial Services Authority, has put in place a program to increase financial literacy and expand public access to the formal financial industry as one of the priority programs. The Financial Services Authority targets that by 2019, the public's understanding of financial management (literacy) will increase by 31.8%, as well as the level of utility can also increase.

According to the results of the Financial Services Authority’s latest survey of 80,000 respondents in Indonesia, the level of understanding and financial confidence of the community is still very low at 22% and varies between sectors, the level of utility is also still less than 60%. As a comparison, the utilization rate achieved by Singapore was 96%, followed by Malaysia with 81% and Thailand 78%. In detail, the survey results show that the community's level of understanding and confidence in banking is only 22%. Meanwhile, the utility rate and utilization is only 57%. The next rating is insurance, where the literacy rate (understanding and confidence) reaches 18%, but the insurance utility rate is lower, which is 12%. In the mortgage sector, the literacy rate reaches 15%, and the utility level reaches 5%. In the financing sector, the literacy rate is 10%, and the utility level is 6%. As for the pension sector, the literacy
rate reaches 7%, and the utility rate is only 2%. At the lowest, the capital market sector, whose literacy rate is only 4%, while the utility rate is only 0.1%.

The capital market in Indonesia is still relatively new but is overgrowing. Until 2015, the ratio of stock market capitalization only reached 53% of Gross Domestic Product, but this ratio is expected to continue to increase from year to year. Share ownership in the Indonesia Stock Exchange, or abbreviated as IDX, is still dominated by institutional investors compared to individual investors. In March 2015, the share ownership percentage of individual investors was only 27%, so the dominance of share ownership by institutional investors was considerable, namely 73% of the total shares. Other individual investors still prefer to allocate funds in the form of savings or deposits rather than investing them in financial instruments.

The Indonesia Stock Exchange responds to the low interest of the public in accessing the capital market by routinely disseminating and educating the capital market to the community every week on campus and in companies or government institutions, in all provinces in Indonesia, including in Lampung Province. The hope is that with better financial knowledge and understanding, better public access to the capital market.

The results of a study conducted by (Crysel, L., Crosier, B. and Webster, G. 2012), show that the link between financial literacy education programs and the desire to access finance is weak. On the contrary, the results of (Anbar, A., & Eker, M. 2010) show that financial literacy plays a vital role in determining the level of risk-taking on financial investment. Investors are less interested in transacting transactions that they do not understand well. (Grable, J. E. 2000) revealed that respondents with a higher level of financial knowledge would show a high level of risk tolerance. Thus the benefits of financial literacy about individual financial behavior are still controversial.

The study of the benefits of financial literacy programs is still controversial because financial literacy has not consistently affected risk tolerance levels (Crysel, L., Crosier, B. and Webster, G. 2012). So it is necessary to combine financial literacy factors with other demographic factors to explain the investment decision-making process. (Pak, O., & Mahmood, M. 2015) stated that the investment decision making process includes a complex combination of various factors, such as demographic factors (e.g., age, gender, income, and education level), personal characteristics, for example, traits, values, emotions, tolerance to risk. Other factors are markets (such as expected risk, the rate of return, transaction costs, market environment, and other related factors). Thus, the decision-making process becomes more complicated and not at all simple (Imran, M., Binti Aziz, A., Binti Abdul Hamid, S. N., Shabbir, M. S., Salman, R., & Jian, Z. 2018, & Jabarullah, N. H., Shabbir, M. S., Abbas, M., Siddiqi, A. F., & Berti, S. 2019 & Shabbir, M. S., Shariff, M. N. M., Alshaidi, Y. H., Faisal, M., & Salman, R. 2018 & Shabbir, M. S., Shariff, M. N. M., & Shahzad, A. 2016 & Shabbir, M. S., Shariff, M. N. M., & Shahzad, A. 2017). This study focuses on the role of demographic factors, the role of personal characteristics (personal characteristics) in the form of risk-taking attitudes, in influencing investors' desire to invest shares in the capital market. Personal characteristics (personal characteristics) can influence individual attitudes in taking risks to various areas of individual life, such as when making social decisions, gambling decisions, and investment decisions. Many behavioral and psychological factors support as factors that influence individuals in making investment decisions. Researchers such as (Kourtidis, D., Šević, Ž., & Chatzoglou, P. 2011) and (Weller, J. A., & Thulin, E. W. 2012) and (Pak, O., & Mahmood, M. 2015) strongly support the use of behavioral factors and psychology and do not agree with Market Efficiency Theory and Portfolio Theory, which holds that investors always use relevant information and behave rationally in making investment decisions. (Simon, H. A. 1987) explained that changes in the decision-making process that initially based on rational and logical could turn into the opposite because it influenced by very complex factors, such as cognitive abilities and external environmental factors (Shabbir, M. S., Shariff, M. N. M., & Shahzad, A. (2017).

Demographic factors are age, gender, income level, and marital status. The age factor has not consistently explained its effect on individual risk-taking according to the results of the study by (Kourtidis, D., Šević, Ž., &
Chatzoglou, P. 2011), (Kannadhasan, M. 2015), (Bannier, C. E., & Neubert, M. 2016), (Fisher, P. J., & Yao, R. 2017) and (Brooks, C., Sangiori, I., Hillenbrand, C., & Money, K. 2018) who found that the risk tolerance level increased with increasing age, whereas a study conducted by (Selcuk, E., Zayas, V., & Hazan, C. 2010) revealed that risk tolerance levels increase as age increases. Studies that link gender factors with risk tolerance levels indicate that consistently male sex is more tolerant of risk than women (Selcuk, E., Zayas, V., & Hazan, C. 2010) and (Anbar, A., & Eker, M. 2010). Other demographic factors are marital status and income level. According to the results of previous studies by married individuals, the loss aversion rate is lower than single individuals (Selcuk, E., Zayas, V., & Hazan, C. 2010) and (Goral, R., & Akgoz, E. 2017).

The risk level is one of the basic concepts of the investment decision-making process. Grouping risk tolerance levels are risk-averse, risk-neutral, and risk-lovers. Furthermore, the individual's level of tolerance for risk will influence investment decisions taken by individuals. High and low tolerance to risk determines the type of investment chosen by individual investors. Investors who hold cash and have investments in bonds indicate low-risk tolerance. Conversely, investors who are prepared to take higher risks will be more willing to buy shares (Jabarullah, N. H., Shabbir, M. S., Abbas, M., Siddiqi, A. F., & Berti, S. 2019). (Ramli, A., Shabbir, M. S., Bakar, M. S. Bin, Shariff, M. N. M., Yusof, M. S., & Ahmad, I. 2018) and (Shabbir, M. S., Shariff, M. N. M., Alshaibani, Y. H., Faisal, M., & Salman, R. 2018).

Share ownership by individual investors is only 27% of the total shares issued on the Indonesia Stock Exchange, which indicates that individual investors generally prefer to allocate funds in the form of savings or deposits rather than investing in financial instruments. Since the investment decision-making process is a complex decision-making process from a combination of various factors, financial literacy factors alone are not enough to explain investors' financial behavior but combined with demographic factors (Pak, O., & Mahmood, M. 2015) and (Esiagu, L. N., Okoroji, L. I., & Anyanwu, J. O. 2016).

The results of this research are expected to help in understanding how the process of making investment decisions, the attitude of investors in taking risks, and the investment strategies chosen by investors. The benefits of this research are that it can help policymakers, investment companies and investment advisors in finding ways to motivate individual investors to access and participate actively in the Indonesian capital market by developing appropriate methods to educate and provide training for potential investors and help policymakers in developing and managing the stock market effectively (Faisal, M., Shabbir, M. S., Javed, S., & Shabbir, M. F. 2016) and (Shabbir, M. S., Asad, M., Faisal, M., & Salman, R. 2019).

There are two research objectives, namely, first, to determine the effect of financial literacy level on the level of tolerance of risk. Second, the purpose of the study was to determine the role of several demographic variables, such as age, gender, income level, marital status in moderating the influence of financial literacy levels on risk tolerance levels (Ramli, A., Shabbir, M. S., Bakar, M. S. Bin, Shariff, M. N. M., Yusof, M. S., & Ahmad, I. (2018), (Shabbir, M. S., Shariff, M. N. M., Bin Yusof, M. S., Salman, R., & Hafeez, S. 2018), (Shabbir, M. S., Shariff, M. N. M., & Shahzad, A. 2016) and (Ul-Hameed, W., Shabbir, M. S., Imran, M., Raza, A., & Salman, R. 2019).

Section 2 of this paper highlights data, sample, and methodology. Section 3 presents an empirical result as well as descriptive statistics — section 4 conclusion.

II. Data, Sample Methodology, and Variable Explanations

Data and Sample
Methods of collecting data using a questionnaire. Questionnaires are available online (in the network) and are also distributed using form questionnaires (outside the network) to 200 individual potential investors.

Methodology and Variable Explanations
The survey listed in the questionnaire consists of three parts. The first part consists of some information related to the background of the respondents. Respondents were asked to fill in age, gender, income, and marital status. The
second part aims to assess the level of financial literacy with the number of questions 11 items developed by (Rooij, M., Lusardi, A., & Alessie, R. 2011). The third section has five questions and seeks to estimate individual risk-taking behavior. Risk attitudes divided into two dimensions, above the average risk and below the average risk. Questions were chosen from the study of Rooij, M., Lusardi, A., & Alessie, R. 2011). A preliminary study and Cronbach's Alpha calculations were carried out for the scale of the question items to test the validity and reliability of the questionnaires used in this study (Imran, M., Binti Aziz, A., Binti Abdul Hamid, S. N., Shabbir, M. S., Salman, R., & Jian, Z. 2018), (Shabbir, M. S., Asad, M., Faisal, M., & Salman, R. 2019), (Shabbir, M. S., Shariff, M. N. M., & Shahzad, A. 2016) and (Ul-Hameed, W., Shabbir, M. S., Imran, M., Raza, A., & Salman, R. 2019). (See table 1)

<table>
<thead>
<tr>
<th>Variable type</th>
<th>Measurement</th>
<th>Variable Name</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent Variable</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The financial risk tolerance level</td>
<td>Scores are obtained from the test results in measuring the level of risk tolerance [25]</td>
<td>TOLRISK</td>
</tr>
<tr>
<td><strong>Independent Variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level of financial literacy</td>
<td>Scores are obtained from the test results to measure the level of financial literacy [25]</td>
<td>FINLIT</td>
</tr>
<tr>
<td>Age</td>
<td>Categorical variables 1,2,3, 4, 5 respectively if the age group (18-30), (30-40), (40-50), (50-60) and (+60)</td>
<td>AGE</td>
</tr>
<tr>
<td>Gender</td>
<td>Dummy variables which are declared one if male respondents, 0 if female respondents</td>
<td>GENDER</td>
</tr>
<tr>
<td>Income level</td>
<td>Categorical variables 1,2,3, 4, 5 respectively if the income group (500 thousand-1.5 million), (1.5 million - 2.5 million), (2.5 million-3.5 million), (3.5 million-4.5 million), ( 4.5 million and above)</td>
<td>INCOME</td>
</tr>
<tr>
<td>Marital status</td>
<td>Dummy variables which are declared one if respondents get married, 0 if the respondent is single</td>
<td>MARITAL</td>
</tr>
</tbody>
</table>

The purpose of econometrics in this study is to estimate the $\beta$ coefficient using the basic model $Y_{i,t} = \alpha + \beta X_{i,t} + \epsilon_i$. Coefficient $\beta$ estimated using regression analysis and the Moderated Regression Analysis approach (Faisal, M., Shabbir, M. S., Javed, S., & Shabbir, M. F. 2016), (Hussain, S., Fangwei, Z., Siddiqi, A. F., Ali, Z., & Shabbir, M. S. 2018) and (Jabarullah, N. H., Shabbir, M. S., Abbas, M., Siddiqi, A. F., & Berti, S. 2019).

Individual investors who lack knowledge or information will make inappropriate or inefficient financial decisions because individual investors will experience considerable difficulties in collecting relevant financial information so that their decisions are less efficient. The basic concept in the investment decision-making process is the concept of risk. Investors grouped according to their risk tolerance levels into three categories: risk-averse, risk-neutral, and risk-lovers. Research on financial risk
tolerance tends to lead to the economic theory that explains risk through the concept of risk aversion or low tolerance to accept the risk. Individuals who have a low tolerance for risk, then he will want to consider the ratio of higher risk assets compared to individuals who are low-risk tolerance (Shabbir, M. S., Shariff, M. N. M., & Shahzad, A. 2016). According to (Pak, O., & Mahmood, M. 2015), the level of financial literacy plays a critical role in influencing the risk that is willing to be accepted about certain financial investments. Generally, investors are less interested in carrying out a transaction that they do not understand (Anbar, A., & Eker, M. 2010) and (Fengyang, W. U. 2018). The results of the study show that respondents with a higher level of financial knowledge showed higher risk tolerance (Grable, J. E. 2000) and (Chang, P. 2017). On the contrary, leading research did not find a significant effect on the level of financial literacy on the level of risk tolerance (Hallahan, T., Faff, R., & McKenzie, M. 2003), (Willis, L. E. 2008) and (Selcuk, E., Zayas, V., & Hazan, C. 2010). Similarly, other previous research found doubts about the benefits of financial literacy on investor financial behavior because the causal relationship between the two variables is weak (Cole, S. A., Sampson, T. A., & Zia, B. H. 2009) and (CHE, G. N., & Sundjo, F. 2018).

\[ TOLRISK_i = \alpha_1 + \beta_1 FINLIT_i + \beta_2 DEMOGRAPHIC_i + \varepsilon_i \] (1)

The existence of a controversial causal relationship and the results of the conflict indicate that there may be other variables that moderate the previous causal relationship. Demographic factors have a significant impact on investors' attitudes to risk, including age, gender, income level, and marital status (Pak, O., & Mahmood, M. 2015) and (Edeme, R. K. 2017). The risk tolerance level can be different between old individual investors and young individual investors. Similarly, the risk tolerance level can differ between male investors with male sex investors. The risk tolerance level differs between high-income individual investors and low-income individual investors. Finally, the tolerance level of risk of married individual investors is higher than the level of tolerance for the risk of married individual investors. Testing the causal relationship between the level of financial literacy and the level of risk tolerance on the total sample regardless of the demographic characteristics of the sample can make the causal relationship controversial and the results of the conflict. In Hariton's opinion, this study includes demographic variables as moderating variables to clarify the causal relationship between financial literacy levels and risk tolerance levels.

Research findings related to the relationship of age to financial risk tolerance are still conflicting, but generally, indicate that risk tolerance increases with age (Grable, J. E. 2000 & Kourtidis, D., Šević, Ž., & Chatzoglou, P. 2011).

\[ TOLRISK_i = \alpha_1 + \beta_1 FINLIT_i + \beta_2 AGE_i + \beta_3 FINLIT_i*AGE_i + \beta_4 OTHER DEMOGRAPHIC_i + \varepsilon_i \] (3)

The majority of research findings support that men have more risk tolerance than women (Grable, J. E. 2000), (Selcuk, E., Zayas, V., & Hazan, C. (2010) and (Anbar, A., & Eker, M. 2010). One of the rational reasons is the role of women as mothers who are more interested in stable income than significant but uncertain income. However, in the setting of managerial decisions, it was found that women became risk-neutral Maxfield, (S., Shapiro, M., Gupta, V., & Hass, S. 2010) and (Dong, T., & Qiu, L. 2018).

\[ TOLRISK_i = \alpha_1 + \beta_1 FINLIT_i + \beta_2 GENDER_i + \beta_3 FINLIT_i*GENDER_i + \beta_4 OTHER DEMOGRAPHIC_i + \varepsilon_i \] (4)

Other demographic factors are marital status and income level. The survey results show that married respondents have a higher tolerance for financial risk compared to single respondents. The reason for this is that married individuals can share risks with their partners, so they are more willing to take on higher financial risks.

\[ TOLRISK_i = \alpha_1 + \beta_1 FINLIT_i + \beta_2 INCOME_i + \beta_3 FINLIT_i*INCOME_i + \beta_4 OTHER DEMOGRAPHIC_i + \varepsilon_i \] (5)

It is also consistently found that respondents whose income is higher the level of risk aversion are lower than subjects whose income is lower (Selcuk, E., Zayas, V., & Hazan, C. 2010).
III. RESULTS

Descriptive Statistics

The number of questionnaires distributed was 250, but only 215 questionnaires returned. The number of questionnaires that met the criteria for use in the research was 192 questionnaires. Based on Table 3, which presents the profile of 192 respondents, concerning the age of the respondents indicated in the sample, it can seem that in general, the majority of respondents are between the ages of 18-40 years. This table also shows that, based on the survey, 59.9 percent (115) were male, and 40.10 percent (77) were female participants. The highest income level of respondents as having an income of Rp. 4.5 million and above (53.65 percent). The status of most respondents was married 66.67 percent (128) — information on the profile of the respondent in the following detail (see table 2).

Table 2: Descriptive Statistics of Demographic Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between 18 and 30 years</td>
<td>40.6%</td>
<td>40.6%</td>
</tr>
<tr>
<td>Between 30 and 40 years</td>
<td>33.3%</td>
<td>74.0%</td>
</tr>
<tr>
<td>Between 40 and 50 years</td>
<td>18.8%</td>
<td>92.7%</td>
</tr>
<tr>
<td>Between 50 and 60 years</td>
<td>7.3%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Man</td>
<td>59.90%</td>
<td>59.90%</td>
</tr>
<tr>
<td>Woman</td>
<td>40.10%</td>
<td>100.00%</td>
</tr>
<tr>
<td>Income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rp. 500 thousand - Rp. 1.5 million</td>
<td>10.42%</td>
<td>10.42%</td>
</tr>
<tr>
<td>Rp. 1.5 million - Rp. 2.5 million</td>
<td>7.81%</td>
<td>18.23%</td>
</tr>
<tr>
<td>Rp. 2.5 million - Rp. 3.5 million</td>
<td>14.58%</td>
<td>32.81%</td>
</tr>
<tr>
<td>Rp. 3.5 million - Rp. 4.5 million</td>
<td>13.54%</td>
<td>46.35%</td>
</tr>
<tr>
<td>Rp. 4.5 million and above</td>
<td>53.65%</td>
<td>100.00%</td>
</tr>
<tr>
<td>Marital</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>66.67%</td>
<td>66.67%</td>
</tr>
<tr>
<td>Single</td>
<td>33.33%</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

The results of the research statistics in Table 3 show that female and male respondents generally have similarities concerning risk tolerance levels. The dominant risk tolerance level for female and male respondents is average / moderate risk tolerance. Moderate risk tolerance dominates married respondents, whereas single respondents actually tolerate balanced risk does not only average / moderate risk tolerance, but also has above average risk tolerance and high-risk tolerance. In respondents whose income levels are higher tend to have average / moderate risk tolerance, while respondents with lower income levels, tolerance for risk mixed between tolerance levels of low-risk tolerance, average / moderate risk tolerance, and above-average risk tolerance so that they do not tend at a particular risk tolerance level (table 3).

Table 3: Cross Tabulation Between Risk Tolerance Levels and Demographic Variables

<table>
<thead>
<tr>
<th>RISK TOLERANCE LEVEL</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between 18 and 30 years</td>
<td>2</td>
<td>6</td>
<td>26</td>
<td>21</td>
<td>23</td>
<td>78</td>
</tr>
<tr>
<td>Between 30 and 40 years</td>
<td>0</td>
<td>9</td>
<td>21</td>
<td>21</td>
<td>13</td>
<td>64</td>
</tr>
<tr>
<td>Between 40 and 50 years</td>
<td>0</td>
<td>6</td>
<td>21</td>
<td>8</td>
<td>1</td>
<td>36</td>
</tr>
<tr>
<td>Between 50 and 60 years</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>6</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Man</td>
<td>2</td>
<td>10</td>
<td>35</td>
<td>18</td>
<td>12</td>
<td>77</td>
</tr>
</tbody>
</table>
This table presents information on risk tolerance levels with specifications for demographic variables from 192 respondents (age, gender, income, and marital status). The level of risk tolerance has five levels. Level 1: Low-risk tolerance (i.e., conservative investor), Level 2: Below-average risk tolerance, Level 3: Average/moderate risk tolerance, Level 4: Above-average risk tolerance, Level 5: High-risk tolerance (i.e., aggressive investor). The statistical results of this study related to financial literacy show that the age of respondents less than 40 years old has better financial literacy (able to answer more than five questions correctly) compared to respondents aged over 40 years. The financial literacy of male and female respondents is generally functional because most can answer more than five questions correctly. Likewise, if it relates to the income level of respondents, then respondents' income in the high group has better financial literacy. Married status respondents have better financial literacy than unmarried respondents (table 4).

### Table 4: Cross Tabulation Between Levels of Financial Literacy and Demographic Variables

<table>
<thead>
<tr>
<th>LEVEL OF FINANCIAL LITERATION</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between 18 and 30 years</td>
<td>2</td>
<td>18</td>
<td>58</td>
<td>78</td>
</tr>
<tr>
<td>Between 30 and 40 years</td>
<td>5</td>
<td>13</td>
<td>46</td>
<td>64</td>
</tr>
<tr>
<td>Between 40 and 50 years</td>
<td>4</td>
<td>11</td>
<td>21</td>
<td>36</td>
</tr>
<tr>
<td>Between 50 and 60 years</td>
<td>2</td>
<td>7</td>
<td>5</td>
<td>14</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Man</td>
<td>4</td>
<td>23</td>
<td>50</td>
<td>77</td>
</tr>
<tr>
<td>Woman</td>
<td>9</td>
<td>26</td>
<td>80</td>
<td>115</td>
</tr>
<tr>
<td><strong>Income</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rp. 500 thousand - Rp. 1.5 million</td>
<td>1</td>
<td>6</td>
<td>13</td>
<td>20</td>
</tr>
<tr>
<td>Rp.1.5 million - Rp.2.5 million</td>
<td>1</td>
<td>5</td>
<td>9</td>
<td>15</td>
</tr>
<tr>
<td>Rp.2.5 million - Rp.3.5 million</td>
<td>2</td>
<td>9</td>
<td>17</td>
<td>28</td>
</tr>
<tr>
<td>Rp.3.5 million - Rp.4.5 million</td>
<td>3</td>
<td>8</td>
<td>15</td>
<td>26</td>
</tr>
<tr>
<td>Rp.4.5 million and above</td>
<td>6</td>
<td>21</td>
<td>76</td>
<td>103</td>
</tr>
<tr>
<td><strong>Marital</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>3</td>
<td>15</td>
<td>46</td>
<td>64</td>
</tr>
<tr>
<td>Single</td>
<td>10</td>
<td>34</td>
<td>84</td>
<td>128</td>
</tr>
</tbody>
</table>

This table presents information on financial literacy levels with specifications for demographic variables from 192 respondents (age, gender, income, and marital status). The level of financial literacy has three levels. Level 1: Less than three correct questions. Level 2: Between 3-5 right questions, Level 3: = More than five correct questions.
The statistical description of the research variables contains information on the characteristics of respondents according to the specifications of the research model proposed to test the hypothesis of the influence of financial literacy levels on the level of risk tolerance (table 5).

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>TOLRISK</th>
<th>FINLIT</th>
<th>AGE</th>
<th>GENDER</th>
<th>INCOME</th>
<th>MARITAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>28.22</td>
<td>6.54</td>
<td>33.73</td>
<td>0.60</td>
<td>6,102,004.00</td>
<td>0.66</td>
</tr>
<tr>
<td>Median</td>
<td>28.00</td>
<td>7.00</td>
<td>32.00</td>
<td>1.00</td>
<td>5,000,000.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Maximum</td>
<td>41.00</td>
<td>10.00</td>
<td>57.00</td>
<td>1.00</td>
<td>20,000,000.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Minimum</td>
<td>14.00</td>
<td>0.00</td>
<td>20.00</td>
<td>0.00</td>
<td>700,000.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>5.11</td>
<td>2.48</td>
<td>8.94</td>
<td>0.49</td>
<td>3,977,641.00</td>
<td>0.47</td>
</tr>
</tbody>
</table>

This table presents statistical description information (Mean, maximum, minimum, and standard deviation) of the research variables from 192 respondents. These variables are: TOLRISK is the level of financial risk tolerance calculated using the respondent's answer score, FINLIT is the level of financial literacy, which will divide into three levels, AGE is the age of the respondents divided into 5 levels of age, GENDER is the sex stated 1 if the respondent is Male and 0 (zero) if female, INCOME is the level of income divided into 5 levels and MARITAL is the marital status stated 1 if the respondent is married and 0 (zero) if single.

Table 5. shows that the average risk tolerance variable (TOLRISK) is 28.22, which means that on average, the respondents have moderate risk tolerance levels. The average value of financial literacy (FINLIT) is 6.54, which means that the average level of financial literacy is right because it can answer more than five questions correctly. The average age (AGE) is 33.73 years — the average income level (INCOME) of Rp.6.1 million.

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>AGE</th>
<th>MAN</th>
<th>WOMAN</th>
<th>GENDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGE &lt;=40 YEARS OLD</td>
<td>Mean</td>
<td>Maximum</td>
<td>Minimum</td>
<td>Mean</td>
</tr>
<tr>
<td>TOLRISK1</td>
<td>28.94</td>
<td>41</td>
<td>14</td>
<td>26.18</td>
</tr>
<tr>
<td>FINLIT1</td>
<td>6.77</td>
<td>10</td>
<td>0</td>
<td>5.78</td>
</tr>
<tr>
<td>INCOME1</td>
<td>5320423</td>
<td>20000000</td>
<td>700000</td>
<td>8499656</td>
</tr>
<tr>
<td>MARITAL</td>
<td>0.55</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>NObs</td>
<td>142</td>
<td></td>
<td></td>
<td>50</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>AGE</th>
<th>MAN</th>
<th>WOMAN</th>
<th>GENDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGE &gt;40 YEARS OLD</td>
<td>Mean</td>
<td>Maximum</td>
<td>Minimum</td>
<td>Mean</td>
</tr>
<tr>
<td>TOLRISK1</td>
<td>28.82</td>
<td>40</td>
<td>14</td>
<td>27.32</td>
</tr>
<tr>
<td>FINLIT1</td>
<td>6.70</td>
<td>10</td>
<td>0</td>
<td>6.31</td>
</tr>
<tr>
<td>AGE1</td>
<td>35.48</td>
<td>57</td>
<td>21</td>
<td>31.14</td>
</tr>
<tr>
<td>INCOME1</td>
<td>6769586</td>
<td>20000000</td>
<td>700000</td>
<td>5113636</td>
</tr>
<tr>
<td>MARITAL</td>
<td>0.70</td>
<td>1</td>
<td>0</td>
<td>0.61</td>
</tr>
<tr>
<td>NObs</td>
<td>114</td>
<td></td>
<td></td>
<td>77</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>INCOME</th>
</tr>
</thead>
<tbody>
<tr>
<td>INCOME Rp&lt;4.5 MILLION</td>
<td>Mean</td>
</tr>
<tr>
<td>TOLRISK1</td>
<td>28.82</td>
</tr>
<tr>
<td>FINLIT1</td>
<td>6.70</td>
</tr>
<tr>
<td>AGE1</td>
<td>35.48</td>
</tr>
<tr>
<td>INCOME1</td>
<td>6769586</td>
</tr>
<tr>
<td>MARITAL</td>
<td>0.70</td>
</tr>
<tr>
<td>NObs</td>
<td>114</td>
</tr>
<tr>
<td>INCOME &gt;= Rp4.5 MILLION</td>
<td>Mean</td>
</tr>
<tr>
<td>TOLRISK1</td>
<td>28.94</td>
</tr>
<tr>
<td>FINLIT1</td>
<td>6.77</td>
</tr>
<tr>
<td>AGE1</td>
<td>35.48</td>
</tr>
<tr>
<td>INCOME1</td>
<td>6769586</td>
</tr>
<tr>
<td>MARITAL</td>
<td>0.55</td>
</tr>
<tr>
<td>NObs</td>
<td>142</td>
</tr>
</tbody>
</table>
The total sample size is 191 respondents. Descriptive statistics of respondents classified by demographics (AGE, GENDER, INCOME, and MARITAL). Subsample AGE / AGE using age criteria <= 40 years and AGE > 40 years. Subsample GENDER uses both Male and Female criteria. Subsample INCOME uses INCOME criteria < Rp.4.5 million and INCOME > = Rp.4.5 Million. Subsample MARITAL uses Married and Unmarried criteria.

Table 6 shows that the average value of the subsample variable classified according to USIA shows respondents who are less than 40 years old have a risk tolerance level, financial literacy rates are slightly higher than the subsample of respondents who are over 40 years old. The average value of the subsample variable classified according to GENDER. It shows that the subsample of MEN has a risk tolerance level, financial literacy rate, the income level of MEN that is slightly higher than the subsample of WOMEN. The average subsample variable value classified according to INCOME. It shows that the high subsample INCOME has a level of financial literacy and a slightly higher age than the subsample INCOME is low.

**Baseline Regressions**

This study focuses on testing the effect of financial literacy level on risk tolerance level to find out whether the level of financial literacy can be a significant clue in measuring the level of public participation in the capital market. Table 8 presents a summary of the test results (table 7).

<table>
<thead>
<tr>
<th>Dependent Variable: TOLRISK</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent Variables</td>
<td>Coef.</td>
</tr>
<tr>
<td>C</td>
<td>31.592</td>
</tr>
<tr>
<td>FINLIT</td>
<td>-0.116</td>
</tr>
<tr>
<td>AGE</td>
<td>-0.195</td>
</tr>
<tr>
<td>GENDER</td>
<td>2.209</td>
</tr>
<tr>
<td>INCOME</td>
<td>0.682</td>
</tr>
<tr>
<td>MARITAL</td>
<td>-0.057</td>
</tr>
</tbody>
</table>
The test results show that the level of financial literacy does not affect the level of risk tolerance. The regression estimation results show the regression coefficient of financial literacy variables, FINLIT ($\beta_1 = -0.116$) marked negative and not significant. In contrast, demographic factors, namely AGES, GENDER, INCOME, have a significant influence on the level of risk tolerance. GENDER Men have a more positive influence on risk tolerance levels. The regression estimation results show the GENDER variable regression coefficient ($\beta_2 = 2.209$) marked positive and significant at level 1%. The role of INCOME in the risk tolerance level is also the same. The higher the INCOME, the higher the tolerance level to risk. Regression estimation results show a regression coefficient of INCOME variable ($\beta_2 = 0.682$), which is positive and significant at level 5%.

Conversely, the AGES has a negative influence on the level of risk tolerance. That is, the more a person's age increases, the lower the tolerance for risk, or in other words, the tolerance for the risk is also higher for young people. Regression estimation results show regression coefficients of age variable, AGE ($\beta_2 = -0.195$), which is negative and significant at level 1%. MARITAL status is not proven to affect risk tolerance levels. The regression estimation results show the regression coefficient of the marriage status variable, MARITAL ($\beta_2 = -0.057$), which is negative and not significant. This study also focuses on testing the role of demography in influencing the level of financial literacy on risk tolerance levels to find out whether demographic factors play a role in influencing literacy levels towards risk tolerance levels. The aim is to clarify the effect of the level of financial literacy on the level of risk tolerance that has tested before, but the effect is not significant.

Table 8: Results of the hypothesis testing of the role of AGE / AGE in influencing the level of financial literacy on the level of risk tolerance

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Coef.</th>
<th>t-Stat</th>
<th>Coef.</th>
<th>t-Stat</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>31.592</td>
<td>16.678***</td>
<td>34.632</td>
<td>9.082****</td>
</tr>
<tr>
<td>FINLIT</td>
<td>-0.116</td>
<td>-0.797</td>
<td>-0.616</td>
<td>-1.093</td>
</tr>
<tr>
<td>AGE</td>
<td>-0.195</td>
<td>-3.683***</td>
<td>-0.279</td>
<td>-2.632***</td>
</tr>
<tr>
<td>GENDER</td>
<td>2.209</td>
<td>2.969***</td>
<td>2.157</td>
<td>2.890***</td>
</tr>
<tr>
<td>INCOME</td>
<td>0.682</td>
<td>2.493***</td>
<td>0.710</td>
<td>2.577***</td>
</tr>
<tr>
<td>MARITAL</td>
<td>-0.057</td>
<td>-0.059</td>
<td>-0.114</td>
<td>-0.119</td>
</tr>
<tr>
<td>FINLIT*AGE</td>
<td>0.0139</td>
<td>0.919</td>
<td>0.0139</td>
<td>0.919</td>
</tr>
</tbody>
</table>

Observations 191

Sign *** = significant at level 1%, ** = significant at level 5% and * = significant at level 10%.

Table 9: Test Results of GENDER's Role in Influencing the Level of Financial Literacy on Risk Tolerance Levels

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Coef.</th>
<th>t-Stat</th>
<th>Coef.</th>
<th>t-Stat</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>31.592</td>
<td>16.678 ***</td>
<td>32.011</td>
<td>13.997 ***</td>
</tr>
<tr>
<td>FINLIT</td>
<td>-0.116</td>
<td>-0.797</td>
<td>-0.177</td>
<td>-0.746</td>
</tr>
<tr>
<td>AGE</td>
<td>-0.195</td>
<td>-3.683 ***</td>
<td>-0.196</td>
<td>-3.687 ***</td>
</tr>
<tr>
<td>GENDER</td>
<td>2.209</td>
<td>2.969 ***</td>
<td>1.585</td>
<td>0.777</td>
</tr>
<tr>
<td>INCOME</td>
<td>0.682</td>
<td>2.493 **</td>
<td>0.682</td>
<td>2.487 **</td>
</tr>
<tr>
<td>MARITAL</td>
<td>-0.057</td>
<td>-0.059</td>
<td>-0.058</td>
<td>-0.061</td>
</tr>
<tr>
<td>FINLIT*GENDER</td>
<td>0.097</td>
<td>0.329</td>
<td>0.097</td>
<td>0.329</td>
</tr>
</tbody>
</table>

Sign *** = significant at level 1%, ** = significant at level 5% and * = significant at level 10%.

Estimation of the role of USIA in influencing the level of financial literacy on risk tolerance levels using the MRA approach shows that the FINLIT * AGE interaction coefficient is positive ($\beta_3 = +0.013$) and not significant.
The estimated GENDER role in influencing the level of financial literacy on risk tolerance levels using the MRA approach shows that the FINLIT * GENDER interaction coefficient is positive (β3 = +0.097) and not significant.

**Table 10**: Testing Results of INCOME Roles in Affecting the Level of Financial Literacy on Risk Tolerance Levels

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Coef.</th>
<th>t-Stat</th>
<th>t-Stat</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>31.592</td>
<td>16.678</td>
<td>***</td>
</tr>
<tr>
<td>FINLIT</td>
<td>-0.116</td>
<td>-0.797</td>
<td></td>
</tr>
<tr>
<td>AGE</td>
<td>-0.195</td>
<td>-3.683</td>
<td>***</td>
</tr>
<tr>
<td>GENDER</td>
<td>2.209</td>
<td>2.969</td>
<td>***</td>
</tr>
<tr>
<td>INCOME</td>
<td>0.682</td>
<td>2.493</td>
<td>**</td>
</tr>
<tr>
<td>MARITAL</td>
<td>-0.057</td>
<td>-0.059</td>
<td></td>
</tr>
<tr>
<td>FINLIT*INCOME</td>
<td>0.053</td>
<td>0.507</td>
<td></td>
</tr>
</tbody>
</table>

The estimation of INCOME’s role in influencing the level of financial literacy on the level of risk tolerance using the MRA approach shows that the FINLIT * INCOME interaction coefficient is positive (β3 = +0.053) and not significant. Conversely, by including the INCOME moderating variable, it reduces the main variable effect of INCOME on the level of risk tolerance.

**Table 11**: Testing Results of Marital Roles in Influencing the Level of Financial Literacy on Risk Tolerance Levels

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Coef.</th>
<th>t-Stat</th>
<th>Coef.</th>
<th>t-Stat</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>31.592</td>
<td>16.678</td>
<td>30.825</td>
<td>12.936</td>
</tr>
<tr>
<td>FINLIT</td>
<td>-0.116</td>
<td>-0.797</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGE</td>
<td>-0.195</td>
<td>-3.683</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GENDER</td>
<td>2.209</td>
<td>2.969</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INCOME</td>
<td>0.682</td>
<td>2.493</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MARITAL</td>
<td>-0.057</td>
<td>-0.059</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FINLIT*MARITAL</td>
<td>0.053</td>
<td>0.507</td>
<td>1.100</td>
<td>0.463</td>
</tr>
</tbody>
</table>

The estimation of a MARITAL role in influencing the level of financial literacy on the level of risk tolerance using the MRA approach shows that the FINLIT * MARITAL interaction coefficient is negative (β3 = -0.172) and not significant.

Thus, based on the results of the testing, none of the DEMOGRAPHY factors has a contingency role that can influence the strength of the influence of the financial literacy level on the level of risk tolerance. The effect showed
by the interaction coefficient between FINLIT or the level of financial literacy with each DEMOGRAPHIC factor, none of which is significant.

Further Investigation
The findings in this research on the benefits of financial literacy programs have not consistently affected the risk tolerance level, as stated by (Crysel, L., Crosier, B. and Webster, G. 2012). This study has combined the level of financial literacy and the role of demographic factors to explain the investment decision-making process, referring to (Pak, O., & Mahmood, M. 2015) which states that the investment decision making process includes a complex combination of various factors, including demographic factors (e.g., age, gender, income, and education level). As a result, individually demographic factors that include age, gender, income affect the level of tolerance to risk. Age factors consistently explain their influence on individual risk-taking according to the results of the study by (Kourtidis, D., Šević, Ž., & Chatzoglou, P. 2011), who found that the risk tolerance level increased with increasing age, whereas a study conducted by (Selcu, E., Zayas, V., & Hazan, C. 2010) revealed that risk tolerance levels increase as age increases. The results of the study support the findings of (Selcu, E., Zayas, V., & Hazan, C. 2010) and (Anbar, A., & Eker, M. 2010) who linked gender factors to the level of tolerance to risk indicated that consistently male sex had a higher tolerance for risk than women. Another demographic factor is marital status. The results of the study are not in line with previous studies that married individuals have lower levels of loss aversion than single individuals (Selcu, E., Zayas, V., & Hazan, C. 2010) and (Cossiga, G. A. 2018).

Conclusion
The first finding shows that individual literacy levels do not affect risk tolerance levels. These empirical findings indicate that other factors determine the level of individual risk tolerance, in addition to the level of financial literacy given that investment decision making is a complex decision determined by a combination of several factors. Demographic factors are one of the factors that determine investment decision making. The second finding supports this because age has a significant influence on the level of tolerance to risk. Besides that, income and gender (Men) also have a significant influence on the level of tolerance to risk. The third finding failed to prove the role of demographic factors in clarifying the benefits of financial literacy on risk tolerance levels.

The theoretical implications of this research are that this research supports demographic factors as a determinant of the level of tolerance to risk, and this research strengthens previous empirical findings that financial literacy has not consistently affected the level of tolerance to risk. Investor behavior factors play an important role in investment decisions. The practical implications of this research can give to investment companies or the Financial Services Authority, especially capital markets, in mapping the profile of potential investors to focus on demographic characteristics, such as age, gender, and income level.

The findings of the study are limited to using assumptions based on rational and logical decision-making processes and ignoring very complex factors, such as cognitive abilities and external environmental factors. The researcher gives some suggestions for academicians who will develop this research in the future to overcome the weaknesses of this research, by incorporating behavioral and psychological factors as factors that influence individuals in making investment decisions in the next study.

References


REDDUCING CORRUPTION THROUGH E-GOVERNMENT ADOPTION, INFORMATION AND COMMUNICATION TECHNOLOGY IN ASEAN COUNTRIES

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Abstract. This study investigates the reduction in corruption through implementation of E-government, information and communication technology ICT in ASEAN countries. GDP and population are two control variables that are used in the model for this research. In the literature review, past research studies on this topic have been identified. The cross-sectional data has been collected about related variables regarding ASEAN countries. The analyses include IPS unit root test, Pedroni cointegration and FMOLS estimation for the measurement of various relationships among variables. The results of these particular tests and approaches indicated that the hypotheses set by the researcher can be validated along with the impact of control variables. The researchers confirmed that the use of E-government and information and communication technology could reduce corruption in ASEAN countries. The study has some limitations and future suggestions. In the future, these recommendations and suggestions can be by researchers for increasing the research content. In the last, various implications in terms of theory, practical and policy making decisions of the study have been mentioned.

Keywords: E-government; ASEAN countries; GDP; ICT


JEL Codes: Q10, Q20

I. INTRODUCTION

Corruption refers to the activities that are criminal in nature and are carried out by the people having higher authorities in order to get some kind of illegal benefit (Burbules, N. 2018). Corruption may involve various activities such as bribery, kickbacks etc. As different countries have different sets of laws and rules, therefore it is quite possible that one illegal thing may be legal in other country and vice versa. Corruption may take place at different levels. It may take place in the form of small illegal benefits exchange among people; it may also be in the government institutes in the form of mega corruption. While discussing corruption, (Ahmed, U., Zin, M.L.M., & Majid, A.H.A. 2016). has stated that at a certain level, it may also become part of society’s everyday routine. Corruption has negative impacts on various aspects of society, which can be avoided by using some anti-corruption techniques. E-government can be referred to be as the use of different ICT by the government while providing various services to the public as well as managing information related to the government (Della Porta, D. 2017) and (Abu-Shanab, E. A. 2017). The basic aim of e-government adoption is to increase the efficiency and effectiveness of the information processing system and service provision system of the government. In short, we can say that by using ICT in various government operations can improve their services for the public and is called as e-government. (Loukil, K. 2017) elaborated in his work that e-government leads to the development of an open government that
is based on three most important aspects i.e. transparency, participation, and collaboration. Another study defined that “e-government reinforces traditional bureaucratic structures, cultures, and links from administration to citizens and politics, in some cases making these traditional forms more responsive (Hussain, S., Fangwei, Z., Siddiqi, A. F., Ali, Z., & Shabbir, M. S. 2018) and (Jabarullah, N. H., Shabbir, M. S., Abbas, M., Siddiqi, A. F., & Berti, S. 2019). On the positive side, a study points out that networks of trust and cooperation in societies with Confucian backgrounds could provide favorable, institutional underpinnings for network-based ICT-enabled reforms. A survey from the Republic of Korea shows that citizens expressing concerns to public officials online are less restrained by traditional notions of deference to authority figures than in face-to-face interaction, and are more willing to challenge them. ICT is also enabling the archiving of “social and cultural memory”, and providing affordable channels to indigenous groups to distribute culture. On the other hand, Salazar, Ranerup, Benjamin, and West pointed out that expected benefits are often blocked by traditional bureaucratic norms, technical difficulties, and insufficient attention to the information require for communities. For example, ICT systems can only fully deliver on their promise if different offices and people are willing to share information, which is often not the case.” In other words, e-government also leads towards transparency of government data and institutes, the participation of the general public in decision making and collaboration of government and public in various activities. (Shabbir, M. S., Kassim, N. M., Faisal, M., Abbas, M., & Sabti, Y. M. 2018) referred ICT to the use of the latest and modern technology in various activities and practices leading towards better performance. ICT is mostly used by the developed nations as compared to the developing nations. The use of ICT in government can be considered as e-government. ICT improves communication among different actors of a particular system increasing the efficiency of that system (Ding, Z., Zhong, C., Ng, D. W. K., Peng, M., Suraweera, H. A., Schober, R., & Poor, H. V. 2015), (Dutta, S., Geiger, T., & Lanvin, B. (2015), (Friedrich, C. J. (2017) and (Guy, D. B. 2018).

Figure 1: Components of ICTs (techtarget.com)
countries on a daily basis. Not only ASEAN countries, but other developing and underdeveloped countries are also facing the problems of corruption. If this situation of corruption prevails for a longer span of time, it will damage the systems of these countries. Therefore (Al-Hujran, O., Al-Debei, M. M., Chatfield, A., & Migdadi, M. 2015), concluded that it is really important to adopt different aspects of e-government and ICT in order to control corruption (Alam, M. B. 2017).

Several studies and researches have been conducted in the context of e-government, ICT and corruption activities (Gardiner, J. 2017) and (Anthopoulos, L., Reddick, C. G., Giannakidou, I., & Mavridis, N. 2016). But no research has shown the impact of e-government and the use of ICT on corruption activities. Therefore, (Hsiao, C. M., Zhang, W. F., Chiu, C. C., Huang, J. C., & Huang, Y. L. 2017) has recommended studying the role of e-government and ICT on corruption. The important motives of this study are as follows:

- To analyze the significant impact of E-Government adoption on Corruption in ASEAN Countries
- To analyze the significant impact of ICT adoption on Corruption in ASEAN Countries

As we know that corruption is an emerging issue in ASEAN countries with an increase in economic activities, so it is really important to adopt activities that can play an important role to control the process of corruption. The scope of this research revolves around the impact of e-government and ICT adoption on the reduction of corruption (Park, C. H., & Kim, K. 2019) and (Buffat, A. 2015). The significance of this study is that it will provide enough knowledge about the details of e-government and ICT and their adoption in order to reduce corruption. It will assist the ASEAN countries to get use to these innovative and technological practices (Islam, M. M., & Fatema, F. 2017) and (Gretzel, U., Sigala, M., Xiang, Z., & Koo, C. 2015). It will also help the governments of ASEAN countries to devise policies, which are favorable for the implementation of e-government and ICT adoption (Khan, H., Hassan, R., & Marimuthu, M. 2017).

II. LITERATURE REVIEW

Crime Opportunity Theory

According to crime opportunity theory, an offender carries out those tasks which are easy to perform but give high rewards and better consequences in return (Muhammad Irfan Afzal, Shabbir, M. S., & Faisal, M.(n.d.). 2016). According to this theory, for the performance of a crime, two factors are very important. The first factor is the presence of a criminal or offender who is motivated to do a particular crime. The other factor is the condition or environment of a place where a criminal is physically present. These two factors combine together for the performance of a crime (Grasmick, H. G., Tittle, C. R., Bursik Jr, R. J., & Arneklev, B. J. 1993). In our study, crime is actually corruption and the offender or criminal can be considered as the government officials who are designated to provide various services by the government to its citizens. Another important aspect of this theory is that crime can be effectively prevented by changing and modifying the environmental conditions where the crime is going to happen. This can be achieved by introducing various activities in the system. According to our study, a decrease in the rate of corruption is being studied with the impact of e-government adoption and information and communication technologies (Jeffery, C. R., & Zahm, D. L. 1993).

Impact of E-Government Adoption on Corruption

Technology is the key for businesses to look into these days (Ahmed, U., Zin, M.L.M., & Majid, A.H.A. 2016). The concept of e-government can be used in many ways in order to reduce various activities related to corruption. An important example in this regard is the implementation of e-government activities in Brazil, where it was adopted to monitor illegal activities related to corruption. (Longshore, D., & Turner, S. 1998). suggested that e-government can be effectively used to keep an eye on different activities going on in government establishments and institutes while dealing with the public. Different apps or websites can be developed by using e-government and can be applied for performing different activities that are related to the government. This will reduce the chances of the direct meeting of people with the government representatives and thus will reduce the chances of corruption (Güler, M., Mukul, E., & Büyüközkkan, G. 2019) and (Khan, N., Ali, K., Kiran, A., Mubeen, R., Khan, Z., & Ali, N. 2016). In addition to that, the high ranked government officers and audit teams can also keep check and balance on the government representatives while they are dealing with the public. Another important aspect of e-government is the
participation of the general public in the decision making processes and activities of the government (Johnston, M., 2017), (Jabarullah, N. H., Shabbir, M. S., Abbas, M., Siddiqi, A. F., & Berti, S. 2019), (Ramli, A., Shabbir, M. S., Bakar, M. S. Bin, Shariff, M. N. M., Yusof, M. S., & Ahmad, I. 2018) and (Shabbir, M. S., Shariff, M. N. M., Alshaibani, Y. H., Faisal, M., & Salman, R. 2018). This will reduce the monopoly of government power that is actually an important determinant of corruption in different areas of the world. Shabbir, M. S., Shariff, M. N. M., & Shahzad, A. (2017), suggested that this will reduce corruption activities in government institutions and also increase their transparency and accountability. (Karklins, R. 2016) elaborated another important aspect that is associated with e-government. According to them, collaboration of government institutions with public for the purpose of increasing the economic growth of the country decreases the chances of activities of corruption such as bribes and kickbacks among them. As corruption is a major determinant of reduction in the economic growth of any country, due to which it is really important to cut it off from all the systems that are under the government of that particular country. For this purpose, (Kurfalı, M., Arifoğlu, A., Tokdemir, G., & Paçin, Y. 2017) suggested that the government may develop different apps and websites for the provision of various services and encourage the general public to take part in various activities that include decision making by the government. The government may also collaborate and work with the general public for the improvement of the economy of a country (Sà, F., Rocha, Á., & Cota, M. P. 2016), (Newell, J. L. 2018), (Rose-Ackerman, S., & Palifka, B. J. 2016) and (Urry, J. 2016). From the above discussion, we can conclude that the adoption of e-government has a significant influence on corruption-related activities in a country (Khan, S. N., & Ali, E. I. E. 2017), (Iqbal, J., Shabbir, M. S., Zameer, H., Ahmed, I., & Ahmad, M. 2017) and (Haseeb, M., Haouas, I., Nasih, M., Mihardjo, L. W., & Jermsittiparsert, K. 2020). We can make the following hypothesis:

**H 1:** E-Government Adoption has a significant impact on Corruption in ASEAN Countries

**Impact of Information and Communication Technology on Corruption**

The concept of ICT involves the use of the latest technology practices in various activities for the purposes of an increase in efficiency and effectiveness of a particular process (Shabbir, M. S. 2009). ICT can be used to reduce corruption activities in several ways. The most important and basic aspect of the adoption of ICT is transparency. ICT can be used to increase transparency in different activities taking place in government institutions and departments. (Shabbir, M. S., Asad, M., Faisal, M., & Salman, R. 2019) has discussed that lack of transparency has resulted in the reduce of accountability and emerge of corruption activities in various parts of the world. The use of the internet and mobile phones are very important in the context of ICT. In some parts of the world, the use of new technology in the form of the internet and mobile phones is a very small scale. These technologies are required to be promoted among citizens of a specific country so that they can make use of them in order to fight against corruption (Vaishnavi, V. K., & Kuechler, W. 2015). ICT has evolved in many ways and various applications and websites have been developed that can be used to obtain certain services from the government institutions and establishments. This completely online system has helped a lot to decrease the interaction of people with government officials and thus has reduced the chances of corruption. In addition to that, (Filatova, O., Balabanova, S., Golubev, V., & Ibragimov, I. 2017) emphasized that various monitoring systems have also been developed by using different technologies related to ICT and use them to keep an eye and a strict check and balance on various activities and certain transactions taking place between government officials and the general public of a particular country (Khan, S. N., & Ali, E. I. E. 2017), (Hussain, S., Fangwei, Z., Siddiqi, A. F., Ali, Z., & Shabbir, M. S. 2018), (Khan, H., Hassan, R., & Marimuthu, M. 2017) and (Ramli, A., Shabbir, M. S., Bakar, M. S. Bin, Shariff, M. N. M., Yusof, M. S., & Ahmad, I. 2018). According to (Information, Technology, and Transformation), due to this strictness, it has become very difficult for government officials to engage in any activity that is related to corruption. In other words, we can say that corruption practices can be reduced by using strict processes and practices. From the above discussion, we can conclude that the adoption of information and communication technologies has a significant impact on corruption in a country. We can develop the following hypothesis:

**H 2:** Information and Communication Technology Adoption has a significant impact on Corruption in ASEAN Countries.
III. METHODOLOGY

This section is mainly related to the methodology, data, and measures, the description of variables and a brief discussion on analysis techniques. The analyses are carried out on E-Views and the major tests include IPS unit root, cointegration, and FMOLS.

The research is related to six selected ASEAN countries which are the Philippines, Malaysia, Cambodia, Myanmar, Indonesia, and Singapore, and panel data were collected from different sources. The cross-sectional data is collected over the period of (1990-2015). The data for e-government adoption (EGA) is taken from the United Nations e-government service Index (Lari, L. R. A., NYangweso, P. M., & Rono, L. J. 2017). The scale of investigating the government websites ranged between 0 to 1, 0 being the lowest and 1 being the highest participation share. The second important independent variable is (ICT). The defining dimension of this variable is Internet users, fixed telephone usage and mobile cellular users. The data for this variable has been obtained from the “International Telecommunication Union” (Van Grembergen, W., & De Haes, S. 2018).

The dependent variable is the decrease of corruption and the measure adopted for this variable is control of corruption data, that is available from the World Governance Index (WGI). The WGI index ranges between -2.5 and 2.5 which means higher scores showing lower intensities of corruption. Two control variables in this study are GDP and Population.

The aim of this study is to reduce corruption through e-government adoption and ICT in ASEAN countries. The research model can be explained in the simplest form as under:

\[ RC = f(EGA, ICT, GDP, P) \]

The empirical or econometric form of this model can be shown as follows:

\[ RC = \beta_0 + \beta_1 EGA_{it} + \beta_2 ICT_{it} + \beta_3 GDP_{it} + \beta_4 P_{it} + \epsilon_{it} \]  

Where RC represents reducing corruption, which is a dependent variable as well as the objective of this study. This variable is measured by corruption control by taking data from the world governance indicator index. The \( \beta_0 \) is a constant and EGA represents E-government adoption, ICT shows Information and communication technology, GDP shows GDP factor and P represents the Population. All these are indicated as parameters that are estimated in this study and \( i \) indicates cross-sectional data obtained for ASEAN-6 countries. Finally, \( t \) is the time series of data. At the end of the equation, the \( \epsilon_{it} \) shows the error-term placed for residuals.

**Panel Unit Root Test**

The unit root is the test that is applied to cross-sectional data to check the data stationarity. It is employed to investigate if a time-series data have unit root and is nonstationary. The IPS unit root test is employed in this study and was introduced by Im, Pesaran, and shin. This test basically differentiates between the stationary and nonstationary state of variables. In addition, as the name suggests, it also identifies the presence or absence of unit root in the data related to specific variables. These tests are more important as compared to other unit root tests because of their more power in case of data having various variations in it. In other words, the more the variations of data, and the more powerful the unit root tests are. In addition, normal and standard distribution is very important in this regard and this distribution can be obtained by using the panel cointegration tests.

The ADF procedure is the base of unit root technique which is well known for its powerful estimation and reliable results. IPS starts by identifying a separate regression named as ADF with individual impacts for each cross-section.

\[ \Delta y_{it} = \alpha_i + \rho_i y_{it-1} + \sum_{j=1}^{p_i} \beta_{ij} \Delta y_{it-j} + \epsilon_{it} \]  

**Panel Cointegration Test**

The panel cointegration is the investigation for measuring the presence of a long term equilibrium relationship between several variables as well as to analyze any cointegration among them. Panel cointegration test is used for assessing the long term relationship among variables (Werner, S. B. 2018). Pedroni’s technique of cointegration is applied after setting statistics to a normal level with correction terms. Actually, this test is performed or employed in the research process when the stationarity of the data has already been confirmed by the unit root tests. The nonstationary data represents the fact that there is some variation taking place in the collected data. This test provides results about the level and first difference series. In this regard, the level series represents the nonstationary data and it is shifted to stationary data when the first difference of the same data is analyzed. The methods suggested
by Pedroni results in the use of estimated residuals from the long run hypothesized regression equation, which is mentioned below:

\[ y_{it} = \alpha_i + \delta_i t + \beta_1 x_{1,it} + \beta_2 x_{2,it} + \cdots + \beta_{M_i} x_{M_i, t} + e_{it} \quad (4) \]

**Coefficient Estimation Test**

We have adopted (FMOLS) procedure in this section which was introduced by Christopoulos and Tsionas. Non-exogeneity and auto correlational issues are being handled by employing (FMOLS) regression technique revealed by (Werner, S. B. 2018). to get asymptotical congruous and efficient estimates in panel series. Thus, an equilibrium long-run relationship relies between them. For heterogeneous cointegrated panels, it is decided to estimate Equation 2 by using (FMOLS). This methodology is consistent and efficient in such a way that it addresses the issue of simultaneity biasness and non-stationarity as well as allows constant and efficient cointegration estimation vector. This test can be used to calculate or estimate the coefficients of certain variables of our study so that their impact on the dependent variable can be identified. This is common that OLS technique produces biased findings because of the reason that regressors are determined endogenously.

\[ y_{it} = \alpha_i + x'_{it} \beta + e_{it} \quad (5) \]

\[ x_{it} = x_{it-1} + \epsilon_{it} \]

[51] believed in the context of panel data and permitted heterogeneous relations in short-run alterations and the fixed effects. Pedroni’s FMOLS equation is structured as follows:

\[ \beta_{FM} - \beta = \left( \sum_{i=1}^{N} \sum_{t=1}^{T} (x_{it} - \bar{x}_t) \right)^{-1} \sum_{i=1}^{N} \sum_{t=1}^{T} (x_{it} - \bar{x}_t) e_{it} - T \gamma_i \]

\[ \hat{e}_{it} = e_{it} - \tilde{\gamma}_{22i} \tilde{\gamma}_{21i}, \quad \hat{\gamma}_i = \tilde{\gamma}_{12i} + \tilde{\gamma}_{02i} - \tilde{\gamma}_{22i} \tilde{\gamma}_{21i} (\tilde{\gamma}_{22i} + \tilde{\gamma}_{21i}) \quad (6) \]

We have adopted the panel group FMOLS regression in this study. A significant objective and edge of the “panel group estimators” is that the combined data in its “pooled” form shows more elasticity in the existence of heterogeneity of the cointegrated vectors. “Test statistics” constructed from the panel coefficients are designed to investigate the hypotheses whether they are accepted or rejected. Because, there is no logic to believe that if the slopes of cointegration are not corresponding to 1, they may use some other random common values. Another preferred use of the “panel estimators” is that the point assessments have a progressively helpful elucidation if the genuine vectors of cointegration are not the same.

**IV. ANALYSIS AND RESULTS**

Table 1, reveals the outcomes of the IPS unit root test to show that all the variables are inconsistent of the unit root panel regression. These outcomes mainly describe that the data is non-stationary and the cointegration technique will give a maximum of the desired output. The unit root test was applied because it has the maximum power to test whether the data is in a nonstationary state. The results indicate that the variables are non-stationary.

**Panel Unit Root Test**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Level</th>
<th>First order difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Constant</strong></td>
<td><strong>Constant + Trend</strong></td>
<td><strong>Constant</strong></td>
</tr>
<tr>
<td>C</td>
<td>-1.24054 (0.1377)</td>
<td>-2.05519 (0.1564)</td>
</tr>
<tr>
<td>EGA</td>
<td>-0.81581 (0.8143)</td>
<td>-1.51210 (0.8905)</td>
</tr>
<tr>
<td>ICT</td>
<td>-1.33785 (0.6424)</td>
<td>-1.55227 (0.8809)</td>
</tr>
<tr>
<td>GDP</td>
<td>-2.02470 (0.8781)</td>
<td>-1.71368 (0.9916)</td>
</tr>
<tr>
<td>P</td>
<td>-2.00871 (0.2214)</td>
<td>-1.75276 (0.5325)</td>
</tr>
</tbody>
</table>
Table 1 illustrates the findings of the IPS test for “constant” and “constant plus trend”. It has been analyzed that for all series; that data collected for ASEAN countries contains a unit root and is in non-stationary state at 95% critical value (1% confidence). Conclusively, considering the IPS test, there appears a tough validation that all series, in fact, are integrated at order 1.

The findings of this test have shown in Table 1 that supports the unit root hypothesis for entire variables for ASEAN countries. At 1% significance, the statistics reveal that all findings of the tests significantly validate that all series are strongly non-stationary in both the time trends. Given the results of IPS, and to check the long-run stable relationship between variables, we have applied the test of cointegration.

**Panel Cointegration Test**

<table>
<thead>
<tr>
<th>Test</th>
<th>Constant trend</th>
<th>Constant + Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel t-Statistic</td>
<td>-0.04061</td>
<td>-0.63129</td>
</tr>
<tr>
<td>Panel p-Statistic</td>
<td>-0.934530</td>
<td>-1.64581**</td>
</tr>
<tr>
<td>Panel t-Statistic: (non-parametric)</td>
<td>-1.02037</td>
<td>-1.21050</td>
</tr>
<tr>
<td>Panel t-Statistic (ADF): (parametric)</td>
<td>-3.21324**</td>
<td>-2.14508**</td>
</tr>
<tr>
<td>Group p-Statistic</td>
<td>-1.81502**</td>
<td>-3.65548**</td>
</tr>
<tr>
<td>Group t-Statistic: (non-parametric)</td>
<td>-0.51211</td>
<td>-1.26479</td>
</tr>
<tr>
<td>Group t-Statistic (ADF): (parametric)</td>
<td>-2.16207*</td>
<td>-3.45731*</td>
</tr>
</tbody>
</table>

Note: The [in 51] statistics are one-sided tests having critical value of -1.64 (k < 1.64 *).

The next step is to measure if variables have cointegration by using a cointegration approach (1999, 2001, and 2004). We investigated whether a steady-state relationship lies between the variables of the study. Cointegration test is conducted for both “constant” and “constant plus trend” and the brief description of the findings of cointegration analysis are shown in Table 2.

In “constant level”, it has been realized that 3 out of 5 statistics revealed that the “hypothesis of cointegration” for the ADF statistic and group ρ Statistic is accepted at 5% level, while the “group ADF” is significant at 1% significance. The results of the “panel cointegration tests” with “constant level” show that independent variables possess cointegration for ASEAN-6 countries with respect to a decrease in corruption. It can be concluded here that there lies a long-term relationship among study variables for ASEAN-6 countries.

**Coefficient Estimation Test**

<table>
<thead>
<tr>
<th>Country</th>
<th>EGA</th>
<th>ICT</th>
<th>GDP</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>-5.55* (-3.66)</td>
<td>-5.42* (-2.60)</td>
<td>-18.62* (-3.12)</td>
<td>-20.37* (-3.27)</td>
</tr>
<tr>
<td>Malaysia</td>
<td>-6.88* (-3.59)</td>
<td>-6.52* (-2.30)</td>
<td>-3.71** (-2.17)</td>
<td>1.72 (1.01)</td>
</tr>
<tr>
<td>Philippines</td>
<td>1.58 (1.43)</td>
<td>0.39 (0.27)</td>
<td>1.40 (0.45)</td>
<td>3.82 (0.59)</td>
</tr>
<tr>
<td>Singapore</td>
<td>-4.47* (-3.62)</td>
<td>-4.86* (-2.10)</td>
<td>0.77 (0.45)</td>
<td>-3.70* (-4.95)</td>
</tr>
<tr>
<td>Cambodia</td>
<td>0.65 (0.64)</td>
<td>-0.66 (0.74)</td>
<td>-2.34** (-2.19)</td>
<td>-5.69** (-2.29)</td>
</tr>
<tr>
<td>Panel Group</td>
<td>2.49** (2.49)</td>
<td>-3.31* (-1.97)</td>
<td>3.21 (1.27)</td>
<td>8.76* (5.98)</td>
</tr>
</tbody>
</table>

Note: values in parentheses are t values. * and ** significant with 95% confidence.

Table 3 reveals the results of the analysis that the estimate of the coefficient for e-government adoption is negative (5.55 and 6.88) and for ICT (-5.42, -6.52, -4.86) and significant at 1% level for “Indonesia and Malaysia. Singapore” also shows the opposite value (-4.47, -4.86) and significant at 1% level. Therefore, it is concluded that there is an important and negative relationship among corruption reduction and e-government adoption and ICT for Indonesia, Malaysia and for Singapore. We have also reached the conclusion that statistically, there lies a significant and negative relationship between Information and communication technology and a decrease in corruption regarding ASEAN-6 countries. The regression coefficient of GDP is negative; -18.62 and -2.34 and “significant” at the 1% and 5% confidence for “Indonesia, and Cambodia” respectively. While the coefficient on GDP is negative (-3.71) and it is “significant” at the 5% level in Malaysia. These results show that there is a significant negative relationship between Information and communication technology and a decrease in corruption and by increasing one unit of “e-government” and ICT, corruption will decrease.
Table 3 also demonstrates that the population has an inverse regression coefficient (-20.37, -3.70, and -5.69) and has significant value at 1% in “Indonesia, Singapore, and Cambodia”. It implies that these variables have a negative impact on independent variables for Indonesia, Singapore, and Cambodia.

V. DISCUSSION AND CONCLUSION
This study has analysed that e-government adoption and Information and communication have a positive impact on reducing corruption in ASEAN-6 countries. This study has two purposes; the first is to analyze the impact of E-government adoption on the decrease of corruption in ASEAN countries. The second objective is to analyze the impact of ICT on the decrease of corruption in ASEAN countries. The regression weights of FMOLS have described that both of these hypotheses are accepted which implies that e-government adoption and ICT can reduce corruption in ASEAN countries. The findings of this study are inconsistent with the research conducted by (Venkatesh, V., Thong, J. Y., Chan, F. K., & Hu, P. J. 2016), (Pedroni, P. 1996) and (Hsiao, C. M., Zhang, W. F., Chiu, C. C., Huang, J. C., & Huang, Y. L. 2017). A study by (Dutta, U. P., Gupta, H., & Sengupta, P. P. 2019) conducted revealed the impact of ICT on the economic growth of the South Asian countries.

Two control variables were also used in this research i.e. GDP and population of a country. The results of several tests applied on the collected data of this study show that the impact of these control variables has also been accepted and it has been declared the impact of these variables as significant. The same results have also been discussed in previous studies. As corruption in a country can be reduced by the use of e-government and ICT, it will ultimately increase transparency and accountability of government and thus the economic growth of a country can also be enhanced.

Conclusively, the required purpose of this study is achieved, and on the basis of findings obtained from statistical analyses, our hypotheses are accepted. It can be confirmed from these findings that there is a significant impact of e-government adoption and information and communication services on reducing corruption in ASEAN countries.

Implications
This study has a significant contribution to the literature of E-government acceptance and ICT and about corruption and the measures of reducing corruption. The developing countries are quite conscious about the decrease in corruption level so, for them, this study might become a helpful tool to assess and analyse the importance and meaningful application of e-government and ICT infrastructure. The same is true for ASEAN countries because the required level of E-government and information and communication technology activities is relatively low in these countries in comparison to other developing countries of the world.

The government of other countries may also adopt e-government and ICT as a tool for the improvement in service delivery for the general public. E-governments are helpful in quick services for the general public as well as to the officials of the country. The findings of this research are helpful for ASEAN countries that have less developed infrastructure and where the corruption level is high. The research findings also can provide useful and meaningful information to foreign investors who may be interested in investing in the projects initiated in those ASEAN countries. This study also presents the importance of investment in e-government activities and the improvement of e-government services for the public of ASEAN countries. Corruption has become a major issue in ASEAN countries; this study may also help them to know about the value of adopting E-policies as the consequences of this study have revealed the importance of adoption of e-government and information and communication technologies that can significantly decrease the corruption levels in their country. The online system of communication is quite quick than that of manual procedures, the reporting of suspicious and malware activities would be fast by adopting such technologies and the timely prevention measures can be taken by the government. This study can also help policymakers and officials of developing nations to devise their governmental policies and allocate budgets. The streaming of online information and quick remedial actions can be taken to reduce corruption by setting e-government and information and communication infrastructure.

Limitations and Future indications
This study involves many loopholes and limitations which are worth to be mentioned. The sample size is small and further research can be carried by increasing the size of the data. This study is related to ASEAN countries, future researchers can conduct similar research on Gulf countries or other regions of the world. We have run statistical
analyses like panel unit root IPS, cointegration and FMOLS regression. The other statistical tests like LLC unit root, Kao cointegration may be adopted to run analysis on panel data. Furthermore, the dependent variable of this study can be replaced by E-communication. Lastly, the independent variable anti-corruption measures can be added to the research model to expand this research area.

References


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GREEN AGILITY REVOLUTION VIA INNOVATION: A CASE STUDY

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Abstract. The current study emphasized the role of market innovation on pricing, packaging, and promotion in improving marketing performance of the Apparel industry of Indonesia. Also, the mediating effect of green product market agility was examined. The data has been drawn from a sample of 309 respondents with purposive sampling. The statistical relationships between the incorporated variables are examined through Confirmatory factors analysis and Structural equation modeling approach with the application of descriptive analysis, KMO and Bartlett’s test, rotated component matrix, convergent and discriminant validity. From the results, it is indicated in the direct effects that marketing innovation on pricing and promotion are the significant drivers of the firm’s marketing performance. Whereas, no significant direct relationship between marketing innovation on packaging and marketing performance was found. In the same way, the indirect effects show that green product market agility plays a significant mediating role in the relationship between marketing innovation on price, marketing innovation on promotion, and marketing innovation on packaging and marketing performance. Moreover, various implications in terms of theory, practices, and policy development are suggested by the study for the practitioners of marketing management to assist in the achievement of effective marketing performance. Also, the study provides directions and recommendations for future researchers.

Keywords: green agility; marketing performance; marketing innovation on pricing; packaging; promotion


JEL Codes: Q1, Q50

1. Introduction

In Indonesia, responsiveness towards ecological concern is increasing. Although not in fast pace, the sensitivity towards green programs is making space for itself. Green programs refer to making something, like in case of business the products and services that are beneficial to people as well as the surroundings. Awareness about this fact is growing due to alarming global warming influence and unsafe and risky living styles of people (Hailegiorgis & Hagos, 2016; Hendrayati & Gaffar, 2016). The purpose of these growing green programs are to make the life of people better by offering them healthy and safe products and along with that making a positive and nice impact of environment. A small portion of firms in Indonesia are using the total quality management for green products, and a relatively large portion of manufacturing firms are using green movement in fractions. However the sector of apparel in Indonesia is lacking in this concern. Being a part of green programs is a good happening for Indonesia but it needs fast pace as environmental degradations are increasing very swiftly. Green marketing, which means green or ecological programs, is the obligation of all participants in business community (Benzo, Mohsen, & Fourali, 2017; Costanza, 2017; Dam, Le Dinh, & Menvielle, 2019; Dewnarain, Ramkissoon, & Mavondo, 2019; Di Fatta, Caputo, & Dominici, 2018). The possible participants of the community are corporal experts, management, fiscal and monetary establishments, government institutes, NGOs and end users that are the customers. There are
some hurdles and problems that discourage individual to buy, and manufacturer to produce green. Firms in Indonesia can use possible innovative tactics to eliminate or at least reduce such problems and difficulties. Innovation in pricing which comes in form in green pricing can help manufacturers to offer green products, for such pricing, behaviors are examined about environmental concerns initially, so the customers willingly pay extra for green products. Similarly green packaging tactic is used. Here producers offer packaging that are not only beautiful but are quite easy to transfer, reusable, recyclable able and eco-friendly. Other possible tactic that firms of Indonesia can use is innovative promotion with regards to green programs. Online, printed and television ads about green products drag attention of people, but the trick is to communicate green message effectively (Lim, 2016; Nadda, Dadwal, & Rahimi, 2017; Nguyen, Melewar, & Schultz, 2017). If these innovative tactics are used by firms, the attractiveness of their product increase, which increase their demand in the market. These tactics increase the agility of products in the market. Consequently the performance of a product in a market can boost. So these tactics, if applied sensibly, can lead to a competitive edge for a firm in Indonesia. This way customer will be encouraged to buy green products and if they are aware enough and understand the importance of being green, they pay extra for it eagerly. Hence a win-win situation is created where all participant are happy with no harmful effect on environment. Apparel industry is one of growing industry of Indonesia as sales increase showed in figure 1 below, so such innovative changes will simply multiply the profits.

![Figure 1: Apparel sales in Indonesia in 2014, 2015 and 2019 (in billion Indonesian rupiah)](image)

The green programs are a need due to danger prevailing in environment. The waste from manufacturing, materials used in production often cause harm towards environment and when they are not properly disposed the danger increase (Atanassova & Clark, 2015; Benzo et al., 2017; Costanza, 2017). Such harms toward earth are happening in all over the world and more specifically in developing countries. The environmental degradations in Indonesia need attention, so proper solution from all bodies effecting to the environment are required. Manufacturing firms more specifically apparel industry can play its role by adopting innovative ways. The innovations can help not only in reducing bad effects on environment but leads to high margins as well. Innovations in apparel industry of Indonesia are required to compete domestically and globally (Vătămănescu, Gazzola, Dincă, & Pezzetti, 2017; Wang & Kim, 2017; West, Ford, & Ibrahim, 2015; Yaacob, Baroto, Kamarudin, & Arifin, 2019). If these issued are addressed by courtiers it will harm the whole world’s wellbeing. If companies will ignore these green innovations their profit margins will drop, and their image will be affected as other firms along the globe are adopting green ways of doing business (Haseeb et al., 2020). There is a need for this study because existing studies measure the impact of innovation on market performance but effect of green innovations on market performance is
lacked. Also the apparel industry of Indonesia is not studied in this context. The mediating role of green product market agility between market innovative dimensions and market performance is not studied before.

The other sections of this study are. Section 2 which encompass theoretical background and hypothesis development. Section 3 which covers methodology and data collection. Section 4 includes analysis and results of data. Section 5 include conclusion.

This study has following objectives.

1. To analyze the impact of marketing innovation on pricing on marketing performance in apparel industry of Indonesia.
2. To analyze the impact of marketing innovation on packaging on marketing performance in apparel industry of Indonesia.
3. To analyze the impact of marketing innovation on promotion on marketing performance in apparel industry of Indonesia.
4. To analyze the mediating role of green product market agility (GPMA) between dimensions of innovation on marketing performance in apparel industry of Indonesia.

2. Literature Review and Green Marketing theory

Organizations are engaging in a variety of activities such as entrepreneurship to improve their performance (c.f., Khalid, Ahmed, Tundikbayeva & Ahmed, 2019). The concept of marketing is also one of those new entities. The concept of green marketing was developed in 1880s. At that time this concept was not very clear, and it was not explored speedily. Initially amount of research on this concept was very small and that’s why companies’ interest in green marketing was limited. Their interest was expanded later when studies on green marketing expressing key novelties and modifications. After that firms started taking advantage of green marketing but this happened gradually, stories of firms like Body Shop and McDonalds shows when and how green marketing can reward. Green marketing involves considering activities that are required to manufacture and aid the marketing of goods or services with producing least effect on surroundings and along with that fully satisfying customer’s requirements and wishes. This concept works in all directions as by satisfying customer, obtaining high profits for firms and being friendly to environment (Sheikh, Shahzad, & Ishak, 2016; Sugiyarti, 2015; Yanzheng, Zengxiang, & Changhong, 2015). To use green marketing successfully companies should focus on green marketing instruments that include eco-friendly ads and eco-brand etc. These instruments increase understanding of customer towards green marketing and green products which leads to their intention to purchase. This concept has gained attention from past many years (Vătămănescu et al., 2017; Wang & Kim, 2017; West et al., 2015; Yaacob et al., 2019). The reason of this increase attention is rapid commercial development, comfy way of living, bulk manufacturing, and overemphasize on promotion, a lot of competition and internationalization. Green marketing is shown helpful in profit generation; in studies its positive relation to customer attraction, their purchase intention, buying behaviors and satisfaction has been viewed. Nature of green marketing makes it very suitable for today’s damaged environment.

2.1 Marketing Innovation on pricing and marketing performance

Setting prices innovatively increases attraction of the product which in turn enhances the marketing performance of the product. Innovative pricing can be a competitive advantage for a firm. The technique satisfies customer and increase profits as well. Companies are using value informed pricing, in this way companies set prices by keeping in view the buyer’s awareness about the advantages of offered item and the way buyer deal these advantages against price. By doing this value is created in customer’s mind and he believes that he is paying for something precious and valuable to have. This mechanism increase product’s market performance as customers are satisfied with the
pricing. It is also figured out that for marketing performance, price is of more concern in developing countries, because buyers from developing countries are more sensitive about product’s price (Shaltoni, 2017; Sheikh, Rana, Inam, Shahzad, & Awan, 2018). But for firms to offer innovative pricing there is a need to be more attentive towards market changes. This type of pricing can only be offered after keen observation, examining and sound analysis of market fluctuations. It is because customers are more aware in this era about what they are paying for the product and services (Reda, 2018; Rishi & Bandyopadhyay, 2017; Sega, 2017; Shaltoni, 2017; Sheikh et al., 2018). Hence this study propose following hypothesis

H1: Marketing innovation on pricing has a significant impact on marketing performance.

2.2  Marketing Innovation on packaging and marketing performance

Previously companies use wrapping and packing of a product just to guard it but latter it is advanced as identification of a brand. Packaging is considered as ‘quite salesman’, because it not only influences the appearance of a product but attract customer to buy it. So, if a product is offered in innovate and unique packaging it leads to high performance of product in market. Scholars have witnessed it as an important factor in four Ps. Packaging is also an independent base of innovation for merchants, procedures and items (Bauer, Freundt, Gordon, Perrey, & Spillecke, 2016; Beukes & van Wyk, 2016; Herman, Setiyaningrum, & Ferdinand, 2018). Companies are involved in better packaging innovations as it is a way of improvement and economic benefit as it leads to high profits with cheap costs. Innovative packaging can be used due to different reasons such as it act as invisible influencer on customer, it influence positively the efficiency of product and it enhance the eco-friendly image of product. It is studied that products with innovate packaging are positively linked with purchase decision of customer. Not only this but products that are packaged innovatively are more convenient to handle while delivering, loading, storage and shipping. Due to given arguments this paper offer following hypothesis

H2: Marketing innovation on packaging has a significant impact on marketing performance.

2.3  Marketing Innovation on promotion and marketing performance

The current era is all about promotion, here well promoted products do more business than others because customers are more informed about them. internet has changed lifestyles of people, and in the form of mobile, laptop and other such electronic devices, it’s influence on people’s life has increased many folds as compare to past. So these days it is more profitable for firms to focus on online advertising. Firms now offer their goods, services and ideas through internet, they communicate directly with them through it and then they deliver their products to them without a middleman. Due to these circumstances online shopping is trending now. These internet promotion tactics are changing commercial atmosphere. These tactics are increasing the visibility and attainability of a product which in turn increasing the marketing performance of a product. Before going to promote the product and service online, firms must have a comprehensive research on buyer’s views, philosophies, intentions and approaches about the product (West et al., 2015; Yaacob et al., 2019; Zekanović-Korona & Grzunov, 2019). For this companies conducts online surveys, offer questionnaires and obtain data from various websites to improve the market performance of their product, service or idea. In response to given arguments this paper offer following hypothesis

H3: Marketing innovation on promotion has a significant impact on marketing performance.

2.4  Mediating role of GPMA between marketing Innovation on pricing and marketing performance

Agility here refers to long life of product. Small amount of writings are offered about GPMA. Studies shows that price is determinant of buying behavior, so if a product is priced innovatively it can lead to competitive advantage. Some firm uses value added pricing where they deal with customer’s mind by comparing the benefits against price. Similarly another innovative pricing technique that is used by firms is green pricing. In this pricing strategy
customers happily pay extra for the products that are eco-friendly. Usually the prices are high if the product is of better quality and eco-friendly, because the materials used in their manufacturing are expensive. During this pricing strategy buyer’s concern and awareness about surroundings is examined. The more buyers are sensitive toward environment, more they will willingly pay extra. The cost of company to produce such products is also high so, because customers are more aware today, they favorably pay premium prices for such products (Aljanabi & Noor, 2015; Arslanagic-Kalajdzic & Zabkar, 2015; Atanassova & Clark, 2015). Due to this awareness circulation and movement of product in market increases. Hence in response to these innovative pricing strategies e.g. value added pricing and green pricing, these products are liked by customers and in turn their market performance increase. Therefore this study propose following hypothesis

H4: GPMA will moderate the relationship between marketing innovation on pricing and marketing performance.

2.5 Mediating role of GPMA between marketing Innovation on packaging and marketing performance

Packaging is a significant feature of promotional mix. It is a source of novelty in a product. It also helps in reducing costs with increase in returns. Studies show that green packaging is most frequently requested by customers. Companies are using different packaging techniques and one of them is green packaging which is very much in nowadays. This type of packaging offer various benefits like, it is easily reutilize able, produce from ecological ingredients, returnable and reusable. Innovatively the packaging of product is reduced, which results in money saving before advertisement. In order to lessen the impact of packing on surroundings, companies uses various ways for example, ingredients intake to produce a product are reduced, packaging leftovers are reduced, and the advertisement of recyclable and biodegradable product packaging are increased. Such packaging attributes are must be observable. This way packaging of product become more beautiful and eye-catching (Benzo et al., 2017; Costanza, 2017; Dam et al., 2019). So customers feel attraction and charm in these products. This scenario increases the circulation and agility of these products in the market which increase its market performance. Consequently with the help of given arguments this study propose following hypothesis

H5: GPMA will moderate the relationship between marketing innovation on packaging and marketing performance.

2.6 Mediating role of GPMA between marketing Innovation on promotion and marketing performance

This is the age of promotion, and effectively promoted products and services produce high returns. Changing patterns of life require marketing strategies to change accordingly, and this era requires promotional strategies that involve internet, as it has become a part of life for almost every one. Products that are not promoted through internet are nowhere in completion. So, internet is an important platform for companies to promote. But the use of internet in promotion of product, service or message should be wise, which means that communication there should be up to the mark. It is very important to notify and update buyers. Studies show that customers are more responsive towards green promotion. So it is helpful for companies to produce ecological advertisement, as it is examined that customer like the promotion of green and biological products. Customers are also attracted towards TV ads and printed promotions of green products. Later these attractions become the cause of customer buying (Aljanabi & Noor, 2015; Arslanagic-Kalajdzic & Zabkar, 2015; Atanassova & Clark, 2015). Studies also indicate that sound information and understanding should be provided in promotions about the working of products. If the information provided is inappropriate or incomplete it negatively effects buying decision. Green promotion should focus on ecological advantages of product, highlight green lifestyles, enhance eco-friendly image of company (Dikova, Van Witteloostuijn, & Parker, 2017). These types of promotions increase agility of products in market, and this way the performance of product increase in market. These arguments help the study to offer following hypothesis.

H5: GPMA will moderate the relationship between marketing innovation on promotion and marketing performance (see Figure 2).
3. Research Methodology

3.1 Population and Sampling

In this researcher study, researcher desired to observed role of marketing innovation on pricing, packaging and promotion on marketing performance, in mediating role of green product market agility. Researcher has been accompanied apparel industry of Indonesia as population of study because this sector is greater contributor in economy of Indonesia and employment sources. As Indonesia desired to enhance revenue from textile sector that’s why this sector has to innovate a lot for achieving competitive advantages over china and Vietnam which are producing cheap and innovative products. Due to these reasons, researcher consider it essential to proposed few parameters for increasing marketing performance. Sampling frame of this research study consist of Kana Goods, Hlaii, Seratus Kapas and Cinta Bumi, as all these companies have been considered as most sustainable garments brands but these companies desired to perform extra ordinarily and increase word of mouth that’s why researcher considered it beneficial to collect the data from managerial employees of marketing department of these four companies. Researcher uses purposive sampling technique for selecting specific respondents from only marketing department as this study is related to marketing performance and innovation. For data collection, researcher distributes 460 questionnaires between managerial employees but out of 460 only 335 responded. After performing data cleaning process, researcher attain only 309 valid responses.

3.2 Data collection Procedure

As this research study has never been conducted in previous literature that’s why researcher has to collect primary data, for which researcher considers survey questionnaire most appropriate option. Questionnaire has been categorized into two type closed ended questions such as demographic and variable scale items, for collecting quantitative and objective responses. Moreover, questionnaire has been written originally in English language but for collecting data from Indonesian people researcher convert it into native language. As far as data collection procedure has been completed, researcher again translate it back into English language for data analysis process. Before finalizing questionnaire, researcher verify the understandability of items through pretest approach and checked content validity of measure by collecting feedback of industrial practitioner. Further, researcher administered finalized form of questionnaire through self-administering and online administering techniques, as it enables respondents to solved questionnaire appropriately and conveniently.
3.3 Measures

Researcher takes into account much related research works of various authors in previous literature, for adapting measurement items which measured role of concerned variables of study. As researcher considered them more authentic and reliable that’s why researcher considered them for measuring response of respondents regarding impact of proposed variables. Researcher measured green product market agility through 3 survey items adapted from (Laroche, Bergeron, & Barbaro-Forleo, 2001), for marketing innovation on pricing measurement 3 survey items have been adapted from (Laroche et al., 2001) and for marketing innovation on promotion measurement, 5 survey items have been adapted from (Laroche et al., 2001). Further, researcher measured marketing innovation on packaging construct through 6 survey items taken from work of (Laroche et al., 2001) and for measuring marketing performance 9 measurement items have been taken from (Reid, 2005). 5-point Likert scale has been considered for measurement of all these survey items, in this scale 1 stands for strongly disagree and 5 stands for strongly agree (Thaker et al., 2020).

3.4 Data Analysis

Researcher accompanied SPSS for applying various tests such as researcher performed regression test, correlation test and descriptive statistics test for the analyses of collected data. SPSS has also been accompanied for running diagnosis of reliability, assessment of reliability based on two criteria such as (1) Composite reliability and (2) Cronbach’s alpha. These two criteria must have the values in specified threshold range such as greater than 0.70 because it has been considered that above 0.70 cutoff value internal consistency and items reliability is ensured. As far as AMOS is concerned, researcher accompanied it for running two analysis approaches such as confirmatory factor analysis and structure equation modeling. SEM has been taken into consideration for assessing acceptance or rejection status of hypotheses and CFA has been accompanied for analyzing convergent validity, discriminant validity and model fitness.

4. Results and Analysis

Data for this study was collected from 309 different people from Indonesia among which 127 were males and 182 were females. Moreover, the educational qualifications and age factors are also very important factors that must be considered.

<table>
<thead>
<tr>
<th>Table 1: Descriptive Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>MInnPrice</td>
</tr>
<tr>
<td>MInnPromo</td>
</tr>
<tr>
<td>MInnPack</td>
</tr>
<tr>
<td>GPMAgility</td>
</tr>
<tr>
<td>MarketPerf</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
</tr>
</tbody>
</table>

The results of descriptive analysis have been given in the table 1. These results evidently show that the data is normally distributed and there is no issue related to it. The data is skewed in the range of -1 to +1 which affirms the previous result. In addition, there is no outlier found in the data which can be confirmed as the value of minimum
and maximum statistic values are in the range of 5 points Likert scale. Apart from them, standard deviation and mean have also been presented in the table 2.

Table 2: KMO and Bartlett's Test

| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | .929 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 9180.009 |
| | df | 325 |
| | Sig. | .000 |

After studying about the descriptive analysis of the collected data, the next step is to determine whether the sample size of the data is adequate or normal. KMO and Bartlett’s test are generally used for this purpose. The KMO test value in our case is 0.929, which is effectively within the appropriate range i.e. 0.8 to 1. This means that the sample size selected for this study is accurate and adequate, which can also be confirmed as the value of Bartlett’s test is also within the range.

Table 3: Rotated Component Matrix

<table>
<thead>
<tr>
<th>Component</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRI1</td>
<td>.743</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRI2</td>
<td>.784</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRI3</td>
<td>.826</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRO1</td>
<td>.819</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRO2</td>
<td>.851</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRO3</td>
<td>.859</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRO4</td>
<td>.864</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRO5</td>
<td>.852</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAC1</td>
<td>.781</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>PAC2</td>
<td>.825</td>
<td></td>
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</tr>
<tr>
<td>PAC3</td>
<td>.805</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAC4</td>
<td>.850</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAC5</td>
<td>.803</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAC6</td>
<td>.860</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GMA1</td>
<td>.716</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GMA2</td>
<td>.753</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GMA3</td>
<td>.778</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MP1</td>
<td>.842</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MP2</td>
<td>.865</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MP3</td>
<td>.872</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MP4</td>
<td>.877</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MP5</td>
<td>.878</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MP6</td>
<td>.888</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The table 3 shows the factor loading values of all the items that are included in the variables transforming of the study. The threshold value for all the items is greater than 0.7, and in our study all the values are also greater than 0.7 which affirms that the variables of this study are not facing cross loading problem and they are no overlapped either. As all the results are satisfactory, we can move forward in the hypotheses testing process.

Table 4: Convergent and Discriminant Validity

<table>
<thead>
<tr>
<th></th>
<th>CR</th>
<th>AVE</th>
<th>MSV</th>
<th>MaxR(H)</th>
<th>PRI</th>
<th>PRO</th>
<th>PAC</th>
<th>GMA</th>
<th>MP</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRI</td>
<td>0.900</td>
<td>0.751</td>
<td>0.367</td>
<td>0.914</td>
<td>0.867</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRO</td>
<td>0.952</td>
<td>0.799</td>
<td>0.367</td>
<td>0.968</td>
<td>0.606</td>
<td>0.894</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAC</td>
<td>0.949</td>
<td>0.759</td>
<td>0.338</td>
<td>0.982</td>
<td>0.562</td>
<td>0.581</td>
<td>0.871</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GMA</td>
<td>0.864</td>
<td>0.679</td>
<td>0.493</td>
<td>0.983</td>
<td>0.557</td>
<td>0.373</td>
<td>0.487</td>
<td>0.824</td>
<td></td>
</tr>
<tr>
<td>MP</td>
<td>0.911</td>
<td>0.787</td>
<td>0.493</td>
<td>0.990</td>
<td>0.511</td>
<td>0.375</td>
<td>0.469</td>
<td>0.402</td>
<td>0.887</td>
</tr>
</tbody>
</table>

The results of convergent and discriminant validity have been presented in the table 4. It can be seen that the values of composite reliability are greater than 0.7 while the values of average variance extracts are greater than 0.5. Both these values indicate the satisfactory results of the convergent validity. The discriminant validity also has satisfactory results according to the table as the variables are very close to each other instead of the other variables.

Table 5: Confirmatory Factors Analysis

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Threshold range</th>
<th>Current values</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMIN/DF</td>
<td>Less or equal 3</td>
<td>2.753</td>
</tr>
<tr>
<td>GFI</td>
<td>Equal or greater .80</td>
<td>.845</td>
</tr>
<tr>
<td>CFI</td>
<td>Equal or greater .90</td>
<td>.945</td>
</tr>
<tr>
<td>IFI</td>
<td>Equal or greater .90</td>
<td>.945</td>
</tr>
<tr>
<td>RMSEA</td>
<td>Less or equal .08</td>
<td>.075</td>
</tr>
</tbody>
</table>

The results of model fitness test have been presented in table 5. This test is very important before moving further in the analysis process. In the table, the threshold values of each indicator have been given and the actual values are also evident at the same time. As all the values are satisfied according to the results, the model is considered to be fit (see figure 3 and figure 4).
The results of SEM have been given in the table 6. In the direct effect portion, the impact of marketing innovation on packing and promotion on marketing performance is significant but the impact of marketing innovation on pricing is found as insignificant. The mediating impact of green product market agility has also been found as significant according to the results by 46.7 percent.
5. Discussion and Conclusion

5.1 Discussion

The following study illustrates the impact of marketing innovation dimensions on the marketing performance of the companies with the help of green product agility as a mediating variable. The following discussion section illustrates the results and findings. The results table and values indicate that the marketing innovation on pricing directly and significantly affects the marketing performance of the apparel industry in Indonesia. Research indicates and illustrates that the marketing innovation in pricing is the application of a new variable price calculation based exclusively on-demand factors for a particular product or service (Du, Xu, Chen, & Tsai, 2018). Moreover, the innovation process in presenting new financial products has become an antecedent condition to enhance the growth of financial institutions (Kapetaniou, Samdanis, & Lee, 2018).

Moreover, the results also indicate that the marketing innovation on promotion has also a significant impact on marketing performance. Now, a day the companies mainly focus on promoting innovation and activities in order to increase financial performance. Sales promotion is seen as temporary incentives to encourage the trial or use of a product or service (Gonca & Düzgün, 2018). The study also demonstrates that promotion strategies help to attract customers and buyers. At the same time, it helps to make a positive relationship with customers. Therefore, the marketing innovation on promotion has a significant relationship with marketing performance. While, on the other hand, the marketing innovation on the packaging has an insignificant relationship with marketing performance, according to the results and findings. The packaging and labels can be used by marketers to encourage potential buyers to purchase the product (Sen, Rajagopal, & Bhattacharjee, 2019). However, in this case, the packaging has an insignificant impact on the marketing performance of the companies.

Furthermore, the role of green product agility has a mediating variable in relationship with marketing performance and marketing dimensions. The results show that the green product agility has a mediating variable in relationship with marketing innovation on price and marketing performance. A study illustrates that green marketing helps to process of selling products and/or services based on their environmental benefits (Sadiku, Kotteti, & Musa, 2018). The green product agility has also a positive mediating role in the relationship with marketing innovation on promotion with marketing performance. It is an obvious assumption that green marketing is the potential consumers will view a product or service's "greenness" as a benefit and base their buying decision accordingly. While, on the other hand, the green market product agility has an insignificant impact on the relationship with marketing performance.
innovation on packaging on marketing performance. The role of green product sustainability does not really enhance the relationship between packaging and marketing performance.

5.2 Implications
The results and discussion shows that 4ps such as product innovation, price, and promotion significantly affect the financial performance of the apparel industry positively. These factors can be controlled by a business to a certain extent. When “mixed” or blended strategically, they can produce desired behaviors from your target audiences. These elements have enhanced the financial performance of the companies and create positive results.

5.3 Limitation/Recommendation
The study does not really focus on all 4Ps as a marketing mix. Product, price, and promotion have been analyzed while the ‘place’ factor does not analyze. Therefore, it is recommended that future studies must focus on place factors as a marketing mix. Moreover, the sample size in a given study is too small which is a limitation of the research. The future study must try to fill this gap.

Conclusion
The study mainly highlights the importance of marketing communication dimensions on the performance of the companies in the apparel industry of Indonesia. The sample population of the study is 309, while 127 are male and 182 are female. The results and discussion section illustrate that pricing and promotion innovation has a direct and significant impact on marketing performance while the innovation in packaging has a negative or insignificant impact on marketing performance. While at the same time the green product market agility has a significant mediating role with all marketing dimension variables.

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DEVELOPING EDUCATIONAL INFRASTRUCTURE: ROLE OF GOVERNMENTAL SCHOLARSHIPS, TECHNICAL TRAINING AVAILABILITY AND R&D IN EDUCATION

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Abstract. The importance of various kinds of factors such as government-provided scholarships, availability of technical training and the expenditure on R&D sector in driving and enhancing the educational infrastructure of a country cannot be denied. The motive behind the conduction of this study was to study and investigate the detailed impacts of these variables on the quality of education in Asia. In order to pursue this objective, the author has collected data for 26 years from ten Asian countries very reliable sources and databases. After data gathering process, unit root tests were used by the research to find out the order of integration of variables. After this, the co-integrated relationships were studied with the help of co-integration tests and finally the most important test, ARDL model was applied to find out the short-run relationships and the long-run relationships between the variables. The results obtained from these tests indicated that all these variables have positive significant impacts on the educational quality. The author has identified various theoretical, practical and policy making benefits of this study and also mention some limitations and suggestions for removal of these limitations.

Keywords: better quality of education; governmental scholarships; technical training availability; R&D in Education; Asia


JEL Codes: H40, O15

1. Introduction

The quality of education has captured the attention of policy makers in Asia since long. Many countries in the continent are striving to improve the educational quality in order to pave the way of sustainable development and prosperity for the country. However, there is little harmony about the effective way to achieve it. In Asia, most of the development is concentrated towards East Asian countries, whereas South Asian countries are lagging behind in walk of development. The reason may attribute to the poor quality of education in that region. Addressing the issue of relatively poor-quality education has become the matter of urgency to exploit the potential of human resource by providing the quality education. Different studies on the quality of education in Asia has been conducted which has captured the impact of various variables like improvement of curriculum and diffusion of quality education to students (Zhang, Wang, Min, Chen, & Huang, 2016). More, over importance of quality education has been also emphasized in various studies. (Dlouhá & Burandt, 2015; Ghislandi & Raffagelli, 2015; Hopkins, 2015; Zhang et al., 2016). Building quality educational infrastructure is equivalent to building a valuable human capital for sustainable development (Dinda, 2016; Pelinescu, 2015; TyndorfJr & Glass, 2017). In order to set towards the path of sustainable growth and prosperity it’s pre-requisite to focus on the educational quality of the country (Atalay, 2015; Elliott, Rhoades, Jackson, & Mandernach, 2015; Kruss, McGrath, Petersen, & Gastrow, 2015; Girdzijauskaite, Radzveiciene, & Jakubavicius, 2019).
This paper aims to investigate the impact of government scholarship, technical training, and R&D on the educational quality in Asia. Government scholarship facilitates the equitable access of higher education to students and also increased the enrollment in reputable programs and foreign degrees (Cosentino, Fortson, Liuzzi, Harris, & Blair, 2019). Scholarship programs importance in low income strata of Asia cannot be negated because it provides opportunity to deserving and capable students to get degrees from notable institutes of the world. Moreover, lack of proper technical training availability in Asian institution also affects the quality education because advancement of technology has revolutionized all walk of business and industries; education is also not exception to this. Distinguished colleges and universities are inclined towards inculcating the technical training into students as well as teachers to improve the student’s quality of understanding. In addition, R&D in education also facilitates the rate of innovative transformation in education which raise the standard of quality education (Serdyukov, 2017). In Asia, the quality of education has been stagnant relative to other OCED and development countries. The reason is that government focus on other priority sector due to budgetary constraints. The dilapidating quality of education is not just a matter of concern in Asia but also a Global issue (Haseeb et al., 2020). Addressing this issue has become vital; otherwise it may have disastrous impact on the quality of student’s learning. Although this issue has been addressed in various studies, but particularly no study has been conducted for quality education in Asia by employing government scholarship, technical training, and R&D. Moreover, no studies have employed the regression model on explaining the impact of education quality with aforementioned variables. Novelty of this study is to employ the multivariate panel data model to explain the quality education, particularly for Asia. This study has following objectives:

- To analyze the impact of Government scholarship on quality education in Asia.
- To determine the role of technical training in education quality of Asia
- To explore the effect of R&D on quality education in Asia

Different studies conducted on quality education has positive policy implication (Dinda, 2016; Pelinescu, 2015; TyndorJr & Glass, 2017). The studies enable the policy makers to consider the importance of quality education during formulating policies for education system. Moreover, the past studies are source of adequate theoretical knowledge and practical frameworks. This study will also contribute in the same lines. This study is arranged as follows: Section two of the study discusses the literature review; section three comprises on methodology; section four discusses results and finding. The last section concludes the empirical findings of the study and recommends the policy in the light of the results.
2. Literature Review and Quality Education Framework

The quality of education refers to the quality infrastructure, learned faculty member, and student’s learning and performance. Research has been done on many aspects to help improve entities like classroom environment to improve academic outcomes (Madrid, Ahmed & Kumar, 2019) to enhance quality education. A decade ago, the quality of education was connected with the number of enrollments in primary or secondary institute. But the growing importance of human capital role in fostering the sustainable development of the country and as well as nourishing the society has shifted the debate from number of enrolment to quality of learning in education (Masino & Niño-Zarazúa, 2016). Various theoretical and empirical studies have discussed various dimension of quality of education. (Masino & Niño-Zarazúa, 2016) identified the three drivers which affect the quality education: (1) supply side policy intervention emanate from human and physical resources; (2) policies to incentivize the teachers and inter-temporal choices of students and households; (3) diffusion of knowledge, decentralization, and participation of community. Few studies have ascribed quality education to student satisfaction. (Ali, Zhou, Hussain, Nair, & Ragavan, 2016) also indicated in their studies that good educational quality means higher level of student satisfaction and loyalty with the institution. The student satisfaction model of quality education takes student satisfaction with education and learning as key component of measuring education quality. This study filled gap in the literature by exploring the empirical and theoretical research of the studies which explore the impact of government scholarship, technical training and R&D on the quality of education.

a. Government Scholarship and Quality Education

The provision of merit based scholarship enables the students to focus on their research studies. Akareem and Hossain (2016) also empirically identified that student’s status of scholarship also affects their perception about the quality of education. The scope of their study was limited to the top five universities of Bangladesh from where they took the sample of 432 students to analyze their perception towards quality education. The results of their research indicate that there is positive association between the odds of doing research and scholarship. Furthermore, the student holding positive scholarship status set high standards of education quality as compared to those who are not holding scholarship. (Qayyum, Zipf, Gungor, and Dillon (2019) inferred that financial status affects the persistence of distance education program and have high completion rates. They used the Chi-square analysis and logistic regression to explore the relationship between scholarship and distanced degree completion rate. The results illustrates that probability of persistence in studies is higher for student getting small financial aid or scholarship with high financial need. Howard (2018) conducted a survey to investigate the impact of financial aid on the education program of nine community colleges of Chicago. The study also confirmed the positive role of financial aid and scholarship on student’s attrition rate, academic achievement, and retention rates. Furthermore, the study also aimed to aware the administration of community college about the effective role of financial aid and scholarship on the education program of institutions. Thus, on the basis of discussed literature we can build following hypothesis:

H1: There is a significant impact of government scholarship on the quality of education.

b. Quality of Education and Research and Development

The evolving innovation and R&D in education system also raise the standard and quality of education. The reputation of education institutes is majorly built on the research activities in institute. Pandya (2016) also mentioned in his study that higher education in India is less competitive and devoid of appropriate culture due to absence of quality research and development. However, higher education of India holds rich history but due to lack of required research it doesn’t seem to as effective as it were during post war era. His study focused on the quality of research rather than the quantity of research articles produced in higher education of India. Moreover, Walker (2017) proposed in his study that teaching schools which are the strategic partners of private organizations and universities deliver high quality training and skill to school staff. According to him the research and development practice are among the key six pillars of quality teaching in education institute.
Arimoto (2016) explained in his study that Japanese academics have relatively greater acknowledgment of researchers rather than teachers. The Japanese has opted the full-fledged model of research orientation in academics unlike USA which academic involves both teaching and research. Moreover, he also indicates that the research and development in higher education will merely be fruitful when government is able to diffuse the useful research to society to make them more socially utilized. There are various factors which obstruct the research and development in diffusion of quality education. One of those factors are dearth in funds to finance the research and development expenditures (Cirera, Pacchioni, & Maloney, 2017). Thus, in the light of literature we can design following hypothesis:

H2: There is a significant impact of research and development on quality of education.

c. Quality of Education and Technical training

Technical training of faculty has crucial role in steering the quality of education. The fundamental provision of knowledge and information to students are the teachers. Various non-government organization and NGOs are involved in proving the technical training to teachers to improve the quality of education delivered at their ends. The importance of well trained and well-aware teacher in raising the standards of education cannot be negated. Various studies support that technically trained teachers are the most valuable resource in educational organization which significantly improves the quality of learning at institute (Chalmers & Gardiner, 2015; Condon, Iverson, Manduca, Rutz, & Willett, 2016; Steinert et al., 2006). Bouderas (2016) proposed in his study of the Algerian education system that teacher is the most responsible person of the diffusion of quality education to students. He investigated the role of teaching quality due to lack of technical training of teachers deteriorate the quality of education in Algeria. Students may suffer from the poor technical knowledge of his teacher. He further illustrates that the Algerian education system also at the verge of risk due to deteriorating teachers’ quality standards.

Ödalen, Brommesson, Erlingsson, Schaffer, and Fogelgren (2019) also supported that the technical training courses of teachers in universities have desirable consequences on the participant. To empirically infer the results, they took the panel data set of 183 teachers of six dominant universities of Sweden.

Moreover, technically trained resource in academic institutes will opt the e-learning application which eventually improves the satisfaction of the students. Violante and Vezzetti (2015) also mentioned in their studies that e-learning (web-based leaning) model improves the student satisfaction with the education quality of institutes. They conducted a survey to find the student satisfaction with use of 3D medical device and inferred that student are more satisfied with education system employing technical learning techniques. Hence, on the basis of abovementioned studies we can generate following hypothesis:

H3: There is a significant impact of technical training diffusion on quality of education.

d. Methodology

In this section, the author will discuss the methods that were used for data collection and the processes through which this data was tested through to gain the results for this research.

e. Data

The author has used a multivariate framework for conducting this research. The data was calculated against three independent variables, number of government scholarships (GS), the amount of technical training provided (TT) and the level of R&D used in educational institutes (RD), and the dependent variable, quality of education (QE). Moreover, two control variables are also used in this study which are population growth (PG) and literacy rate (LR). The data has been collected for the time period 1990-2016 i.e. for 26 years which is sufficient to apply the ARDL technique on the time series. This data has been collected from 10 Asian countries; Pakistan, India, China, Iran, Iraq, Japan, Jordan, Nepal, Bangladesh and Lebanon and it is panel data.
f. Model Specification

In this study, the relationship between quality of education and the role played by the governmental scholarships, technical training availability and R&D in education is investigated by incorporating literacy rate and population growth in the function. R&D and technical training available are measured through the amount of money spent for these variables in the educational sector of the selected countries. Similarly, the government scholarships are also measured in terms of the amount of money that was spent in the scholarships awarded to students of the country by their government. Literacy rate is measured in terms of percentage of children that have education above secondary level and population growth is measured by difference in population on year to year basis. In their study, Terziev and Can (2017), argued that the increase in the population affects the quality of education and the literacy rate in a country negatively. In another study, Kapur and Perry (2015), mention that the state plays an important role in increasing the literacy rate and quality of education in their country by providing governance facilities and interventions in the educational field and through opportunities as government funds and scholarships. Noaman, Ragab, Madbouly, Khedra, and Fayoumi (2017) mentioned the importance of technically innovative advancements in the educational institutes for improving the educational quality. Gil-Flores, Rodriguez-Santero, and Torres-Gordillo (2017) also discussed how the availability of technology affects quality of teaching and educational environment of the classroom. On the basis of these discussions, the following empirical model can be developed for the quality of education:

\[QE_t = \beta_0 + \beta_1 GS_t + \beta_2 TT_t + \beta_3 RD_t + \beta_4 PG_t + \beta_5 LR_t + \epsilon_t\]  

(1)

Where \(QE_t\) represents educational quality, in terms of students passing in secondary and higher examinations with a percentage above 70%, \(GS_t\) represents the money spent for scholarships, constant of 2013, \(TT_t\) is the expenditure in technical training in dollars, \(RD_t\) is the expenditure in R&D in dollars, \(PG_t\) is the population growth, \(LR_t\) is the literacy rate is the percentage of population having education above secondary level and \(\epsilon_t\) is the error term that should be white noise. In order to reduce the existence of potential heteroscedasticity, which is the possibility of that the variability of a variable is not equal across the range of values of a second variable that predicts it, all the variables highlighted in equation (1) are transformed in the natural logarithms. The series have been changed to per capita by dividing it with the population series. The proposed econometric model can be written in log form1 as given below:

\[lnQE_t = \beta_0 + \beta_1 lnGS_t + \beta_2 lnTT_t + \beta_3 lnRD_t + \beta_4 lnPG_t + \beta_5 lnLR_t + \epsilon_t\]  

(2)

Where \(\beta_0\) is a constant and the terms \(\beta_i\) (where i represents 1, 2, 3…..) are the long-run elasticity values with respect to government scholarships, technical trainings, R&D expenditures, population growth and literacy rate. The Equation (2) is checked for the possibility of having a long-run relationship among the natural logarithm for all the variables.

g. Estimation Methodology

i. Unit root test

The unit root testing is used for the analysis of stationary data for the determination of the appropriateness of the designed model for the study. This study uses the LLC unit root test (Bornhorst & Baum, 2006) which indicates the stationarity in data.

ii. Bound test of co-integration:

Pesaran, Shin, and Smith (2001) proposed the use of panel ARDL to investigate the existence of co-integration which has been used in this study. The bounds test is a flexible test as compared to other tests. Pesaran et al. (2001) have argued in their research that the ARDL model gives a better performance when the samples are small and the dependent and independent variables can be easily identified using the ARDL model. It is used for examining the
long-run relationships by selection of optimal lag length. To analyze that there is long-run relationship between variables, the Wald test of joint significance or F-test is used in equation (3).

\[
\Delta \ln QE_t = \beta_0 + \sum_{i=0}^{p} \beta_i \ln QE_{t-i} + \sum_{k=0}^{q} \omega_k \ln GS_{t-k} + \sum_{l=1}^{s} \delta_l \ln TT_{t-l} + \sum_{m=1}^{s} \varphi_1 \ln RD_{t-m} + \\
+ \sum_{l=0}^{n} \beta_l \ln PG_{t-n} + \sum_{i=0}^{q} \beta_i \ln LR_{t-0} + \pi_{QE} \ln QE_{t-1} + \pi_{GS} \ln GS_{t-1} + \pi_{TT} \ln TT_{t-1} + \\
\pi_{RD} \ln RD_{t-1} + \pi_{PG} \ln PG_{t-1} + \pi_{LR} \ln LR_{t-1} + \nu_t
\]

(3)

Where \( \nu_t \) represents error and \( \Delta \) indicates short. In Wald test, significance of all the short-run differentiated variables is zero. If the F-statistic values are higher than upper bounds then null hypothesis is rejected, showing that a long-run relationship exists. If the values lie in the middle for F-statistics, then co-integration results inconclusive, while if they are below middle value, it shows absence of a long-run relationship. After the identifying co-integration, the ARDL framework can help to estimate the level of elasticity present in the long-run and short-run coefficients using equations (4) and (5).

\[
\ln QE_t = \alpha_1 + \sum_{i=1}^{p} \varphi_i \ln QE_{t-i} + \sum_{k=1}^{q} \omega_k \ln GS_{t-k} + \sum_{l=1}^{s} \delta_l \ln TT_{t-l} + \sum_{m=1}^{s} \varphi_1 \ln RD_{t-m} + \\
\sum_{n=1}^{n} \delta_{n1} \ln PG_{t-n} + \sum_{o=1}^{p} \delta_{1o} \ln LR_{t-o} + \mu_t
\]

(4)

\[
\ln \Delta QE_t = \gamma_0 + \sum_{i=1}^{p} \gamma_{11} \Delta \ln QE_{t-i} + \sum_{k=1}^{q} \gamma_{12} \Delta \ln GS_{t-k} + \sum_{l=1}^{s} \gamma_{13} \Delta \ln TT_{t-l} + \sum_{m=1}^{s} \gamma_{14} \Delta \ln RD_{t-m} + \\
\sum_{n=1}^{n} \gamma_{1n} \Delta \ln PG_{t-n} + \sum_{o=1}^{p} \gamma_{1o} \Delta \ln LR_{t-o} + \psi ECT_{t-1} + \mu_t
\]

(5)

where \( ECT_{t-1} \) is error correction term, which should be negative, with coefficient 0 or 1. These two equations are used to estimate the long and short-run elasticity.

3. Results and Analysis

As mentioned in the previous section, the author has used the LLC unit root test for probing the integration order as well as making sure that the variables are stationary, and the results of this test are presented in the table 1 in detail. The values for level and first difference series have been given in the table. The importance of unit root tests in the research process of time series data cannot be ignored. These tests let the author know the order of integration of different variables as well as their stationary or non-stationary state can also be found out due to these tests. Looking under the level column, it can be seen that all variables have rejected the null hypothesis except of the variable of technical training, while applying the first integration makes all the variables to reject the null hypothesis. This can be summarized as the fact that the data in the level-series was non-stationary and by application of first difference, this become stationary and the other orders of integration for various variables can also be identified in this way. The results can be concluded in such a way that the level section contains non-stationary data while the application of first difference makes it stationary.

Table 1. LLC unit root

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Level</th>
<th>LLC Test</th>
<th>1st diff.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GS</td>
<td>-1.294*</td>
<td>-11.474***</td>
<td></td>
</tr>
<tr>
<td>TT</td>
<td>-0.384</td>
<td>-10.395***</td>
<td></td>
</tr>
<tr>
<td>RD</td>
<td>-3.287*</td>
<td>-14.478***</td>
<td></td>
</tr>
<tr>
<td>PG</td>
<td>-3.271*</td>
<td>-16.659***</td>
<td></td>
</tr>
<tr>
<td>LR</td>
<td>-1.398*</td>
<td>-9.298***</td>
<td></td>
</tr>
<tr>
<td>QE</td>
<td>-3.312*</td>
<td>-13.374***</td>
<td></td>
</tr>
</tbody>
</table>

In this table, * represents that the rejection is one percent significant, ** shows that rejection is five percent significant, *** shows that rejection is ten percent significant
Table 2. Cointegration Test

<table>
<thead>
<tr>
<th>O.P.L. length (A.I.C)</th>
<th>(2,0,0,0,0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-Stat. (Bound Test)</td>
<td>29.3852***</td>
</tr>
<tr>
<td>C.V</td>
<td>1% 5% 10%</td>
</tr>
<tr>
<td>L.B.C.V.</td>
<td>3.45 2.43 1.89</td>
</tr>
<tr>
<td>U.B.C.V.</td>
<td>4.87 4.01 3.62</td>
</tr>
</tbody>
</table>

In this table, *represents the significance level at 10%. The optimal lag is selected using the A.I.C test result.

In the table 2, the co-integration test results are given. O.P.L., C.V, L.B.C.V and U.B.C.V are the optimal lag length, the critical value, lower bound and upper bound critical value respectively. The optimal lag length was selected for the AIC criteria which is shown in the second row of the table 2. F-statistics computed for A.R.D.L verifies that co-integration exists. Similarly bound critical values also ensure co-integration. The value of f-statistics is much higher than the upper bound critical values, which highlights the fact that the null hypothesis is rejected and the long-run association in the model is also intensified.

Table 3 shows the results for both the long-run and short-run coefficients, where quality of education is taken as the dependent variable. The long-run elasticity of government scholarships on the quality of education positive and statistically significant. It implies that a 1% rise in government scholarships leads to an increase of quality of education by 25.9% by keeping other factors constant. These findings are replicated in other studies as well (Kapur & Perry, 2015; Noaman et al., 2017). Similarly, all other variables in the above table show positive significant impacts, 1% rise of technical training indicates the increase of education quality by 27.4% and 1% rise of research and development indicates the increase of education quality by 24.3%. Previous studies also support these findings (Hopkins, 2015; Kuo, Wang, & Yeh, 2018; Sáïdi & Mongi, 2018).
4. Discussions and Conclusions

a. Discussions

The purpose of the researcher for conducting this study is to investigate the role that the resources like the provision of scholarships by the government, the availability of technical training to the instructors and the students and the research and development expenditure plays in the improvement of the educational infrastructure of a country and the quality of education in the context of ten countries in Asia. For this purpose, the author developed several hypotheses in this study which were then tested through various approaches and tests so that their status could be ensured. The first hypothesis claimed that the provision of scholarships by the government can help in enhancing the infrastructure of the educational sector of a country. The results and simulations showed that this hypothesis is valid and this variable has a significant positive impact on educational quality. Similar results have been seen in past studies (Abdulkadiroglu, Pathak, & Walters, 2015; Akareem & Hossain, 2016). The second hypothesis claimed that technical training of teachers and other staff members of an educational institute impact the quality of education provided. This hypothesis too, was accepted as valid. The results showed that technical training puts a positive impact on the level of educational quality. Moreover, these results can also be confirmed through literature and research presented in the past (Asongu & Nwachukwu, 2016; Beynaghi et al., 2016; Foroudi, Jin, Gupta, Melewar, & Foroudi, 2016). The third hypothesis mentioned that if the institutes make policies for expenditure in research and development, then the educational quality is improved. Results showed this hypothesis to be accepted and having positive, significant impact, which is also seen in past researches (Chen, Chen, & Padró, 2017; Park, Lee, Jin, Shen, & Kim, 2015). In addition, the author has considered two control variables of population growth and literacy rate. Growth in population is negatively while literacy rate is positively affecting control over other variables. Thus, the results as a whole show that the educational infrastructure of a country can be improved through provision of scholarships, technical training and the R&D expenditure.

b. Conclusions

Education is of vital importance for the development of any country. A strong educational infrastructure and a quality education system ensures that the country will have economic stability through various factors. In the current study, the impact of various variables has been tested in order to improve the educational quality of Asian countries that have been selected for research. These variables include the governmental funds and scholarships, technical training opportunities and the expenditure in R&D. For this purpose, 26 years data was collected from ten countries in Asia about the purported variables and certain tests and techniques were run on that data. These tests include unit root test, co-integration test and A.R.D.L model. The results obtained from all these tests have been presented in different tables in the previous chapters. According to these results, the impact of scholarships by the government, the technical training and R&D expenditure all have been found significant on educational quality. The impact of both the control variables is also significant. This study has various theoretical, practical and policy making implications and various limitations that can be overcome by approaching different recommendations given by the author.

c. Implications

This study has been found to have various implications context of theory, practice and policy making. As the main purpose of this study was to find the impact that scholarships provided by the government, the technical training facilities and the expenditure on research and development have over the quality of education and the educational infrastructure of a country, all the implications of this study are in the context of this purpose. The first and foremost importance and implication is of theoretical nature in the existence of complete literature about the crucial concepts of importance of scholarships and funding by the government, the technical training provision and indulgence in research and development by institutes. This literature can be helpful to peer researchers and authors in their future studies and also by the general people for increase in their knowledge and information. In addition, this research provides a guideline to the organizations of the academic institutes for developing plans and projects that can
increase the technical adoption through provision of technical training in form of tutorials and seminars as well as providing the guidance for the increase of R&D expenditure. Moreover, this study teaches the importance of government policies and encourages the government to indulge in policies involving provision of scholarships to their students. This way, educational quality of the country can be enhanced.

d. Limitations and Future research recommendations

There is always a chance of betterment and scope of improvement in any study. Despite all the hard work and improvements, there remain some of the loopholes in all the researches that must be fulfilled by other future researchers. In this study the author has identified and described some of the limitations that are associated with this research work. The first and the most important limitation that the author has recognized lies in the sample size of the research which is really small and can be increased by the future researchers in their studies so that a broader view can be obtained. In addition, this study is region specific i.e. Asia, however, other researchers may collect time series data from multiple regions of the world like GCC, MENA, ASEAN countries etc., so that the same aspects of the research may also be considered in other regions of the world. Moreover, the tests that have been used by the author are limited and different tests are available for time series data that can be effectively employed in other researcher’s studies. In the last, this study has focused on some of the variables that have been discussed in the whole study; however the other researchers may take other variables, like the socio-cultural impacts, the impact of teacher training, the impact of innovation in the academic institute, etc., under consideration and focus.

References


References


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STRATEGY AND PERFORMANCE INTERRELATION: THE MEDIATING ROLE OF THE SOLIDARITY

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Abstract. The present study provides insights for the SMEs to enhance their performance. For instance, SMEs managers or owners are expected to develop an understanding of the relationship among SMEs performance and business strategy. The main purpose of the study is to examine the impact of the entrepreneurial orientation and the business strategy on the firm’s performance of the SMEs operating in the Indonesia. In addition to that the study has also examined the mediating role of solidarity in the relationship between entrepreneurial orientation and business strategy and firm performance. We have adopted second generation method for data examination which is Partial least square Structural Equation Modelling PLS-SEM to avoid the limitations of first-generation methods. With the help of PLS technique the researcher can control number of interdependent links simultaneously. The response rate for present study was 59%. The findings of the study have provided support to the hypothesized results. The study will be helpful for the policymakers, and researchers in understanding the issues related to SMEs performance in Indonesia.

Keywords: entrepreneurship; strategy; solidarity; SMEs; Indonesia


JEL Codes: O1, O15

1. Background

During 1997-98 Asian financial crisis, the Indonesian economy has experienced a major collapse in its economic activities. However, SMEs sector is one of those sectors which survived from this crisis. As a result, this crisis has made this sector to expand even further (NA, 2016). The Indonesia’s Gross Domestic Product (GDP) has increased by 0.8% in 1999. During this period, several big enterprises were not functioning well, and the foreign investors were also reluctant to invest in Indonesia because of its uncertain and too risky economic situation (Aswicahyono & Hill, 2017). Therefore, during that time, only SME sector was functioning and was capable of improving the pace of economic growth in Indonesia.

The SMEs cash flow in Indonesia does not relate to its foreign exchange, since SMEs in Indonesia have not received any foreign investments from other countries. Although, during the entire time, the SME sector had not received any attention from the financial institutions and Indonesian government, but this sector highly adapted to the crisis and also contributed well to the human capital (Jomo, 2019). It implies that besides job and income opportunities, SMEs also offer social security in case of social problems. Therefore, it is presumed that the crime rate will tend to increase without the significant contribution of SMEs in the economy i.e. providing all such opportunities.

SMEs have been significantly contributing to Indonesia’s economic development (Jermisittiparsert & Rungsrisawat, 2019; Madani & Jermisittiparsert, 2019). SMEs account for 99% of its contribution in business entities and 99.6% contribution to employment in Indonesia. Considering this, more attention must be paid by government to the
SMEs (Mawardi, 2014). In 2019 the GDP of Indonesia had been targeted to increase from 7 to 7.5 percent, and foreign exchange to be increased from 6.5 to 8 percent. Such foreign exchange increments were targeted as a part of Indonesia’s economic sector development process, particularly the SMEs development (Smoke, 2019). The support of Indonesian government also facilitates in the growth of SMEs. A regulation number 14/22/PBI/2012 was created by the Central Bank of the Republic of Indonesia to encourage funding for the SMEs, by all the banks in Indonesia. This regulation requires all Indonesian banks to provide funding or credit to the SMEs in Indonesia. Furthermore, general banks have also been encouraged to provide trainings to the owners of SMEs (Mahrinasari, M. S., Haseeb, M., & Ammar, J. 2019).

Thus, SMEs serve as a significant contributor to the world economy. Hence, it is very important to understand why some businesses have become successful while others failed to achieve successful performance, since investigating this phenomenon is important for the economy’s business stability (Gomes et al., 2013). Thus, further investigation regarding SMEs performance is needed in the Indonesian context.

Prior researches indicate the SMEs inability to improve competitiveness. It is because of the SMEs nature which involves various limitations, for instance, inadequate risk taking, innovation for facing challenges in business environment, lack of adaptability and creativity (Karaev et al., 2007; Kowo et al., 2019). Although, such business challenges can be handled through the organizational ability of integrating entrepreneurial orientation (EO) to the strategic activities, which would help to specify organizational goals and achieve superior performance (Tang & Tang, 2012). A number of prior researches indicate that SMEs which adopt entrepreneurial orientation (EO) have higher tendency of performing better as compared to those with no EO (Altinay et al., 2016). Given the SMEs’ specific nature, further examination is needed concerning how EO is implemented and adopted to improve SMEs performance. The previous literature also shows that indirect and direct relationship exists between firm performance and entrepreneurial orientation (EO) (Hughes et al., 2018).

The family businesses have also been growing in Indonesia, particularly in SMEs sector because of the solidarity, support and affection from each other. Therefore, good solidarity practices are needed among fellow employees to enhance SMEs performance. Developing mutual trust, paying attention towards others interests and becoming motivated to take responsibility will turn the fellows into families (Ryan & Deci, 2017). A review of previous researches indicates that solidarity has no impact on the organizational performance, mainly due to lack of information. (Oosterlynck et al. 2016) defined solidarity as a relationship among groups of individuals on the morals and shared beliefs to develop emotional bond. Considering this definition, it can be assumed that solidarity can positively influence the SMEs performance, thereby enabling them to develop more advanced business goals.

SMEs have failed to improve competitiveness. It is also evident from a reduction in one of SMEs sales in food sector. In this regard, (Burns 2016) has stated that choosing an appropriate marketing strategy must be of prime importance for a firm while preparing itself to face market competition. The results obtained in prior studies suggest that those firms which adopt an appropriate business strategy, at a specified time are likely to achieve better outcomes as compared to other firms. Similar findings were obtained in the literature concerning the impact of business strategy on the organizational performance, i.e. literature Kim and Pennington-Gray, 2017) suggests positive association among firm performance and business strategy from both non-financial and financial aspects.

2. Literature review and hypothesis Development

1.1 The Small and Medium-sized Enterprise (SMEs)

The SMEs understanding and its various definitions at national and international levels are available in the literature, because each organization and country have different definitions depending on its type of production, which also
influence the SMEs explanation. Generally, various indicators are used to define SMEs, including monetary size, various aspects of employees, employee turnover, and assets. According to American Small Business Association, every organization has its own understanding of SMEs, for instance, there can be a small company having 500 or less employees, or a retail company with $6 million or less annual revenue (Hillary, 2017). Contrary to the explanation of EU which states that SMEs referred to a company with not more than 250 employees. (Dale 2015) suggested that this concept can be used to distinguish small companies, i.e. firms with less than 50 employees.

Generally, SMEs refer to a firm having not more than 100 employees (Ewers, Janßen, & Wieler, 2003). The SME department has worked closely to develop a definition of SME and has defined SME based on the number of assets, revenues, and employees that is, a firm which has a total of US$15million assets, US$15million annual sales, and 300 workers. Policy makers and researchers have often used number of employees to define SMEs, which serves as an objective measurement, since workers data can be readily available as compared to the financial data when estimating the size of SME and when the company’s internal condition is not needed to be disclosed among its competitors. The present study provides a comprehensive understanding of SMEs, in terms of the number of employees (Ginader, 2018). In Indonesia, the SMEs have different definitions based on the perceptions that are formed to achieve certain policy and statistical objectives (Khalid, Ahmed, Tundikbayeva & Ahmed, 2019). The SMEs, the Central Bank of Indonesia, and the Ministries of Cooperatives have been using different measuring units, such as sales and assets to determine the size and volume of a business. Indonesia has been using no. 20/2008 as its SMEs definition stated in its Law of the Republic of Indonesia. In addition, while defining SMEs, the Indonesian statisticians look for the permanent or full-time employees to be regarded as the SME employees.

1.2 Firm Performance

Firm performance is of prime importance for the effectively managed companies (Velte, 2016). It is impossible to measure an outcome without improvement in its process. In this regard, measuring a company’s performance improvement requires a measure which can successfully capture the influence of organizational resources on the business performance (Pollanen et al., 2017). A company’s success can be identified by observing its performance for a specific time period. Researchers have made significant efforts to develop important ideas or measures for measuring different concepts at different time periods. However, if used correctly and in accordance to the system, the corporate governance can significantly influence the firm performance and will bring in investment, resulting in the strengthening of company’s important elements, improvement in company’s financial situation and improved firm performance. In addition, effective companies may also promote growth and offer help to avoid financial problems. Thus, firm performance significantly contributes to the corporate governance.

Since 1950s, researchers have been using various financial indicators for measuring organizational performance including net growth rate of total assets, shareholder return, profit growth rate, growth in market share, return on net assets, return on sales, return on capital and number of new products. However, it has been argued in recent researches, that a multidimensional perspective must be used to measure a firm performance (Dekker et al.,2015). Furthermore, these studies suggest that a complete and more balanced evaluation is required to assess firm performance, including financial and non-financial dimensions. The researchers argued that non-financial dimensions must be added, since integrating operations, systems, people, management, customers and partners are essential to achieve better organizational performance. In addition, non-performance measures, i.e. client satisfaction, employee satisfaction, innovation ability, and internal business process proficiency must also be integrated in order to assess the effects of these intangible assets on firm performance. Moreover, these intangible assets significantly contribute in anticipating the firm’s future performance, and also facilitate firms in their operations. Briefly, the literature indicates that prior studies have used both non-financial and financial measures to estimate organizational performance (Abdel-Maksoud et al.,2016). However, the commonly used financial measures include net profit, sales, return on sales, gross profit, return on equity, return on investment, and return on
assets, while in case of non-financial performance, these measures include, efficiency, market share, productivity, behavioral and attitudinal measures, for instance, commitment, satisfaction, and intention to quit.

1.3 Firm Performance and Entrepreneurial Orientation (EO)

Entrepreneurial orientation (EO) is one of those strategy dimensions which significantly affect the organizational performance. According to (Markin et al. 2018), the entrepreneurial experts have been trying to explain the relationship of entrepreneurial orientation with the organizational performance. Till date, the entrepreneurial orientation is found to be positively associated with firm performance. This explains that firm which exhibits EO performs better as compared to those who do not exhibit EO. The nature of this relationship is still unclear in case of dynamic business environment, i.e. how such uncertain business conditions can shorten the product’s life cycle and increase uncertainty (Deutscher et al., 2016). Contrarily, uncertain changes in consumer preferences and competitor changes make it difficult for the companies to innovate, and also create incapability of being competitively aggressive and proactive towards achieving competitive advantage and good performance, and courage in taking risks. Thus, EO is expected to have significant influence on the company’s performance. In a research, (McKenny et al. 2018) found that each EO dimension directly influence the firm performance. Several researchers have argued that EO poses no comprehensive relational effect on the firm performance. Therefore, a few researchers (Amankwah-Amoah et al. 2019) have also integrated a moderating variable to examine the relationship between firm performance and EO. (Covin, Slevin and Schultz 1994) have failed to find any direct association among firm performance and EO, in addition, (Lonial and Carter 2015) also found no significant positive impact of EO on firm performance. Therefore, in this study, the researcher aims to assess the effect of EO on firm performance.

1.4 Firm Performance and Solidarity

Only a few prior researches have examined the relationship among corporate performance and solidarity. Researchers’ limitations to obtain sources from prior studies could not explain the significance of firm performance and solidarity relationship. According to (Bird and Wennberg, 2016), the concept of solidarity can generally be observed during ethnic entrepreneurial activity, which is explained by social capital theory as ‘the outcomes of all connections which turn out as information sources and which provide support to solidarity for achieving successful business ventures. Furthermore, repeated contact with solidarity culture may result in openness and creativity of new ideas, achievement, and commitment with fellow members. Generally, an organization is established for the purpose of meeting specific targets through the performance of all human resources. Although, the performance of these resources depends largely on the factors external to the organization, the environmental conditions, as well as the organizational culture. Hence, the ability of developing organizational culture is capable of successfully driving performance as an organizational necessity (Kontoghiorghes, 2016). Therefore, more information is needed to understand the strong linkage among firm performance and solidarity and the correlation between the two variables.

The term solidarity is regarded as a culture which explains the purpose of sympathy, interest and unity among the group members. According to (Ginader, 2018) building solidarity is a six-dimensional concept, which involves, function (i.e. sharing of instrumental support), association, consensus, affection, structural fusion (i.e. structure of opportunity to interact within the family) and familial (expectations or norms). According to an expert, the factors such as, death and intimacy influence the availability of social interactions. The solidarity measures that are used in present study includes, normative solidarity, association solidarity, consensus solidarity, structure solidarity, functional solidarity, and affection solidarity.
1.5 Firm performance and Business Strategy

The previous studies have reported that companies in one industry generally adopt prospective strategies in order to excel from other company’s strategies, in terms of the growth in product sales. In a study, (Hughes et al. 2017) found that the SME performance and the business strategy relationship varies based on the type of strategy adopted. It explains that a prioritized, differentiated, or a low-cost strategy must be adopted that matches with the SMEs financial performance to measure the asset retrieval and return on investment. (Abdel-Maksoud et al. 2016) studied the case of 192 small manufacturing firms having different growth rates. The study reported significant impact of business strategy on the firm performance, and also confirmed that low cost strategy, marketing strategy, geographically competitive pricing strategy and market concentration strategy significantly play their role on the performance of small companies.

A research (Wamba et al. 2017) was conducted to assess the relationship between performance and business strategy. The findings suggest the following strategies to be adopted, i.e. marketing differentiation strategy, niche strategy, service differentiation strategy, innovation strategy and low-cost strategy. The results indicate that the performance measurement of 24 SMEs in terms of net income, sales, and number of employees, were found to be associated to six of the adopted business strategies. Most prior researches have integrated low cost strategy, generic business strategy by (Dess and Davis 1984), and niche strategy. With regards to low cost strategy, the findings suggest that applying low-cost strategy improves the company’s sales and profits through technology and economies of scale. On the other hand, in the case of differentiation strategy, the emphasis will be more upon the product and services differentiation by producing distinct and unique products.

Another study (Soltanizadeh et al. 2016) was conducted to assess the corporate strategy by analyzing the case of 101 small manufacturing companies. The findings revealed five different corporate strategies, namely, quality differentiation strategy, low-cost leadership strategy, innovation differentiation strategy, service differentiation strategy, and marketing differentiation strategy. Thus, the measurement strategies used in present study involve product differentiation strategy, niche strategy, service differentiation strategy, marketing differentiation strategy, low cost strategy and innovation strategy (Bayraktar et al.,2017).

- H1: Entrepreneurial orientation (EO) has significant impact on the firm performance (FP).
- H1: Business strategy (BS) has significant impact on the firm performance (FP).
- H3: Solidarity (SOL) has significant impact on the firm performance (FP)
- H4: Entrepreneurial orientation (EO) has significant impact on the solidarity (SOL).
- H5: Business strategy (BS) has significant impact on the solidarity (SOL).
- H6: Solidarity (SOL) mediates the relationship between entrepreneurial orientation (EO) and firm performance (FP)
- H7: Solidarity (SOL) mediates the relationship between business strategy (BS) and firm performance (FP)

3. Methodology

The present study has employed the survey technique for collecting the data and considering the research objectives has designed a structured questionnaire as well. We have extracted the items for questionnaire from the literature. The variables of study were measured in terms of nominal scale, interval and ratio. Which can be used further for testing the hypotheses of research. We have adopted second generation method for data examination which is Partial least square Structural Equation Modelling PLS-SEM to avoid the limitations of first-generation methods (Umran, Siyal, Ahmed, Ali Arain, Sayed & Umran, 2019). With the help of PLS technique the researcher can control number of interdependent links simultaneously (Gefen et al.,2000). It also helps to overcome the other limitations linked with the techniques of first generation. Such as it helps in establishing the latent variables with the help of indicators
and their measurement errors. So, the Structural Equation Modelling technique is able to deal with the limits of first-generation techniques. The second-generation SEM is basically established to test the conceptual or theoretical model. It also helps in determination of unknown existing relations between latent variables and expressive understandings regarding these relations. Moreover, this is also known as multivariate technique, which can assess the interdependent relation among the variables with assimilating characteristics of multiple regression and factor analysis (Hair et al., 2010). According to (Hair et al. 2010) other techniques are integrated with the help of SEM such as principal component analysis (PCA), classical test theory, analysis of variance (ANOVA), recursive path analysis and non-recursive econometric modelling. Additionally, we considered that a set of variables involved in path analyses for reflecting the association in multivariate data. The response rate for present study was 59%.

4. Results

(Hair et al. 2010) has suggested that each individual contract, readability and validity can be estimated with the help of SEM, so for assessing the outer model’s validity we must observe the four standards with the assessment of two validity measurements name as convergent and discriminant validity. The measurement model (MM) shows the relation between latent variables and observed data. The MM model estimate the latent variable as sum of its evident variable (see figure 1, table 1).

![Figure 1. Measurement Model](image)

<table>
<thead>
<tr>
<th>BS</th>
<th>EO</th>
<th>FP</th>
<th>SOL</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS1</td>
<td>0.879</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BS2</td>
<td>0.835</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BS3</td>
<td>0.903</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BS4</td>
<td>0.910</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BS5</td>
<td>0.866</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EO10</td>
<td></td>
<td>0.881</td>
<td></td>
</tr>
</tbody>
</table>
The convergent validity (CV) referred as the level at which the score of one scales correlate with the score of other scale which were designed to estimate factor loadings of similar construct (Cooper & Schindler, 2008). Furthermore, CV is extent at which different measured items of similar construct should converge or allocate a huge part of common variance (Hair et al., 2013). So, we must observe the following criteria for the establishment of convergent validity like Average Variance Extracted (AVE), reliability of indicators and composite reliability (CR). Later the next criteria is the estimation of CR for the determination of items internal consistency and reliably of measurement model. (Henseler et al. 2015) has stated that CR is the level latent variables can be explained by the observed variables and it is also known as Cronbach alpha (table 2).

<table>
<thead>
<tr>
<th></th>
<th>Cronbach's Alpha</th>
<th>rho_A</th>
<th>Composite Reliability</th>
<th>(AVE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS</td>
<td>0.926</td>
<td>0.929</td>
<td>0.944</td>
<td>0.773</td>
</tr>
<tr>
<td>EO</td>
<td>0.970</td>
<td>0.971</td>
<td>0.973</td>
<td>0.769</td>
</tr>
<tr>
<td>FP</td>
<td>0.946</td>
<td>0.948</td>
<td>0.956</td>
<td>0.764</td>
</tr>
<tr>
<td>SOL</td>
<td>0.933</td>
<td>0.934</td>
<td>0.949</td>
<td>0.789</td>
</tr>
</tbody>
</table>

According to (Cooper and Schindler 2008) AVE represents the degree at which for the measurement of same concept number of research items shows agreement. Moreover, the cut off value for AVE should not be less than 0.5 if it is greater than 0.5 it shows that there is satisfied level of CV. So according to (Hair et al. 2013) the suggested range of factor loading is 0.708. for the assessment of validity of measurement model DV is another key criterion.
in PLS. For the analysis of difference between two concepts which are different theoretically, we generally determine the DV.

Basically, DV is refer as a condition where two different concepts were generated to be uncorrelated. So, (Hair et al. 2013), has suggested for the determination of DV we can use the Fornell-Larcker criteria and cross loadings. According to the Fornell-Larcker criterion that the correlation between constructs and square root of AVE should be associated and constructs diagonal values must be high from the values of other off diagonal constructs. In criteria of cross loadings on the other side we achieve the DV when all indicators show high loadings as compare to the cross loadings (Hair et al., 2013) (See table 3, figure 2).

<p>| Table 3. Discriminant validity |</p>
<table>
<thead>
<tr>
<th>BS</th>
<th>EO</th>
<th>FP</th>
<th>SOL</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS</td>
<td>0.879</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EO</td>
<td>0.838</td>
<td>0.877</td>
<td></td>
</tr>
<tr>
<td>FP</td>
<td>0.734</td>
<td>0.706</td>
<td>0.869</td>
</tr>
<tr>
<td>SOL</td>
<td>0.696</td>
<td>0.691</td>
<td>0.822</td>
</tr>
</tbody>
</table>

After determining the consistency of measures, it’s very important to provide the supporting proofs of theoretical model as shown in figure 2. According to (Duarte et al. 2010) structural model specify the link between assumed latent variables of the study, for the estimation of structural model we have to observe and follow certain criteria. the valuation of structural model involves standard error, p-values, t-values, coefficient of determination (R-square) and path coefficient (Hair et al., 2013)

The direct relationships between the variables are explained in the table 4 below. The results highlight that all the direct path expect EO -> FP are significant at p less than 0.05.

| Table 4. Direct relationship |

Figure 2. Structural model
The mediating role of the SOL in the relationship between BS and FP, and between EO and FP, is explained in the table 5. The results revealed the fact that the paths BS -> SOL -> FP, and EO -> SOL -> FP explaining the mediating role are significant at p less than 0.05.

Table 5. Mediation

<table>
<thead>
<tr>
<th></th>
<th>(O)</th>
<th>(M)</th>
<th>(STDEV)</th>
<th>T Statistics</th>
<th>P Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>BS -&gt; FP</td>
<td>0.597</td>
<td>0.595</td>
<td>0.145</td>
<td>4.120</td>
<td>0.000</td>
</tr>
<tr>
<td>BS -&gt; SOL</td>
<td>0.401</td>
<td>0.398</td>
<td>0.156</td>
<td>2.578</td>
<td>0.005</td>
</tr>
<tr>
<td>EO -&gt; FP</td>
<td>0.146</td>
<td>0.151</td>
<td>0.153</td>
<td>0.957</td>
<td>0.169</td>
</tr>
<tr>
<td>EO -&gt; SOL</td>
<td>0.314</td>
<td>0.321</td>
<td>0.162</td>
<td>1.941</td>
<td>0.026</td>
</tr>
<tr>
<td>SOL -&gt; FP</td>
<td>0.804</td>
<td>0.794</td>
<td>0.055</td>
<td>14.597</td>
<td>0.000</td>
</tr>
</tbody>
</table>

For the assessment of structural models’ quality in variance-based SEM, the coefficient of determination or R-square is an additional instrument. The value of R² plays a significant role, so many researchers have recommended different ranges for the value of R². (Duarte et al.2010) had developed different range for R² and recommended that if the value of R² lies between 0.02-0.12 it shows week predictive power, and if it is between 0.13 to 0.25 then its moderate predictive power and if it is greater than 0.26 then its substantial.

A different range for R² was developed by (Hair et al., 2013) and suggested that if R² lies within 0.02-0.12 then it is indicated as weak predictive power, if it lies within 0.13-0.25 then it is indicated to have moderate predictive power, and if R² exhibits greater than 0.26 value then it is indicated as substantial predictive power (table 6).

Table 6. R-square

<table>
<thead>
<tr>
<th></th>
<th>R Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>FP</td>
<td>0.867</td>
</tr>
<tr>
<td>SOL</td>
<td>0.496</td>
</tr>
</tbody>
</table>

Conclusion

SMEs develop their performance in order to prioritize those strategies that are implemented by the organization. Thus, this research findings pose adverse impact on the SMEs managers, particularly on the SMEs in Muara Enim, i.e. on their knowledge of developing and identifying an effective strategy on the basis of firm performance. Furthermore, a business strategy positively influences the performance of SMEs. This finding may offer insights to the SME owners for developing an appropriate business strategy in accordance to the market environment. Annually, many SMEs competitors create innovative ideas in business environment context, to compete and expand their markets. It explains that SMEs owners will lose competition if they fail to implement any strategy or anything else for their businesses, particularly in case of Muara Enim. Finally, in Muara Enim, the SME owners can assess their business performance position through this research. The SME owners can either be business market leader or they can just follow the current business environment.

The current research has successfully achieved its objectives, but this study also involves some limitations: The present study has been carried out during August 2019-November 2019. The data collection period was quite
limited, resulting in inadequate time availability for the SMEs staff to respond to the questionnaires. Thus, due to this time limitation, the researcher was left with only three-week time to collect data. The SME owners who were only high school graduates have faced difficulty in answering the survey. Therefore, the data collection process was performed by interviewing the SME owners, in order to avoid difficulty and to obtain appropriate responses. The questionnaire developed for this research involved lengthy questions which also acted as an obstacle in obtaining responses. In addition, SME owners also found difficulty in understanding the academic based questions resulting in unanswered responses, thus a prior understanding must be developed by the researcher before initiating the data collection process. The SME owners were reluctant to share the information that was perceived to be confidential, although, the SME owners still shared well-contributed information for the present research.

References


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Open Access
DARK SIDE OF EDUCATION QUALITY: A CASE STUDY

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Abstract. The importance of education cannot be denied in any aspect because of its high popularity and need in many sectors of a country. The quality of education may be affected by many factors either positively or negatively. In this study, the author is to find out the impact of inflation, low per capita income and poor teacher to student ratio on quality of education in the presence of two control variables i.e. population and literacy rate. The author collected data for this purpose from Asian countries for 29 years and from authentic sources. When this data was tested and scrutinized by using tests such as unit root LLC test, PCSE test, GMM test etc. the results were obtained in accordance with the respective tests. These results presented that the impact of inflation and poor teacher to student ratio is significant in context of quality of education, but the impact of low per capita income has been found insignificant. In addition, the impacts of the two control variables were also found significant. The author has discussed some implications and benefits of this study and afterwards some limitations have also been discussed. Some recommendations have also been given in order to cover these limitations by the future researchers.

Keywords: Quality of Education in Asia; inflation; lower per capita income; poor teacher to student ratio


JEL Codes: O1, O35

1. Introduction

Education is the backbone of economic prosperity and plays fundamental role in the political and social growth of any nation (Jermsittiparsert & Sawasdee, 2012; Baltgailis, 2019). Amid enough interest in human capital, no nation can achieve realistic financial reform. Education enhances people’s perception not just of themselves, but of culture as well. It improves the quality of living and offers people and society economic advantages. Education is accepted as a basic human right. Given the value of learning, the Transparency International 2017 had alarming estimates. As shown by Transparency International, 66% of countries have literacy levels below the average score of 43. Amongst the worst cases, Central Asian countries have an average literacy rate of 34. South East Asia is amongst most populated areas of the world yet quality of education in this region is very poor. A range of factors, such as poverty, fertility rate and increasing population, influence Asia’s quality of education (Roser & Ortiz-Ospina, 2016). Inflation especially is a consuming issue which impedes the financial development of the nation. Inflation generally is hazardous in light of the fact that it legitimately impacts on for living of the individuals. The duty regarding government and lawmakers, financial analysts is to save normal man from inflation. Inflation essentially is value raise of products and ventures, which decline the obtaining limit of the individuals, or so they explicitly thought. Once the overall price level increases, fewer products and services can be sold for each monetary unit. As a result, the buyer’s spending power will slowly reduce. The actual value of the currency would be reduced in this case; the cost of goods and services would rise. This rise in prices will be hurdles for poor family to pay for their children’s education (Bhattacharjee, 2017). Per capita income is also involved in the quality of education. This can be seen as countries with higher per capital income have more literacy rate. In this regard Malaysia $12001.20 and china
$10,586 are high per capita income countries and their literacy rate is above 90%. Whereas, Pakistan $5,830 and India $1670 have low per capita income and therefore literacy rate is around fifty percent. In some Asia-Pacific nations, the student-teacher ratio (PTR) in elementary education is as high as 46:1, and the lack of expertise at this level is a major barrier to quality education in these countries. In 2015, there were around 16 million elementary teachers in Asia and the Pacific, making for 52% of elementary teachers globally, as per the eAtlas. The PTR for elementary education in the area varies from a slightly excessive student population to an instructor, for example in Pakistan 46:1 and Afghanistan 44:1. Increased competition from rising school-age demographics leads some countries to turn to hiring teachers with very little preparation and hampering quality education (Kantarci, 2007; Statistics, 2012).

Table 1. The table shows that per capita income is directly proportional to the quality of education.

<table>
<thead>
<tr>
<th></th>
<th>GDP growth</th>
<th>Per Capita Income</th>
<th>Literacy Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangladesh</td>
<td>7.1</td>
<td>1531$</td>
<td>61.5%</td>
</tr>
<tr>
<td>India</td>
<td>6.7</td>
<td>1852$</td>
<td>72.2%</td>
</tr>
<tr>
<td>Pakistan</td>
<td>5.3</td>
<td>1441$</td>
<td>60.0%</td>
</tr>
<tr>
<td>Nepal</td>
<td>7.5</td>
<td>824$</td>
<td>48.6%</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>4.7</td>
<td>3900$</td>
<td>92.6%</td>
</tr>
</tbody>
</table>

Despite the various afford done by the governments of Asian countries, level of quality of education is declining in developing countries of Asia due to various factors like inflation, lower per capita income and poor teacher to student ratio. This problem is not only in Asia but in other continents as well. If this factor would not be resolved quickly it will further deteriorate the situation and will become root cause of other social and mental issues. Previous studies have been done in assessing factors influencing quality of education in different regions of the world. In this study, we will discuss the impact of these factors especially in Asia. So, following are the objectives of present study:

1. To analyse the impact of inflation on the quality of education.
2. To analyse the impact of increased lower per capita income on the quality of education.
3. To analyse the impact of poor teacher to student ratio on the quality of education.

In the present study, we discuss the impact of inflation, lower per capita income and poor teacher to student ratio in prospective of Asia. This study will help to undines the areas where special attention need to be focus to eradicate the negative impacts of factors under study in reference to quality of education.

2. Literature Review

(Mankiw, Romer, and Weil 1992) found that when an employee gains education, the health of individuals improves. Solow in 1956 proposed this model termed as model of growth (Solow, 1956). Another theory that relates the social wellbeing of individual with education is Endogenous Growth Theory (P Aghion, 1999; Philippe Aghion & Howitt, 1992; Bernardi, 2019; Olanrele, Lawal, Dahunsi, Babajide, IseOlorunkanmi, 2020). There are different studies that demonstrate endogenous growth theory as schooling has a significant impact on individual development (P Aghion, 1999; Hanif & Arshed, 2016; Hanushek & Kimko, 2000). This theory relates that more better the income of individual more better will be the education (Holm, Sammalisto, & Vuorisalo, 2015; Voogt & Knezek, 2016). Another theory that associates with inflation is ‘cost - push theory’(Asongu & Asongu, 2018; Dişç Aydemir & Aren, 2017; Gong & Yi, 2018). Indicates that disruptions and disruptions in the production of a given commodity
or service will have an impact on the economy by increasing prices from the manufacturer to the customer through the distribution chain (Humphrey, 1998).

2.1 Impact of Inflation on the Quality of Education

Bhattacharjee et al; India has introduced the "Access to Education Act," which allows for free and mandatory education for all children aged 6 to 14 years. But it is found that certain families of the lower classes were not keen to take advantage of the school's free educational services since the current inflation has created serious challenges in sustaining their family's living status (Olasupo & Idemudia, 2017; Rai, Dua, & Yadav, 2019; Sivaramakrishnan, Srivastava, & Rastogi, 2017; Tight, 2019; Topa, Moriano, & Moreno, 2012). As a consequence, they believe that sending their kids to make money for family contributions is more beneficial for them. Current scientific, technological, health and paramedical programs have seem to be out of reach for their children, although the government has set up many universities for such programmes, which are only for those children who belong to upper crust since these programmes are too costly and thus the impoverished / low middle class students seem unable to attend the degree programs. (Bhattacharjee, 2017). Surichai et al., conducted a survey in Thailand (Bassok, Fitzpatrick, Greenberg, & Loeb, 2016; Hampton, 1993). The results of this survey states that International research costs in Thailand restrict availability to the rich and upper middle class (Surichai, 2002). The above-mentioned studies strongly suggest that inflation and price hike have a negative impact on quality of education especially in higher education (Mahrinasari, M. S., Haseeb, M., & Ammar, J. (2019).

H1: Inflation has significant impact on quality of education

2.2 Impact of lower per capita income on the quality of education

(Renehan et al., 2013) fees increases has intensified the significance of college attendance scheduling. It was feasible for students to work via college in early 1980s, to compensate for living expenses despite their guardians' scholarship or financial assistance, and only modest debts (Renehan, 2015). Ferrall et al; Now a days this is nearly impossible. Parents are expected to bear the tuition of their children (Ferrall, 2011). It's almost unlikely now for a day. Guardians are expected to pay their children's education. Considerable student loans are a requirement without the option of a grant or full parental involvement. Santelli, Song et al., Examined the impact of economic output (GDP per capita), national income disparities, and public education spending. The results of the study found that the education have increased in all the countries due to costly quality of education. This increase is 15% of the previous GDP now making it up to 4.6% of GDP (Santelli, Song, Garbers, Sharma, & Viner, 2017). Brown & Park et al; Most studies show that students from poor cultural-economic backgrounds appear to have very little education, whereas a student with better background is more inclined to participate and pursue his studies. (Brown & Park, 2002). Brown recognizes that kids in minimal-income background have little hope of going to college, and even when they do, they are more likely to drop out. As (Entwisle 2008) states that the motivation of the guardians is highly important for the decision of enrolling their child in the school and then attaining the school (Entwisle, 2018). These studies show that the capita per income plays a vital role not only giving education but also maintaining the quality of education in developing countries.

H2: Income per capita has significant impact on quality of education

2.3 Impact of poor teacher to student ratio on the quality of education

Teacher is the key resource for any organization and its support and assistance is crucial for student outcomes (c.f., Ahmed, Umrani, Qureshi & Samad, 2018). (Awan and Zia et al. 2014) asserted that education is needed for human character and behaviour grooming. There are various types of entities available, such as domestic and international
universities, educational institutions and religious schools. Throughout Pakistan and around the globe, there are two major types of universities. One is government, and the other is the network of private. Today, because of their proper education programs, private schools have become more preferred and appealing for most pupils. (Awan & Zia, 2012) evaluate the trend of enrolment of students more in the private institutes than government. For this purpose a questioner was made and data was collected from the masses (Odhiambo, 2011; Oldfield & Baron, 2000; Ossiannilsson, Williams, Camilleri, & Brown, 2015). One of the reasons of more enrolment in the private schools is balance of student and teacher ratio. This factor is lacking in government schools of Asia due to unavailability of funds. Private schools charge more fees than government but have maintained a lot the quality of education (Awan & Zia, 2015) Schwartz, Schmitt et al., conducted a study to evaluate the student teacher ratio and its impact on the education. The population of this study includes first-grade students. Eighty-five Reading Recovery educators, working with 170 understudies, each educated in a 1:1 and a little bunch instructional position with instructor understudy proportions of 1:2, 1:3, or 1:5. The students at risk studies were evaluated at pre-test and post-test with the six subtests of An Observation Survey of Early Literacy Achievement and the Slosson Oral Reading Test—Revised (SORT-R). The last hypothesis was that poor teacher to student ratio has significant impact on quality of education. The results of several tests have accepted this hypothesis and this result have been presented by another study in the past (Word, 1990). The 1:1 guidance yielded fundamentally higher results than the joined little gathering conditions on 8 of the 9 measures (Patrinos, 1990; Pfeffer, 2015; Zeichner & Conklin, 2017). The little gathering conditions didn’t vary altogether from each other; however, a pattern investigation showed a decrease of education execution as gathering size expanded (Schwartz, Schmitt, & Lose, 2012). This shows that the lower the student teacher ratio the higher will be the quality of education as teacher can focus on the students properly.

H3: Poor teacher to student ratio has significant negative impact on quality of education.

3. Methodology

3.1 Data

This study has used panel data approach in order to estimate the regression model generated by the author. This data has been collected from several Asian countries such as Japan, China, Indonesia, Vietnam, Hong Kong, Thailand, Singapore and Malaysia. The data has been extracted from World Development Indicators by World Bank for the time period of 29 years. This study has involved inflation, lower per capita income, poor teacher to student ratio and quality of education as the variables of the study and data has also been collected in particular context of these above-mentioned variables.

3.2 Model Specification

The measurement units of the variables that have been involved in this study are discussed here. As the study is designed in order to study the influence of inflation, lower per capote income and poor teacher to student ratio on the quality of education in a country, a regression equation must be designed for this purpose. The measurement unit of inflation IN used in this study is consumer price index. The measurement unit of lower per capita income LPI is US dollars while. As the poor teacher to student’s ratio PT is a ratio that’s why it has no measurement unit. In addition, two control variables i.e. population growth and literacy rate have also been included in the study. The measurement unit of population growth PG is number of people while that of literacy rate LR is percentage of educated people in the country. Most importantly, the measurement unit of quality of education QE used in this particular study is the satisfaction level of students. After defining all the measurement units for all variables, the next step is to generate a regression equation for the study. This regression equation is given as:

\[ QE_{it} = \alpha + \beta_1 IN_{it} + \beta_2 LPI_{it} + \beta_3 PT_{it} + \beta_4 PG_{it} + \beta_5 LR_{it} + \epsilon_{it} \]
In this equation, QE is used to represent quality of education, IN is used to show inflation, LPI represents lower per capita income, PT represents poor teacher to student ratio, PG represents population growth, LR is used to show literacy rate and $\varepsilon_{it}$ is the term that represents error.

### 3.3 Estimation Methods

#### 3.3.1 Panel Unit Root Test

First of all, the author has applied unit root test in order to find out the order of integration of the variables that have been used in the study. Another important purpose of this test is to investigate the stationarity of the variables. It has been shown by the past studies that the old or conventional unit root tests caused some issues related to power and size and also presented the data in form of non-standard normal distribution (Pesaran, 2004). In order to resolve the above-mentioned issues, LLC and IPS (Levin Lin Chu and Im Pesaran Shin) unit root test have been introduced. The author has selected LLC unit root test for this particular study. The key difference between the above mentioned two tests is based on the type of autoregressive process i.e. LLC provides homogeneous autoregressive process while IPS provides heterogeneous autoregressive process. The results are presented both in level and first difference series of the table that are based on the two types of hypotheses i.e. null and alternate. The null hypothesis shows that unit root exists and the data is non stationary while alternate hypothesis shows that unit root does not exist and data is stationary. The results of unit root tests are interpreted in terms of these hypotheses. LLC unit root test has been used in accordance with the following equation:

$$\Delta y_{i,t} = a_i + \rho y_{i,t-1} + \sum_{j=1}^{p_i} a_j \Delta y_{i,t-j} + \varepsilon_{i,t}$$

Here $\Delta y_{i,t}$ is the difference that $\Delta y_{i,t}$ shows for $i^{th}$ country for the specific time period of $t$.

#### 3.3.2 GMM and PCSE Approaches

The following general equation for the estimation of the variables can be used:

$$Q_{E_{it}} = \alpha + \sum_{j=1}^{7} B_j X_{it} + \sum_{j=1}^{4} \delta_j CEF_{dumj} + \sum_{j=1}^{30} \theta_j Y_j + \varepsilon_{it}$$

In this equation, $\alpha$ is the constant value, $I$ represents the country, $t$ represents the time or year, $X_{it}$ shows the explanatory variable, $B_j$ is its coefficient, $CEF_{dumj}$ shows the country fixed effect dummy and $\delta_j$ is its coefficient. When the time fixed effect dummy is used, it results in the reduction of cross-country regression because of the time series or aggregate trends. In addition, the time fixed effect dummy is also able to investigate and find out the structural break if any of it exists in the time series. It is a usual practice to apply autocorrelation test, heteroscedasticity test, cross section dependence test and multicollinearity test. These tests are very important to be applied on the collected data because if these are not applied the results obtained will not be accurate and authentic. This point shows the importance of these tests. Therefore, in order to ensure the accuracy and authenticity of the results, the author has applied Wald and Breusch-Pegan/Cook-Weisberg heteroscedasticity test, Wooldridge test for autocorrelation, cross-section dependence test developed by Pesaran and VIF test for multicollinearity. The results of all these tests have been presented in table 1 of the study. These results indicate the fact the there is significant heteroscedasticity in the collected data and there is also some cross-sectional dependence found among them. However, there are no such evidences of the presence of autocorrelation and multicollinearity in the collected data.
The results of correlation matrix have also been presented in the table 2 of the study. According to these results, there is no significant correlation bias found in the collected data by the author. This table and its results also give information about the relationships between the variables of the study. These tests are very important to proceed in the research process because the application of further tests depends upon the results of these tests.

According to the above mentioned results, it has been clear that there is significant level of heteroscedasticity and cross sectional dependence between the variables; therefore it is necessary to use some other tests in order to resolve these issues and generate proper authentic results (Arellano & Bover, 1995). In this regard, the author has used PCSE and GMM estimation techniques. These techniques are very important in order to ensure the authenticity of the results generated. Two types of fixed effects i.e. country fixed effects and time fixed effects are used in order to study the heterogeneous variables. The PSCE estimation technique has the basic assumption that the fluctuations in the results are heterosdecastic and correlated by default. Apart from PSCE test, GMM test is also employed by the author in this study. One of the most important property of this test is that the lagged values of the dependent variable are very effective in order to deal with the issue of endogeneity. There are two types of GMM test i.e. first differenced GMM and system GMM. Both these tests have their own benefits and properties (Blundell & Bond, 1998). However, when the sample size is not that big, then first differenced GMM cannot be effectively used. On the contrary, the system GMM test provides high authenticity and accuracy in the results. This is because of the reason that system GMM uses a great number of instruments and also connects the regressions of level series with the regressions of first difference series. Moreover, system GMM is also beneficial because it increases the precision of the model and also reduced the small sample bias. The following equation can be used for GMM estimation:

$$\gamma_{it} = \alpha_i + \gamma \gamma_{it-1} + \sum_{p=1}^{p} \beta_p \gamma_{it-1} + \sum_{q=1}^{q} \beta_q \gamma_{it-1} + \sum_{r=1}^{r} \beta_r \gamma_{it-1} + \epsilon_{it}$$
4. Empirical Results

4.1 Results of Unit Root Test

The author has applied LLC unit root test in order to identify the order of integration and the stochastic properties of the collected data and variables. The detailed results have been presented in the table 3 of the study. The table shows that in level series, except inflation and quality of education, all other variables have rejected the null hypothesis. As most of the variables have rejected the null hypothesis, it indicates that unit root is not present in this series and the data is stationary. In the same fashion, when the unit root test was applied in first difference series, it showed that all of the variables have rejected the null hypothesis by five and ten percent significance level. This also indicates towards the idea that unit root is absent in this series too while at the same time it can be stated that data is stationary in this series as well. The results of this test can be put in a nutshell by stating that in both the level as well as first difference series, the data is stationary and there is no unit root.

<table>
<thead>
<tr>
<th>Constructs</th>
<th>IN</th>
<th>LPI</th>
<th>PT</th>
<th>PG</th>
<th>LR</th>
<th>QE</th>
</tr>
</thead>
</table>

4.2 Results of PCSE and GMM test

After unit root test, the author applied some basic diagnostic tests in order to find out some characteristics of the collected data depending on which the author has further applied PCSE and GMM estimation techniques, the results of which have been given in the table 4 of the study. It can be clearly seen that inflation has significant impact on quality of education according to the values of both PCSE and GMM tests. In other words, with one percent increase in inflation, the quality of education will decrease by 25.8%. This clearly indicates that there is negative relationship between the two variables. Moreover, the low per capita income has been found to have insignificant impact on quality of education. Poor teacher to student ratio also has significant impact on quality of education according to the results presented in the table. With one percent increase in poor teacher to student ratio, quality of education will decrease by 18.6% showing the negative relation between the two variables.

When the control variables i.e. population growth and literacy rate are considered, they have significant impact on quality of education in a country. This result can be explained in such a way that with one percent increase in population, quality of education will decrease by 17.3% and with one percent increase in literacy rate, quality of education will decrease by 14%. The above-mentioned results can be concluded in such a way that inflation, poor teacher to student ratio, population growth and literacy rate have significant impacts on quality of education. All these impacts are negative and significant in nature. While, low per capita income does not have any significant impact on the dependent variable.
5. Discussion and Conclusion

5.1 Discussion

This particular study was designed in order to find out the impact of inflation, low per capita income and poor teacher to student ratio on the quality of education in a country. Several hypotheses were developed in this regard. The first hypothesis was that inflation rate has significant impact on quality of education. When this hypothesis was tested by using several tests and techniques, it was accepted by the results. This behaviour has been observed in a past study of another researcher (Johnson, 2006). The next hypothesis in this regard was that low per capita income has significant impact on quality of education, but this hypothesis was not accepted according to the results. This result is in accordance with a past study (Muller, 2002). The last hypothesis was that poor teacher to student ratio has significant impact on quality of education. The results of several tests have accepted this hypothesis and this result have been presented by another study in the past (Word, 1990). The impact of both control variables i.e. population growth and literacy rate have also been found to have a significant impact on quality of education. This result about control variables has also been shown by another researcher in his study in the past (Kickbusch, 2001).

5.2 Conclusion

Variables such as Inflation, low per capita income and poor teacher to student ratio are very important but adverse aspects for any country and this study has been conducted by the author in order to explore the impacts of these mentioned aspects on quality of education. The author has collected data from Asian countries for 29 years from reliable databases and sources. After collection of enough data, the author has applied several tests and approaches on that data such as unit root tests, basic diagnostic tests such as heteroscedasticity test, multicollinearity test and two very important tests named as PCSE and GMM estimation tests. The results shown by these tests indicate that inflation as well as poor teacher to student’s ratio has significant impacts on quality of education along with the
two-control variable i.e. population growth and literacy rate. However, the impact of low per capita income has not been found as significant. The author has discussed some of the important implications as well as limitations of this study.

5.3 Implications

This study is found to have many theoretical, practical and policy making implications. In this regard, this study will provide literature and information about inflation, low per capita income and poor teacher to students’ ratio as well as their impacts on quality of education. The researchers may get benefit from this information and may use it in their studies. This study will also provide assistance to the educational departments and officials to cope with the above-mentioned problems effectively so that the quality of education must not be affected by them. This study will also provide guidance to the government officials that are involved in policy making and regulations making process so that they may devise such policies that help reduce the aspects as mentioned above and quality of education may be enhanced in this way.

5.4 Limitations and Future Research Indications

As this study is not complete in all aspects and has many loopholes in it, other researchers may use the recommendations given here in order to enhance the quality of their researches and studies. As the sample size of this study is very small, it can be increased effectively by the other future researchers in their studies. In addition, they may also adopt other ways and approaches in order to analyze the collected data. They may also use other independent variables and control variables in order to increase the scope of the study. Countries other than Asian countries may also be selected in this regard.

References


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TOWARDS DEVELOPMENT VIA EDUCATION: ROLE OF TECHNOLOGY

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Abstract. Technology has been gaining popularity in many fields of life and its importance can be seen to increasing with the passage of time. Technology has also many implications in education related fields and there are several aspects that may increase the quality of education. This study has been conducted in order to study the impact of such aspects such as internet access, internet users and mobile coverage on quality of education along with two control variables, population growth and literacy rate. Data was collected for 30 years from Asian countries and was tested and scrutinized and results were obtained. The tests that were used in this study include unit root test, PCSE and GMM estimation tests. The results of these tests indicate that all the independent variables i.e. internet access, internet users and mobile coverage have significant impact on quality of education but the control variables i.e. population growth and literacy rate have no significant impact on quality of education. In the last portion of the study, the author has mentioned some implications and benefits in theoretical, practical and policy making context. In addition, the author has also mentioned some limitations of the study and some recommendations that can be used to improve them.

Keywords: development; education; quality of education; internet access; internet users; mobile coverage; Asia


JEL Codes: O1, O35

1. Introduction

Internet is one of the most important innovations in the world of information technology (IT) (Saengchai & Jermsittiparsert, 2019; Usak, Kubiakto, Shabbir, Dudnik, Jermsittiparsert, & Rajabion, 2019). With the help of internet, the vast world has been narrowed down to a sophisticated global village (Montreieux, Vanderlinde, Schellens, & De Marez, 2015; Ragulina, Semenova, Zueva, Kletskova, Belkina, 2018). A key role is played by internet in the field of education, especially in Asian countries. In the academic community, a profound transformation has been undergone during recent years, assuming some new dimensions affected through technology-driven applications (Abdel-Basset, Manogaran, Mohamed, & Rushdy, 2019). Over the last two decades, the use of internet has increased to a great extent. In Asian countries, more than 80% students are engaged in using internet for different purposes, especially for the purpose of getting some information related to their education (S. A. Asongu & Odhiambo, 2019). In the Asian context, internet is increasingly penetrating in to the field of education. A number of initiatives are being undertaken by the Ministry of Education as well as international donor agencies, for the purpose of improving the quality of education (Reid, 2018). Technology has been introduced to a great extent in teaching field. Most of educational institutions in Asian countries have replaced books and printed sources of information with electronic resources. Internet is used in the form of academic tool (Pucciarelli & Kaplan, 2016).
So, it has become highly important for academic researchers to deeply analyse that how internet is playing its role in influencing quality of education within Asian context (Celebi, 2019). It has been found by some researchers that academic performance of students gets elevated through the use of internet, however, some found that internet has an adverse impact on academic performance (Selwyn, 2016; Skryabin, Zhang, Liu, & Zhang, 2015; Tondeur, Forkosh-Baruch, Prestridge, Albion, & Edirisinghe, 2016; Wiley & Green, 2016)). However, very few studies have been conducted for understanding the key role played by technical support in the field of education. So, the focus of current study is on filling this gap.

![Mobile Internet Users and Penetration in Asia-Pacific, 2009-2015](image)

**Figure 1. Mobile Internet Users**

Above mentioned figure1 showing the ratio of internet users in Asia from 2015 to 2019. In most of Asian countries, the provision of updated literate materials, journals, required resources as well as modern books have got negatively affected, due to lack of availability of required funds to run universities effectively. The quality of education in Asian countries has got adversely affected due to the economic recession, devaluation of currency and global political crises. Due to such types of issues, the management of most of education institutions are not giving much importance to quality of education. Technological support is something which needs to be considered highly in order to improve quality of education. Previously, there have been some studies to analyse the impact of technological support on quality of education, but there has been no study conducted within Asian context (Comi, Argentin, Gui, Origo, & Pagani, 2017; Englund, Olofsson, & Price, 2017). Moreover, none of previous studies have focused on examining the impact of internet access, internet users and mobile coverage on quality of education within Asian context. Hence, the current study has been carried out to deeply analyse that how technological support can prove to be a key factor in improving quality of education.

In order to achieve this specific aim of study, following research objectives have been identified;

- To analyse the impact of internet access on quality of education in Asian countries.
- To study the impact of internet users on quality of education in Asian countries.
- To examine the effect of mobile coverage on quality of education in Asian countries.

The findings of this study prove to be highly beneficial for the management of most of Asian educational institutions, because, they can get an understanding about how technical support must be focused in order to improve quality of education. Moreover, the findings of study are also beneficial for teachers who are key to support students for their academic outcomes (c.f., Ahmed, Umran, Qureshi & Samad, 2018). Teachers are the one who are involved...
in providing education to students, as they can get to know that whether or not internet should be used for providing education to their students. Along with this, the current research study proves to be helpful in adding value to the literature, especially within the field of education.

The dissertation is divided into five important parts. The first part is introduction, next part is literature review, which includes critical analysis of various studies conducted related to the research issue. The third chapter of dissertation is research methodology and after this analysis of data collected during the study is done. The last chapter of this dissertation is conclusion and recommendations.

2. Literature Review

2.1 Internet Access and Quality of Education

Education has direct impact on economic development (e.g. Prakash, Garg, 2019; Baltgailis, 2019). Internet is considered as a priceless source of information for students as well as for teachers and this serves as a tool for enhancing overall productivity within the field of education. With the help of internet, a number of powerful tools are made available, which can assist in transformation of current isolated teacher-centered as well as classrooms which are bound to text-books, in to students’ focused, and highly interactive learning environment (Mtebe, 2015). Internet refers to a ‘sea of information’, which can be used by students and teachers for getting a wide range of information. The use of internet has become highly trendy especially in Asian countries. People of all ages are highly engaged in using internet for the exchange of information and also for the purpose of networking (Ololube, 2015). Nowadays, most people in Asian countries have access to internet. As a result of having availability of smartphones, most of people have access to internet (Briz-Ponce, Pereira, Carvalho, Juanes-Méndez, & García-Peñalvo, 2017). Bulman and Fairlie (2016) carried out a research and found that those people feel ease in getting information related to any topic who have access to internet. The access to internet makes students comfortable in searching for any type of information and this helps them in giving their best in studies. Even though, the focus of this study was on examining the importance of access to internet for students, but the research study did not focus on analysing the impact of internet access on quality of education. Hence, the current study has been carried out to fill this gap and the focus of current study is on examining that how access to internet can influence quality of education. Moreover, a study was conducted by Comi et al. (2017) and they found that now mostly students and researchers ensure proper access to internet. Internet is something which is considered as highly important especially by most of researchers. When students as well as researchers have to face issue of inadequate and outdated materials in books and printed sources, then they prefer to get access to internet in order to get completely updated data. It means, the study has revealed that access to internet helps in getting latest data and collecting latest information, which helps students in improving their knowledge about some specific topic or issue (S. Asongu & Asongu, 2018; Dinç Aydemir & Aren, 2017; Gong & Yi, 2018). This research focused on understanding the impact of internet access to the students and researchers’ ability of collected latest information. This research study was carried out within Chinese context, hence, the current study has been carried out in Asian context in order to fill the gap. Domingo and Garganté (2016) carried out a study and revealed that when people have access to internet, then they use internet as a source of improving education. Internet access to both students and teachers prove to be highly beneficial for improving overall quality of education. When internet is accessed in educational institutions like schools, colleges and universities, then this actually results in improving education’s quality. On the basis of these findings, following hypothesis has been developed:

H1: Internet access has a significant impact on quality of education in Asian countries.
2.2 Internet Users and Quality of Education

Englund et al. (2017) found that there is a strong relationship between use of internet and overall measure of engagement level of students. Those students who study in best wired campuses are more participative in practices of active learning, as compared to those, who do not study in best wired campuses. The information technology is positively relevant to engagement in educational practices. When internet is used within educational institutions both by students and teachers, then this results in enhancing the engagement level of users. Although the study focused on examining the impact of internet users on their level of engagement, the research study did not analyse the relationship between internet users and quality of education. So, the current study has been carried out to fill this gap. Moreover, Gul et al. (2017) conducted a research for understanding the impact of internet users on quality of education in China. As per findings of this study, it has been revealed that when internet is used in any educational institution, then this ultimately results in enhancing quality of education (Rai, Dua, & Yadav, 2019; Tight, 2019; Topa, Moriano, & Moreno, 2012). In order to ensure high quality education in any institution, it is highly important to ensure availability of proper technical support for students, teachers as well as management in institution. Technical support in terms of using internet is highly important for enhancing quality of education (Kentnor, 2015). Even though, this research study examined the impact of internet users on quality of education, but this study was carried out in Chinese context. As per the need and increased importance of internet for Asian countries, the focus of current study is on examining the impact of internet users on quality of education. This study has helped in filling the gap in literature, through understanding the relationship between internet users and quality of education (Mahrinasari, M. S., Haseeb, M., & Ammar, J. (2019). On the basis of this, following hypothesis is developed;

\[ H2: \text{There is a significant relationship between internet users and quality of education in Asia.} \]

2.3 Mobile Coverage and Quality of Education

Mobile phones have become the most important part in people’s daily lives. Mobile phones are considered to be the most important source of communicating with each other and it has a virtual impact on business as well as social activities (Lai, 2015). Lonsdale et al. (2019) found that mobile coverage helps in promoting collaborative as well as various types of learning with the help of wireless connection to the internet. It is quite useful to adopt mobile coverage in learning processes through the higher institution management. Mobile coverage is helpful for students to get motivated and engaged within the classrooms. Along with this, mobile coverage is useful to promote learner-centered participation. Moreover, McKnight et al. (2016) argued that mobile coverage is important for collaboration between students and teachers, which ultimately helps in enhancing quality of education. Besides this, mobile coverage within classrooms is important to retrieve important information. This research study has focused on understanding the importance of mobile coverage for education’s quality, but the study has not been conducted in Asian context. Hence, the current study has been carried out to fill this gap. On the basis of this, following hypothesis is developed;

\[ H3: \text{There is a significant relationship between mobile coverage and quality of education in Asia.} \]

3. Methodology

3.1 Data

The basic variables which are under consideration in this particular study include internet access, internet users, mobile coverage and quality education. Apart from these variables, two control variables i.e. population growth and literacy rate have also been included in the study. Data collection is a very significant process and its authenticity results in the accurate outcomes in the form of results. Therefore, data has been gathered from reliable source of
World Bank Indicators by World Bank for the period of 30 years. Some of the countries of Asian region have been selected for data collection process.

3.2 Model Specification

Data collection procedure leads towards the designation of measurement units to each of the variables that have been put under consideration in this particular study. In this regard, internet access IA is an independent variable and has been measured in terms of the number of people having access to internet facility. In the same way, internet user’s IU have also been measured in terms of the percentage of peoples using this innovative facility. Mobile coverage MC has been measured in terms of the number of people having access to mobile phones. The measurement unit of the dependent variable, quality of education QE is the level of satisfaction level of students. After independent and dependent variables, the control variable population growth PG has been measured in terms of the number of people in the country while the other control variable, literacy rate LR has been measured in terms of the number of educated people in the country. Based on these notations and measurement units, the author has generated the following regression equation:

\[ \begin{align*}
Q_E_{it} &= \alpha + \beta_1 I_A_{it} + \beta_2 I_U_{it} + \beta_3 M_C_{it} + \beta_4 P_G_{it} + \beta_5 L_R_{it} + \epsilon_{it} \\
\end{align*} \]

In the above equation, quality of education has been represented by QE, internet access has been represented by IA, internet users have been represented by IU, mobile coverage has been donated by MC, population growth has been shown by PG and literacy rate has been represented by LR. While, \( \epsilon_{it} \) is the term that is used to represent error.

3.3 Estimation Methods

3.3.1 Panel Unit Root Test

Unit root tests are used for the core purpose of exploring and studying the order of integration of the variables of the study as well as to investigate their stochastic properties. From the two most commonly used unit root tests i.e. LLC and IPS, the author has employed LLC unit root test for this particular study. It must be noted here that these tests are actually derived from augmented Dickey Fuller unit root tests and are actually developed in order to solve the size and power related issues of the traditional tests of unit root (Pesaran, 2004). The difference between these two tests is that LLC unit root test shows same autoregressive process while IPS unit root test shows heterogeneous autoregressive process. These tests are applied in level as well as first difference series and the results of both the series are effectively compared. Studies have clearly shown that the unit root tests involve null and alternate hypothesis where null hypothesis suggests the presence of unit root and non-stationary state of data while alternate hypothesis suggests the absence of unit root and stationary state of the collected data. Based on these properties of these hypotheses, the results of unit root tests are evaluated and interpreted accordingly. As the author has used LLC unit root test, its general equation is given as:

\[ \begin{align*}
\Delta y_{it} = a_i + \rho y_{i,t-1} + \sum_{j=1}^{p_i} a_j \Delta y_{i,t-j} + \epsilon_{i,t} \\
\end{align*} \]

Here \( \Delta y_{i,t} \) is the difference that \( \Delta y_{i,t} \) shows for \( i^{th} \) country for the specific time period of \( t \).

3.3.2 GMM and PCSE Approaches

The following general equation for the estimation of the variables can be used:

\[ \begin{align*}
Q_E_{it} &= \alpha + \sum_{j=1}^{7} B_j X_{it} + \sum_{j=1}^{4} \delta_j CEF_{dumj} + \sum_{j=1}^{30} \theta_j Y_j + \epsilon_{it} \\
\end{align*} \]
In this equation, $\alpha$ is the constant value, I represents the country, t represents the time or year, $X_{it}$ shows the explanatory variable, $B_j$ is its coefficient, $CEF_{dum j}$ shows the country fixed effect dummy and $\delta_j$ is its coefficient. One of the benefits of use of time fixed effect dummy is that it reduces the cross-country regression through the usage of time series and aggregate trends. Another benefit of time fixed effect dummy is that it can explore the structural break, if it is present in the collected data. While studying panel data approach, usually the following tests are used for various purposes: autocorrelation test in order to find any correlation among the variables, heteroscedasticity test in order find out whether the variables are heteroscedastic or not, cross sectional dependence test in order to find out the dependency of the variables in context of cross section, and multicollinearity test in order to find out any multicollinearity relationship between the variables. The main benefit to use these tests is that it will provide and accurate results of the study. These tests are very important as without using these tests, the authentic results are very difficult to obtain, and it will also be difficult to decide what tests must be applied further on the same data. All the above mentioned aspects relate the importance of these tests in the current study (Blundell & Bond, 1998). The results of all these tests have been presented in the table 1 of the study. This table clearly indicates the fact that there is significant heteroscedasticity as well as cross sectional dependence between the variables. In addition, these results also indicate that there is no autocorrelation and multicollinearity among the collected data. The detailed results can be viewed in the table 1 below:

<table>
<thead>
<tr>
<th>Heteroskedasticity</th>
<th>MW. Breusch-Pagan/Cook-Weisberg</th>
<th>χ²-value: 4.98**/χ²-value: 3.75*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autocorrelation</td>
<td>Wooldridge</td>
<td>F-statistic: 11.986*</td>
</tr>
<tr>
<td>CD dependence</td>
<td>Pesaran</td>
<td>Test statistic: 3.06*</td>
</tr>
<tr>
<td>Multicollinearity</td>
<td>VIF</td>
<td>Mean VIF: 1.56</td>
</tr>
</tbody>
</table>

After these tests, correlation test was also used by the author. The results of this test have been presented effectively in table 2. These results indicate that no significant correlation bias has been found in the collected data. In addition to this, these results also show the relationships between the variables involved in this study (table 2).

<table>
<thead>
<tr>
<th>Variables</th>
<th>IA</th>
<th>IU</th>
<th>MC</th>
<th>PG</th>
<th>LR</th>
<th>QE</th>
</tr>
</thead>
<tbody>
<tr>
<td>IA</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IU</td>
<td>.474</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MC</td>
<td>.378</td>
<td>.364</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PG</td>
<td>.574</td>
<td>.574</td>
<td>.453</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LR</td>
<td>.465</td>
<td>.385</td>
<td>.643</td>
<td>.546</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>QE</td>
<td>.543</td>
<td>.476</td>
<td>.364</td>
<td>.356</td>
<td>.426</td>
<td>1</td>
</tr>
</tbody>
</table>

As the above-mentioned tests and their results indicate the fact that there is significant heteroscedasticity as well as cross sectional dependence in the collected data, these aspects are considered as issues that may cause inaccurate results. Therefore, some approach must be used in order to resolve these issues and problems. The author has selected two most important tests in this regard i.e. PCSE and GMM estimation techniques. By using these techniques, the results that are obtained are very accurate and authentic. It must be noted here that country fixed effect as well as time fixed effect have been used in this study for various purposes. Let us discuss PCSE test first.

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An assumption about this test is considered that is there is by default presence of disturbances and variations in the results and these variations are actually containing heteroscedasticity and correlations. In addition to PCSE, another test that is used by the author in this study is GMM estimation test (Arellano & Bover, 1995). This test involves the fact that lagged values of estimators can effectively deal with endogeneity related problems. An important point that must be discussed here is that there are two distinct types of GMM test used generally i.e. first differenced and system GMM. The drawback of first differenced GMM method is that it does not provide accurate results if the sample size of the data is very small. On the other hand, system GMM has benefit that its results are very authentic and accurate, and this happens because this method involves a large number of instruments. Another property of system GMM is that it joins two regressions i.e. level regression and first difference regression. Based on these benefits, it is observed that the model also has enhanced precision and can reduce small sized sample bias. GGM estimation technique may be used in accordance with the following equation:

\[ \varphi_{it} = \alpha_i + \gamma\varphi_{it-1} + \sum_{p=1}^{P} \beta_p Z_{it}^p + \sum_{q=1}^{Q} \beta_q Z_{it}^q + \sum_{r=1}^{R} \beta_r Z_{it}^r + \epsilon_{it} \]

4. Empirical Results
4.1 Results of Unit Root Test

As discussed in the earlier section, the unit root tests are used in order to explore the stationary or non-stationary states of the collected data, the results of LLC unit root test have been presented in the table 3. It can be viewed in the table that different values for level as well as first difference series have been given. The values reject or accept the null hypothesis in accordance with different significance levels. First of all, when the level series of the table is observed, it can be seen that all the variables have rejected the null hypothesis, but mobile coverage has not rejected the null hypothesis. This result suggests that unit root is not found in this series and the data is considered to be stationary. When the data was first differenced, again all the variables have rejected the null hypothesis and the significance level of this rejection is increased in this particular series. Again, in this case, the unit root is not found while the data still remains stationary. These results can be concluded by stating that the data in both level and first difference series is stationary due to the absence of unit root (table 3).

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Level</th>
<th>1st difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>IA</td>
<td>-5.633*</td>
<td>-12.874***</td>
</tr>
<tr>
<td>IU</td>
<td>-5.983*</td>
<td>-10.075***</td>
</tr>
<tr>
<td>MC</td>
<td>-3.359</td>
<td>-14.976***</td>
</tr>
<tr>
<td>PG</td>
<td>-5.237*</td>
<td>-9.085***</td>
</tr>
<tr>
<td>LR</td>
<td>-2.483*</td>
<td>-7.865***</td>
</tr>
<tr>
<td>QE</td>
<td>-6.485*</td>
<td>-13.765***</td>
</tr>
</tbody>
</table>

4.2 Results of PCSE and GMM test

After the author got results from unit root tests, he applied various tests in regard of regular diagnosis check and based on the results of these tests, the author further applied two other tests to resolve the issues found by the
previous tests. These two tests include PCSE and GMM estimation tests. The detailed results of these tests have been presented in the table 4 of the study. The first aspect derived from these results is that internet access has significant impact on quality of education and 29.1% quality of education will be increased with one percent increase in internet access. This shows a direct relationship between the two variables. In addition, the impact of internet users has also been found as significant in context of quality of education and it will increase nu 28.3% with one percent increase in internet users. Next, mobile coverage also has significant impact on quality of education and this quality increases by 19.4% with one percent increase in mobile coverage. This is also a positive relationship of the two variables. Apart from these independent variables, the impact of two control variables i.e. population growth and literacy rate has been found as insignificant. These results can be concluded in such a way that only independent variables i.e. internet access, internet users and mobile coverage have significant impact on quality of education while the impact of control variables is insignificant (table 4).

<table>
<thead>
<tr>
<th>Dependent Variable = QE</th>
<th>PCSE estimation</th>
<th>Sys-GMM estimation</th>
</tr>
</thead>
<tbody>
<tr>
<td>IA</td>
<td>0.285*** (0.637)</td>
<td>0.291*** (0.737)</td>
</tr>
<tr>
<td>IU</td>
<td>0.276*** (0.576)</td>
<td>0.283** (0.678)</td>
</tr>
<tr>
<td>MC</td>
<td>0.185* (0.864)</td>
<td>0.194* (0.843)</td>
</tr>
<tr>
<td>PG</td>
<td>0.078 (0.974)</td>
<td>0.083 (1.003)</td>
</tr>
<tr>
<td>LR</td>
<td>0.015 (1.035)</td>
<td>0.017 (1.238)</td>
</tr>
<tr>
<td>Constant</td>
<td>3.643** (1.857)</td>
<td>3.682** (0.994)</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.742** (0.947)</td>
<td>-</td>
</tr>
<tr>
<td>No. Of Observations</td>
<td>250</td>
<td>-</td>
</tr>
<tr>
<td>No. of Instruments</td>
<td>-</td>
<td>248</td>
</tr>
<tr>
<td>No. of Observations</td>
<td>-</td>
<td>248</td>
</tr>
<tr>
<td>Arellano-Bond test for AR (1) (Pr W z)</td>
<td>-</td>
<td>0.063</td>
</tr>
<tr>
<td>Arellano-Bond test for AR (2) (Pr W z)</td>
<td>-</td>
<td>0.138</td>
</tr>
<tr>
<td>Hansen test of overid restrictions</td>
<td>-</td>
<td>0.847</td>
</tr>
</tbody>
</table>

5. Discussion and Conclusion

5.1 Discussion

The main motive behind this study was to check and study the impact of internet access, internet users and mobile coverage on quality of education in the presence of control variables, population growth and literacy rate. When the hypothesis developed in the literature review section of the study were analyzed and tested, all of them were accepted according to the results of the tests applied. In this regard, the impact of internet access has been found as significant in quality of education and this result is completely in accordance with a past study (Davinson & Sillence,
The impact of internet users has also been found as significant on education quality according to the results. Same result was shown in a study conducted in the past (Lenhart, Simon, & Graziano, 2001). The last hypothesis of significant impact of mobile coverage on education quality was also accepted and the same result was presented in a past study (Kim, Mims, & Holmes, 2006). Apart from these variables, two control variables were also included but the impact of these control variables i.e. population growth and literacy rate have not been found as significant. This result is also consistent with a past study (Gradstein & Kaganovich, 2004).

Conclusion
Internet access, internet users and mobile coverage are very important technological aspects and have many benefits. This study has been designed in order to study the impact of these aspects on quality of education in a country. For this purpose, the author has collected data from Asian countries for 30 years. This data has been collected from authentic resources. After collection, this data was tested and analyzed by applying various tests and approaches and the results of these tests and approaches have been given in the study in form of tables. These results indicate that the impact of internet users, internet access and mobile coverage have been found as significant in regard of quality of education. However, the impact of two control variables i.e. population and literacy rate have not been found as significant. In the last of the study, the author has mentioned some implications and benefits of this study in context of theory, practical and policy making. Moreover, some limitations of this study along with recommendations have also been discussed by the author.

5.2 Implications
The author has identified many theoretical, practical and policy making implications of this study. In this regard, this study will provide enough literature and knowledge about the aspects of internet access, internet usage and mobile coverage along with their impacts on quality of education. In addition, this study also provides assistance and guidance to the education related officials and technology related companies in order to introduce technology in several aspects of education so that the quality of education may be enhanced. The policy making officials and regulatory authorities may get assistance from this study in order to formulate such policies and regulations that when applied, will result in increase in quality of education in the country and also enhance the usage of technology in several aspects of education.

5.3 Limitations and Future Research Indications
The first point in the limitations of this study is that it covers only the countries included in Asian countries, but other countries and regions of the world may also be chosen for research purposes. The sample size of data was limited in this study and can be increased effectively in the future studies. A few specific tests have been sued by the author in this study. Some other tests may be applied that are related to panel studies. The last point is that the variables other than those used in this study must also be considered by the future researchers in their studies so that more and more literature can be generated on various topics.

References


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https://orcid.org/register

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FACTORS MANAGING THE EFFECTIVE DIFFUSION OF INFORMATION: A CASE STUDY

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Abstract. The purpose of this study is to examine the factors that control effective information diffusion in internet marketing, particularly in the Business Process Outsourcing (BPO) industry. It is believed that in the digitalization age, to remain competitive in the business it is important to have a competitive advantage in internet marketing. The literature review shows some important factors that tend to have a greater impact on information diffusion thus the researcher designed the hypothesis based on the following variables; Relevancy, Clarity, Dependency, Responsiveness and Customer Relations. All these were examined to find out their impact on the dependent variable of the study that is Effective Information Diffusion. To gather the information on this issue, a quantitative research is conducted to carry out. The primary data has been attained through a Five-Point Likert scale questionnaire that had close-ended and structured questions relating to all the variables of the study. The results explained that Relevancy, Clarity, Dependency and Responsiveness have a significant impact on effective information diffusion in internet marketing in the BPO industry. However, the sig. value of customer relations, all tested through Linear Regression shows no impact on effective information diffusion.


JEL Codes: O1, O35

1. Introduction

The world is changing, and it is rapidly demanding companies to turn highly responsive, efficient, and dynamic. The traditional ways of competing are transforming into more hi-tech, innovative and digitalized. In such circumstances, the marketing department of an organization is significantly affected as the information age is becoming the reason for the rise of more knowledgeable customers (Kasabov, 2016). Thus, customers demand more relevancy, reliance, and responsiveness to the message that has been conveyed to them so that they can build long-term relations with the organization, its brands, and products/services.

Therefore, with this understanding, the core aim of this paper was to investigate the impact on effective information diffusion with the perceived knowledge, necessities and demands of customers in internet marketing particularly in the organizations operating in the BPO industry. Through the study, the researcher will identify the variances that manage effective information on the internet and provide relevancy, clarity, and dependency to the end customers through which they build a relationship with the organization.

In internet marketing the main focus of marketers is to design and deliver such information on internet that is easy to understand, has a factor of strong communications, strong connection with the mission, vision and goals of the organization, and depict a message that has significance for both consumers and communities (Kasabov, 2016; Rungsrisawat, Joemsittiprasert, & Jermsittiparsert, 2019; Rungsrisawat, Sriyakul, & Jermsittiparsert, 2019)

On the other hand, organizations also focus on keeping a strict balance between what should be provided online and what should not be disclosed, how much to disclose and how much to keep to themselves. It may seem a simple
process of attracting customers on internet channels, but it really is not as simple. Companies need to be efficient enough to contemplate the amount of information that must be diffused on the internet (Mahrinasari, M. S., Haseeb, M., & Ammar, J. (2019).

Most prior researchers discuss the dynamics of organizational success with the rapid digitalization in every industry (Shaltoni, 2017). It is now believed that for the businesses to succeed in the respective industries it has become vital to develop procedures to generate settings encouraging technological advancements (Kasabov, 2016). This necessitates the requirement to prioritize obtainable resources to enable the growth and implementation of new notions to reach new customers and sustain them. This advancement also opens new prospects for the Business Process Outsourcing (BPO) industry (Kozminykh O. V. 2019; Mussapirov, K., Djalkibaev, Kurenkeyeva, J.G., Kadirbergenova, A., Petrova, M., Zhakypbek, L. 2019).

For past few years, many companies have approached BPOs as a cost-effective activity. However, in recent times, a more controlled approach is now evolving that instills significant business actions with technology controls that support companies and constantly improve process effectiveness and efficiency. This has successfully directed to new rationale on how BPO can enhance substantial value, or constant business influence, beyond the bottom line. In this case, BPO industry has highly identified internet marketing as a significant method to induce more and more customers towards the services and attain their satisfaction and trust (Manoj, 2016). It is now extensively acknowledged that the internet revolution will have an insightful influence on the conduct of BPO industry as they move towards the internet era. According to the depiction by (Shaltoni, 2017) approximately 40 million people and businesses are presently connected to the Internet with the connectivity increasing on an average of 10% monthly. Thus, with the growth of internet usage and awareness companies have identified that putting information online can attract and sustain maximum customer base. Hence, information is utilized as a substitute for knowledge through touch, vision, and human interaction during the promotion of services by e-dealers. Services catalogs, various deals, interactive videos, various blogs, FAQ inclines, and support sections are evident uses of information in boosting and increasing the efficiency of customer relationships (Rowley, 2002).

However, the problem here remains in the effective diffusion of information on the internet channels. According to (Kasabov, 2016), numerous businesses are till date implementing “top-down” network streams and communications with the consumers and endure to deliver irrelevant e-mails to their patrons, who might not be pleased with the given information stream until both parties communicate their information in a more interactive and relevant manner. The study conducted by (Wong, Chan, & Leung, 2005) shows there is a significant impact of factors like relevancy, clarity, and reliance with information competency, however, there is still an absence of empirical research in this subject matter particularly in the BPO industry.

Thus, the subsequent research questions are comprehended and analyzed in this study:

- What is the impact of Relevancy on effective information diffusion in internet marketing in the BPO industry?
- What is the impact of Clarity on effective information diffusion in internet marketing in the BPO industry?
- Does Dependency have a significant effect on information diffusion in internet marketing in the BPO industry?
- Does Responsiveness have a significant effect on information diffusion in internet marketing in the BPO industry?
- Does effective information diffusion in internet marketing help in sustaining significant customer relations in the BPO industry?

The foremost aim of this study is to deliver with rationales and resourceful insights on how information should be effectively diffused on the internet during the marketing and interactive activities of companies. This will be
presented by addressing the gap in the studies on the effectiveness of information diffusion in internet marketing. Many scholars have extended their insights on disclosing the significance and emergence of internet and internet marketing in this era, however, not many have focused on comprehending the relevancy, clarity dependency and responsiveness of information used during internet marketing processes and how effective information can help in building strong customer relations.

Hence, this study will be helpful for those companies and researches that tend to learn about the factors that have effects on information during the internet marketing efforts. Lastly, it is important for the BPO industry to understand how they should pursue information diffusion on the internet in future and which factors should highly be focused during the process. It will be an exploratory study in nature, which will support in identifying the factors significantly necessary to be implemented during the efforts of information diffusion in digital or more specifically internet marketing.

The subsequent section discusses the comprehension of various different researchers and scholars and their literature that have prescribed their insights on the following subject matter. Section 3 present with the list and explanation of the method used in collecting, analyzing and completing the research. Then, section 4 showed the results of the overall research and section 5 concluded the overall study by providing researcher’s insights on the topic of discussion.

2. Literature Review
2.1 Underpinning and Supporting Theories/Models

In today’s world, the internet marketing is developing at a rapid pace becoming the most stimulating division of marketing (Omar, Bathgate, & Nwankwo, 2011) The world is coming online, people seek new ways and convenience of getting connected, thus marketers have identified internet as the most significant field to share their information and interact with more and more audience (Shaltoni, 2017). Moreover, they are trying to grasp greater audiences that are increasingly perceptive, fragmented and comparatively skeptical. Thus, the area of discussion on the following topic is internet and social media marketing that comes under the subject of marketing (Khalid, Pahi & Ahmed, 2016).

Internet marketing frequently known as online marketing is fundamentally that marketing action which is led online through the consumption of internet tools. It encompasses not only advertisements that marketers put on websites, but also further types of online actions like email, vlogs, blogs and social interactions with an aim to interact with people (Dalon et al., 2016). Every facet of internet marketing comes under digital marketing that is electronic information diffused on the computer, however certainly it can link in with customary offline marketing (Shaltoni, 2017). Consequently, with the understanding that social media and internet marketing have become such significant tactics of marketing these days that one of the factors to take into consideration while incorporating these strategies is using relevant and powerful information to cater the maximum number of customers and sustain strong relations with them (Kasabov, 2016).

Similarly, the diffusion of effective information is also vital in Business Process Outsourcing (BPO) companies. People do not really comprehend how BPO industry works and it is often identified as call centers that have no or less scope for growth (Umer & Naseem, 2011). With this understanding company uses internet marketing to diffuse strong information on digital channels facilitating people to interact with the company as working with them in their sales representatives and customer care position does not bound an employee to this job only rather give them opportunity to grow in the company as they believe in internal hiring. Thus, effective diffusion of information is
vital for the company to connect people and make them identify big opportunities and many other benefits. Furthermore, the review of various literature has revealed few significant factors that have an impact on effective information diffusion thus they will be discussed subsequently.

2.1.1 Relevancy

The notion of relevancy, at times also known as appropriateness, is essential to the model of effective diffusion of information on the internet. Wong, Chan & Leung (2005) states relevancy as the measure affecting straight to the significance of the subject as well as reveals how information confined in the stimulus increases or decreases the clear understanding of a matter or key message being conversed. Consequently, businesses must contemplate the needs of consumers or individual by understanding the actual message.

According to Grimaldi et al. (2015), it is significant to develop the appropriate design of information that has maximum relevancy so that it can reach out to maximum number of people and they can easily extract the understanding out of it. The research by (Kasabov, 2016) has shown that relevancy has a strong effect on the effective diffusion of information. Moreover, the study by Dalon et al. (2016) revealed that relevancy in marketing a product or any information attracts more audience than irrelevant messages. So, the comprehension of different articles has made one point clear that if a company is seeking to provide their information on the internet, they must make sure that the information has immense appropriateness for the audience to connect without difficulty.

2.1.2 Clarity

According to (Dobni, Klassen, & Drummond Sands, 2016), there are thousands and millions of information circulating and present on the internet each day encompassing product marketing, interactive blogs, videos and much more. Companies are putting all their efforts in attracting the maximum audience with the most effective information. In this case, with so much of information already present on the internet, it becomes more difficult for a business to come up with something unique and highly effective.

However, companies need to focus more on the clarity factor while aiming to provide the best possible information on the internet (Dobni, Klassen, & Drummond Sands, 2016). By clarity, it is meant that the information that is diffused on the internet should have immense transparency in it so that there are least chances of the occurrence of ambiguity (Dobni, Klassen, & Drummond Sands, 2016).

Providing the audience with new information can be tricky and highly risky as once the content of the message is delivered it will converse the manner in which the information is highlighted in the minds and perception of the different audience. Thus, the information delivered on the internet and social media should have clarity so that maximum number of people easily understands the precise message that the organization aimed at delivering (Dobni, Klassen, & Drummond Sands, 2016).

2.1.3 Dependency

According to most of the prior literature, the dependency factor is considered as one of the most significant factors that differentiates effective information on the internet from the irrelevant ones. Through the understanding build up by (Ting, Lim, Patanmacia, Low, & Ker, 2011), people are observed to be dependent on that information only which they regard to be necessary and the rest of information is discarded by people that can be common, irrelevant or does not provide any reliability in sources.
Moreover, Kharke (2016) explained dependency as the level of reliability and consistency that is present in any information or data provided. People only build trust relation with a company when they are assured that the information provided by the company is reliable and it is as accurate as explained (Ting, Lim, Patanmacia, Low, & Ker, 2011).

2.1.4 Responsiveness

Prior literature reviews strong connections between the effectiveness of information on the internet with responsiveness. Responsiveness is the capability of the business structure and processes to react to potential and targeted audience demands (Bhatt, Emdad, Roberts, & Grover, 2010). The kinds of flexibility essential to attain such responsiveness in the processes are dependent upon the organization’s efficiency and effectiveness (Pehrsson, 2014). Certainly, responsiveness is considered as a business strategy in order to integrate and express information in an effective manner (Bhatt, Emdad, Roberts, & Grover, 2010). The authors suggested in their study, that audience and customers are only retained and stay attentive towards a business’s information when they provide prompt responsiveness. This is made certain by interacting with the customers on constant basis so that the audience is able to develop a connection and not consider the information to be unimportant.

2.1.5 Customer Relations

The growing amounts of businesses that offer internet access are presenting users with a convenient and reasonable yet effective mode to turn into affiliates of the internet community. Recognized businesses and brands online are also developing increased awareness among consumers (Omar, Bathgate, & Nwankwo, 2011). The internet has demonstrated to be an extremely influential vehicle for marketing determinations and has developed into an immense opportunity for people to discover more about various distinct functions of any business. It has moreover provided businesses with the opportunity to develop strong relationships with their customers by communicating with them on a routine basis. Shin et al. (2017) proposed that such communications raise the organization’s capability to apprehend customer’s behavior, understand their requirements, resolve their frequently asked questions and queries and respond them whenever necessary. Improved and further effective use of information has been measured as a central factor in internet marketing for any company. Information is highly deliberated to have a vital significance in developing and sustaining strong customer relationships (Reijonen & Laukkanen, 2010). Additionally, the utilization of information on the internet mediums is perceived to lead to the improved overall performance of the business; since Business performance is the ultimate objective of every corporate organization (Umrani, Mahmood & Ahmed, 2016).

2.2 Empirical Review

The overall review and understanding through different articles and research of varying time has explained that the information world is deviating very fast and this is transforming the way people perceive information. Now whether this information is directly conveyed through a one on one manner or indirectly sent through various ways people contemplate and analyze critically. And since the competition is reaching its peak, it is highly important to not only send information but also maintain the information so that the relevancy never fades out. So this explains one thing very clear for any information to maintain good customer relation, give customers the ease of dependency and reliance it is important to have relevancy and so almost all the factors of this study are closely linked to each other when the discussion is related to information diffusion.

2.3 Research Framework

| Relevancy |
3. Methodology

3.1 Research Approach

This is an empirical research that has planned to attain information relating to the purpose of understanding the relationship of varying factors on information diffusion specifically in internet marketing. In order to accomplish validated results, the research in the following project will be conducted through quantitative research methodology under which the collection of data will be through structured close-ended questionnaires that come under primary method along with secondary data collection.

3.2 Research Design

The design of this research is Quantitative with descriptive design. More often this kind of research is expressed in statistics. The purpose is to explain statistically what is being apparent in the study and to comprehend the detailed results.

3.2 Sampling Design

To complete the research in the righteous manner and deliver the most accurate results it is significant to select the most appropriate sample. To attain information on how information diffusion takes place in internet marketing of BPO industry. The audience or sample selected is from one company working in this industry. This company is Genpact and the sample from it is selected randomly within the marketing department as well as the both genders are incorporated having age between 18 to above 40. Number of people participated in completing the survey is 40. Since this study is completely grounded on the BPO sector thus the targeted population is from a company working within the BPO sector. The sample size of the following study is 40; selected sample was random people working within the marketing department of Genpact Company. The following study will use simple random sampling technique that will be depending on randomization. The research will choose employees working in the marketing and social media departments of the company randomly.

3.3 Instruments of Data Collection
The following is an exploratory study discussing the cause and effect of various factors on a dependent variable that is effective information diffusion. It will help the researcher study the subject matter in an in-depth manner and attain reliable data for the variables studied. This study will be completed through a structured process having a primary Likert-scale close-ended questionnaire with all the variables incorporated and hypothesis are made to be tested by quantitative techniques and analysis will be presented based on the results attained. However, the data collection will be completed by both primary and secondary means.

3.4 Procedure of Data Collection
Primary data will be acquired directly from selected study sample that are the employees working in the organization under study that will provide information about which factors are significant while putting information on the internet for marketing purposes. The primary method to be utilized in this research for data collection will be structured close-ended Questionnaire.

4. Results and Findings
4.1 Analyzing the Data
The mere purpose of the following research project was to study the effect of various factors on the effective information diffusion in internet marketing. Thus, with this purpose those variables are presented that have the highest possibility of causing an effect on effective information diffusion in internet marketing during the process of a company’s digital interaction with the audience. These identified variables are as following:

**Independent Variables**
1. Relevancy
2. Clarity
3. Dependency
4. Responsiveness
5. Customer Relations

**Dependent Variables**
1. Effective Information Diffusion

The various independent variables are identified to be factors of effective information diffusion and so they have the possibility of having an effect on the presented dependent variable. The linear regression model has been applied on the gathered data.

The overall aim of completing this particular chapter of the study is to accomplish correct and precisely validated test results on the attained information for the study. The intended questionnaires for this study had five-point Likert scale points initiating with the first scale as “strongly disagree” and the last one as “strongly agree”. The outcomes have shown reliability as explained in the reliability analysis. The scale fused in this research to assess the questions was Likert Scale. The first part of the overall test is to examine the reliability of each, and every question incorporated within the questionnaire of this study. The following are the results achieved through the regression test on the survey:

<table>
<thead>
<tr>
<th>Scale: ALL VARIABLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case Processing Summary</td>
</tr>
<tr>
<td>N</td>
</tr>
<tr>
<td>Cases</td>
</tr>
</tbody>
</table>
Excluded\(^a\) & 0 & .0 \\
Total & 40 & 100.0 \\

### Interpretaion

It is a reliable assessment of a model, and Cronbach’s alpha is one technique of determining the strength of that reliability. The presented α figure of reliability ranges from 0 to 1 in delivering the general valuation of a measure’s consistency. If each scale items are completely independent from each other, for instance they are not interrelated or have no covariance, then α = 0; besides, if each item sustain a high covariance, then α will be towards 1 as the items in each scale are directed to infinity. Thus, in this following study the Cronbach’s alpha is 0.745 showing 74.5% covariance in all items of the scale and showing good reliability closer to the set range of 1, that means the overall model is fit and accepted and all items are included appropriately.

### Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.686(^a)</td>
<td>.471</td>
<td>.393</td>
<td>.51389</td>
</tr>
</tbody>
</table>

\(^a\) Predictors: (Constant), Customer_Relation, Clarity, Relevancy, Responsiveness, Dependency

### Interpretation

R-square, on the other side, is a statistical method that defines the extent of variance occurred within the association among the five variables. The value of R-square in this precise research is 0.471 that amounts to 47.1% showing the amount of independent and factors controlling the constant of the study that is the dependent variable. The residual 53.9% determines those particular elements that are not included in this particular research.
Interpretation

The ANOVA table within the regression analysis explains the reliability of the overall model. It explains whether or not the model has the acceptability in it. The significance value of the table explains its validity. Thus, here the sig. value is 0.00 that is less than 0.05 showing that the overall model is acceptable and has the validity to provide accurate results of all variables.

<table>
<thead>
<tr>
<th>Coefficients</th>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>1</td>
<td>1.725</td>
<td>.679</td>
<td>2.540</td>
<td>.016</td>
</tr>
<tr>
<td>Relevancy</td>
<td></td>
<td>.417</td>
<td>.124</td>
<td>.511</td>
<td>3.365</td>
</tr>
<tr>
<td>Clarity</td>
<td></td>
<td>-.512</td>
<td>.198</td>
<td>-.519</td>
<td>-2.581</td>
</tr>
<tr>
<td>Dependency</td>
<td></td>
<td>.307</td>
<td>.140</td>
<td>.380</td>
<td>2.193</td>
</tr>
<tr>
<td>Responsiveness</td>
<td></td>
<td>.550</td>
<td>.172</td>
<td>.530</td>
<td>3.198</td>
</tr>
<tr>
<td>Customer Relation</td>
<td></td>
<td>-.129</td>
<td>.128</td>
<td>-.150</td>
<td>-1.001</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Effective_Information_Diffusion
b. Predictors: (Constant), Customer_Relation, Clarity, Relevancy, Responsiveness, Dependency

Interpretation

This is the coefficients table that has all the variables added in it along with their overall results. The important things determining the test outcomes are acceptance and rejection of each variable are t-value and sig. value. The first thing to see is the sig. value. Just like the sig. value of relevancy is 0.002 that is less than 0.05. If the significance is less than 0.05 it means the variable is supporting the hypothesis and it is accepted explaining relevancy has an impact on the constant that is effective information diffusion. On the other hands, the 0.324 sig. value of customer relations shows that there is no impact of this variable on the effective information diffusion in internet marketing because the sig value of 0.324 is greater than 0.05.

The next thing to see is the t-value for which the range is greater than 2 to be accepted showing association among the variables comprising independent and dependent both. Let’s assess the t-value of 2.193 and 3.198 for dependency and responsiveness respectively are greater than 2 showing that both variables have association and impact on the constant.

The study and results have shown that customers’ relations have no significant impact on the effective information diffusion in internet marketing with this particular industry.
4.2 Hypothesis Assessment Summary

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Sig.</th>
<th>Result</th>
<th>Gradient (Beta, β)</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1  Relevancy has a significant impact on effective information diffusion in Internet marketing in the BPO Company.</td>
<td>0.002</td>
<td>Supported</td>
<td>0.511</td>
</tr>
<tr>
<td>H2  Clarity has a significant impact on effective information diffusion in Internet marketing in the BPO Company.</td>
<td>0.014</td>
<td>Supported</td>
<td>-0.519</td>
</tr>
<tr>
<td>H3  Dependency has a significant impact on effective information diffusion in Internet marketing in the BPO Company.</td>
<td>0.035</td>
<td>Supported</td>
<td>0.380</td>
</tr>
<tr>
<td>H4  Responsiveness has a significant impact on effective information diffusion in Internet marketing in the BPO Company.</td>
<td>0.003</td>
<td>Supported</td>
<td>0.530</td>
</tr>
<tr>
<td>H5  Customer Relations has a significant impact on effective information diffusion in Internet marketing in the BPO Company.</td>
<td>0.324</td>
<td>Not Supported</td>
<td>-0.150</td>
</tr>
</tbody>
</table>

5. Discussion and Conclusion

This particular study has concluded by showing the increased significance of information diffusion in internet marketing. Even though it is believed that internet marketing has become vital for each and every business sector to endeavor for a longer time in effective manner. However, studying the BPO industry was necessary as it is one of the growing sectors. The study has depicted, in majority, almost all the factors have a positive influence on the effective information diffusion in internet marketing and that more and more focus should be diverted to how the information is going on internet.

Obtaining customers and sustaining them through internet has become necessary thus information of company that is going digital must have relevancy, dependency, clarity and responsive to effectively interact with the customers. This subject matter is new in the internet sector thus people have contemplated on it in a keener manner to know how internet marketing is changing or shaping the image of the company digitally.

The objective of this study was to attain results on the factors that impact and manage the information diffusion in internet marketing specifically in the BPO industry. And so the study researcher deliberated on critically analyzing the prior research on this subject matter and attained few factors as the variables that have the potential to effect information
diffusion in internet marketing. Over here there were five variables selected to cause an impact on effective information diffusion. These variables were previously discussed by other researchers just like (Khare, 2016) discussed in their literature that dependency has a greater impact on information diffusion as people do not accept an information on internet unless it has dependency in it. Thus, the following study has also shown that people believe that dependency is important. Moreover, (Bhatt, Emdad, Roberts, & Grover, 2010) in their research explained that only the information that has the ability to revert back with responses is considered an active information thus responsiveness shows a higher level of significance on information diffusion during internet marketing processes. In comparison our research has shown that effectiveness of information diffusion is highly affected by responsiveness as the sig. value is 0.003 < 0.05 depicting that the hypothesis is accepted. Similarly, Kasabov (2016) proposed that relevancy and clarity in an information is vital to attain greater impact on the audience. The people online perceive information by the level of clarity it has which also proves its relevancy. The information should always be in simple language and easier fonts so that more and more people are able to connect with it. Information moreover should always have flow to attain relevancy. Thus, these two remain among the important factors managing effective information diffusion and so this research has shown that they have noteworthy effect on the dependent variable with the sig. value of 0.002 and 0.014 depicting that the hypothesis are accepted.

The survey of this study was completed through five-point Likert scale questionnaire having a close-ended structured question incorporating all 5 items or factors of the study. To further achieve results for the following survey the responses and collected data is measured through Linear Regression test. The regression analysis has tested covariance and reliability of each factor and depicted that all the variables except customer relations has a sig. value of less than 0.05 showing they are significant. However, customer relations have less or no effect on information diffusion in internet marketing, with a sig. value of 0.324 it has rejected the hypothesis that customer relationship has a significant effect on information diffusion in internet marketing in the BPO industry. The generalized aim of the study was to answer the research questions that which factor effect information diffusion in internet marketing. And here all the questions are answered by showing positive results and only one variable has no such affect. Thus, relevancy, dependency, clarity and responsiveness have positive and significant impact whereas customer relation has no relation with information diffusion. So, the hypothesis of four variables are accepted, only one is rejected.

5.1 Implications

The findings and discussion of the research suggest that information diffusion in internet marketing is yet a new phenomenon for this social community and it is immature to a level that individuals are not able to appropriately think of it. It is significant to increase more understanding on this problem in order to attain greater comprehensions on the subject and issue. The study has however provided some very positive results explaining that information diffusion is one of the most important topics of discussion. People were observed taking more keen interest on knowing about what factors run the overall information diffusion in internet marketing since digitalization is becoming one of the fastest growing marketing platforms and everyone seeks opportunity here. The research has remained very informative overall and opened a new prospect for future researchers to attain more data on the subject.

References


**Questionnaire**

**a. Factors Managing Effective Information Diffusion**

<table>
<thead>
<tr>
<th>Relevancy</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>We try to design the most attractive post to publish on the internet for our audience.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>In order for our targeted audience to connect with the information, we provide source and existing references in our content online.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>We focus on delivering up-to-date information so that it answers the present-time queries.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>Our content online strives to attain relevancy and reached maximum audience.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>People only believe on information on the internet if it has relevant source and effective content.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Clarity</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Information on internet must have high transparency.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>Our information on interest is short, interesting and has clear message.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>We emphasize highly to deliver information on the internet with clarity.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dependency</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>We have strategist who works to deliver reliable information about the company online.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>Effectiveness in information for internet marketing needs to have dependency factor.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>People remain dependent on information that seems concerning with strong reliability.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Responsiveness</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>We believe information should be interactive on internet to gain responsiveness.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>We have designed the most effortless ways to approach us on internet for our audience.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>Responding in a timely manner is vital to sustain effective information.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>We respond to the audience needs through our information on internet in a prompt manner.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>Responsiveness has a great impact on effective information diffusion on the internet for this company.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Customer Relations</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Internet marketing has immensely supported this company to sustain strong relationship with targeted audience.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
We strive to build connectivity and communication through blogs and vlogs on our page.

Our targeted audience shows willingness towards our information and response rate is quite high.

We will provide information more actively with aim to build more customer relations.

If targeted audiences share their knowledge with us, we try to exchange even more information with them.

### Effective Information Diffusion

1. We believe maximum audience is attracted on Internet through effective information diffusion.

2. Effective information diffusion is significant for successful internet marketing.

3. BPO industry necessitates effective information diffusion in internet marketing.

4. We pay keen attention on the information that goes on internet.

---

**Personal Information**

Please provide the following details and ‘tick mark’ on the answer that apply to you:

**Name:** __________________________________________________________

**Designation:** ______________________________________________________

**Contact #** _______________________________________________________

**Email ID.** _______________________________________________________

**Gender:**

- Male
- Female

**Age:**

- 20 – 25 years
- 26 – 30 years
- 31 – 35 years
- 36 – 40 years
- 41 – 45 years
- 46 years or above

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Impact of Public Wellness, Competitiveness and Government Effectiveness on Quality of Education: A Panel Data Analysis of Asian Countries

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Abstract. The present study attempts to examine the impact of Public wellness, competitiveness and government effectiveness along with Literacy rate and Population growth on quality of education. For this research, the panel data has been collected over the period of 25 years for 10 Asian countries from World Bank and Global Economy data base. The data is specific to employed variables. Different statistical test was applied on the valid data like Heteroskedasticity, Autocorrelation, Cross-section dependence and Multicollinearity, and the estimation of static and dynamic GMM. The results show that, public wellness, Government effectiveness, literacy rate and population growth significantly impact the quality of education in Asian Countries. Whereas, the insignificant impact of competitiveness was evidenced from outcomes of the research. Also, the study embraces several theoretical, practical and policy making implications for the government to improve the quality of education and devise the policies for its efficiency and the policies for enhancement of wellness in its citizens. Lastly, various limitations have been given along with the recommendations for in-depth findings by the future researchers.

Keywords: public wellness; competitiveness; government effectiveness; quality of education; Asian countries


JEL Codes: R58, O53

1. Introduction

Education is the backbone of country’s prosperity, wellbeing of individual and a source of income. Now a day only education is not required but in addition focus is given on the quality of education. Asia is the largest and the most populated continent on this planet. It accompanies diverse situation of quality of education in the region. High income countries like China, Turkey, Maldives the situation of literacy is much better as their literacy is above 90%. Middle income countries like Pakistan, India, central Asian countries the situation of literacy is mediocre and much more is needed be done whereas, the situation of literacy is worst in low income countries like Afghanistan and Iraq. The literacy rate of Afghanistan is critically low 37% and girl’s education is gives alarming statistics of 17% as per Transparency International Reports in 2018. The key factors that can influence the quality of education in any country are public wellness, competitiveness and government effectiveness. Public wellness includes variety of other socioeconomic and health factors (Wilson-Anstey, Lambert, & Krog, 2019). The health of students is very critical as they spend almost 2 to 5 hours at their educational institution. If the health of the student is not good, then there will be increased chances of less attendance and lack of interest in the studies. Socioeconomic factors also contributes as the students will better background will be able of focus more on their health and have regular check-ups than a student will less income background (Garg, Homer, & Dworkin, 2019). Another factor is competitiveness
that not only motivates the student but the institution to achieve more. Competition among students and then schools makes the quality of education much effective and better (Al-Sartawi et al., 2019; Davis & Wilson, 2019). The third factor that is critical for the quality education is the government effectiveness. Better education policies, implementation of those polices and generating education funds ensures in government effectiveness. It is the task of government to ensure the wellbeing of the students and families so that there will be no hurdle in gaining the education. In developing countries the drop out ratio of students after primary education is very common. Government should make policies in this regard and start the scholarships to ensure the enrolment of the students in the schools. For higher education, funds for the research project should be generated so that the students can peruse their project without compromising on the quality (Rapacha, 2018; Sabbagh, Gedawy, Alshikhabobakr, & Razak, 2017).

Figure 1. shows more students seek mental health support in 2016-2017

Despite the various affords done by the governments of Asian countries, level of quality of education is declining in developing countries of Asia. To increase the quality of education government of Asian countries are working on public wellness, competitiveness and government effectiveness. The study has tried to fill lacunas in literature by conducting empirical research using panel data of Asian countries to explore the linkages of educational quality with government scholarship, technical training, and R&D. A lot of work is done and much more is needed in these factors to improve the quality of education. Previous studies have been done in assessing factors influencing quality of education in different regions of the world. In this study, we will discuss the impact of these factors especially in Asia. So, following are the objectives of present study:

1. To analyse the impact of public wellness on the quality of education.
2. To analyse the impact of competitiveness on the quality of education.
3. To analyse the impact of and government effectiveness on the quality of education.

In the present study, we discuss the impact of on public wellness, competitiveness and government effectiveness in prospective of Asia. This study will help to undines the areas where special attention need to be focus to eradicate the negative impacts of factors under study in reference to quality of education.
2. Literature Review

2.1 Impact of public wellness on the quality of education

The learning crisis in Asia especially in South East Asia is very critical. The factors the effect the quality of education in this region is poverty accompanied by the declined level of public wellness. According to The World Bank reports in 2015, the majority of the children in the South East Asia are malnutrition and the root cause is poverty. Increasing the enrolment in the school should not only be the concern by the government but also wellbeing of the child. (Zodpey et al., 2012) studied that due to immerse educational syllabus, economic pressure and keeping pace with the new scientific performances the health of the medical student’s decline (Patrinos, 1990; Pfeffer, 2015; Zeichner & Conklin, 2017). This study was conduct in five Asian countries including India, Bangladesh, Vietnam, China and Thailand (Olasupo & Idemudia, 2017; Rai, Dua, & Yadav, 2019). The results of the survey suggested that the decline in health of the student is directly proportional to the quality of education (Zodpey et al., 2018). Zhou, Xin, & Du et al., Suggested that in the past three decades the migration of individuals from rural to urban areas is seen. This brings a lot stress for the students including mental and physical decline of health (Zhou, Xin, & Du, 2019). Due to this the children belonging to low income background are gaining low quality of education and facing cognitive developmental issues. Decline in the mental and physical health decrease the concentration from the education (Dinç Aydemir & Aren, 2017; Gong & Yi, 2018; Muda, 2017).

Patwa, Peverly et al., suggest that there should be a psychologist in every school to ensure the mental wellbeing of the children. In India one third of the students live in the slums. These students got various diseases from their environment. These illness are hindrance in the quality of education (Patwa, Peverly, Maykel, & Kapoor, 2019). Kok & Low performed a study in Malaysia to evaluate the decline in mental health due to academic and economic stress (Umran, Siyal, Ahmed, Ali Arain, Sayed & Umran, 2019). The results of the study reveal that the increased curriculum and increased expectation from the institution declines the health of the student. And later this factor contributes in the decline in the quality of education (Kok & Low, 2019). The same situation is studied in Korea as well (Phosaly, Olympia, & Goldman, 2019). Special children like on dealing with Autism, due to unavailability of educational institutes in the developing countries are also declining the quality of education in the region (Phosaly et al., 2019).

H1: Public wellbeing has positive impact on the quality of education.

2.2 Impact of competitiveness on the quality of education

Sulisworo studied the role of competitiveness in the quality of higher education in the East Asian countries. The study found the competitiveness in the educational sector in the South Korea, Hong Kong and Singapore have invited various prestigious institutes of the world to open there campus in their country (Sulisworo, 2016). Istvan et al., suggested that more competitive will be the institution more students will apply for their programs. Lack of competitiveness decrease the quality of education and this will later result in the shortfall in applying students as happen in the developing countries of the Asia (Istvan, Darabos, & Orsolya, 2016). (Keser et al., 2012) suggest that the incorporation of new technology in the education sector is due to competition of educational institutes. This technology will further help in raising the economy. According to the study, tertiary education produces both private and public-sector jobs’ the country (Keser, 2015). According to the study, tertiary education produces both private and public-sector jobs. Quality of higher education has an impact the competitiveness of both people and organizations from the point of view of the public domain. This will influence the student to get in to entrepreneurship leading to the economic progress of the country (Altuntepe & Güner, 2013).
H2: Competitiveness has significant impact on the quality of education.

2.3 Impact of government effectiveness on the quality of education

Siddique et al., assessed the impact of government effectiveness and impact of its polices in the SAARC countries (Siddique, Shehzadi, & Shaheen, 2016). The outcome of the study suggest that lack of government polices effectiveness is declining the quality of education in South Asia. Sen et al., in the World bank report of the year 2014 suggested that higher education is highly influence by the polices made by the government (Sen, 2015). There is a direct relationship between effective governance and quality of education. The empirical findings of their study imply that after the completion of technical courses, teachers’ confidences and pedagogical skills increased significantly and 70 percent teachers found the course useful for improving their pedagogical skills. The empirical studies also support the importance of technical training and technical courses in inculcating the technical skills in teachers to meet the dynamics of education standards. According to Dar, Jabeen, Jadoon, and Dar (2016) faculty development programs and technical training of teachers raise the abilities and technical skills of the teachers. In order to analyze the impact of faculty development program on the performance of public sector universities of Pakistan, they used the survey data of 95 faculty members of various public sector universities. The study employed thematic analysis to analyze the results, which illustrates that faculty development programs, by providing technical training to teachers, improves the overall quality of learning in higher education.

H3: Government effectiveness has significant impact on the quality of education.

3. Methodology

3.1 Data

The collection of data is the foremost and vital step in the process of research as it enables the author to initiate the research. For determining the authentic results, the collection of accurate data is essential. Considering the significance of accurate and reliable data, the data of 10 Asian countries including Indonesia, India, Thailand, South Korea, Sri Lanka, Vietnam, Malaysia, Japan, china and Bahrain over the period of 25 years has been collected by the current study from trustworthy and authentic sources. The database of World Bank and Global Economy Portal was utilized for gathering the information about the incorporated variables. The reliability of the collected data has been ensured as it effects the authenticity of the obtained results. The key variables of the study comprise of Public Wellness, Competitiveness, Government Effectiveness and Quality of Education.

3.2 Model Specification

The model specification is another vital step in the research process once the data has been collected. Firstly, the categorization of variables in terms of dependent, independent and control variables is done along with their units of measurement. The current study incorporated Quality of Education (QE) as the dependent variables, whereas Public Wellness (PW), Competitiveness (CO), and Government Effectiveness (GE) are included as independent variables. Similarly, the present study involves two control variables i.e. Population Growth (PG) and Literacy Rate (LR). The mentioned variables are measured with different units as discussed follows: The Government effectiveness is measured with the Government effectiveness index on a scale ranging from -2.5 to 2.5. The variable Competitiveness is measured by world economic forum index ranges form 1-7. The literacy rate is measured with the percentage of educated citizens and the population growth is measured in terms of annual percentage change. Likewise, the quality of education is measured by global competitiveness index on quality of education system with a scale of 1-7. The following regression equation is formulated with the incorporation of above-mentioned units and notations,
In the above equation, QE shows quality of education, PW shoes public wellness, GE shows Government effectiveness, CO shows competitiveness. While, LR denoted Literacy rate and PG denotes Population growth, while \( \varepsilon_{it} \) is representing the error term.

\[
QE_{it} = \alpha + \beta_1 PW_{it} + \beta_2 GE_{it} + \beta_3 CO_{it} + \beta_4 LR_{it} + \beta_5 PG_{it} + \varepsilon_{it}
\]

In the above equation, QE shows quality of education, PW shoes public wellness, GE shows Government effectiveness, CO shows competitiveness. While, LR denoted Literacy rate and PG denotes Population growth, while \( \varepsilon_{it} \) is representing the error term.

### Authors
- **(Kalim, Arshed, & Shaheen, 2019)**
  - Country/Group: 15 low income counties
  - Period: 2006-2015
  - Variables: Inclusive growth, and competitiveness,
  - Methodology: Panel GMM moderator model
  - Results: Strong association between inclusive economic growth and competitiveness was found. It is indicated that competitiveness helped the institutions to become more productive.

- **(Afonso & Jalles, 2016)**
  - Country/Group: 140 countries
  - Period: 40 years
  - Variables: Government effectiveness, institutions growth, government size.
  - Methodology: GMM panel data approach, common correlated effects
  - Results: The results shows the positive impact of government effectiveness on institutional growth of education sector. The results show that government effectiveness are positively related to development.

- **(Afolabi, 2019)**
  - Country/Group: West African countries
  - Period: 2002-2016
  - Variables: Governance, regulatory quality, government effectiveness and institutional development,
  - Methodology: System GMM approach
  - Results: The results show that government effectiveness are positively related to development.

### 3.3 Estimation Procedure

The details of the applied estimations and procedures and approaches are discussed in this section. The applied test comprises of unit root test and General Methods of Movement (GMM) estimations.

#### 3.3.1 Application of Unit root test

For the confirmation of stochastic attributes of the variables, in addition with their integration orders, the unit root tests of “Levin–Lin–Chu (LLC)” (Breitung & Das, 2005)is applied in the current study. In comparison to the time series unit root tests, these tests have advantages of overcoming the problem related to size and power of technique of individual time series. Also, it is mentioned in the literature that for a standard normal distribution, the panel root test statistics is convenient. This test is the extended form of Dickey-Fuller unit root tests utilized in time series approach. For the LLC test, the basis of null hypothesis of the variables are considered on the assumption of unit root against the alternative hypothesis of absence of unit root in the series. The identification of null hypothesis is done on the basis of unit root and non-stationary property of data. Whereas, the absence of unit root and stationary property of the data is used as the basis for the identification of alternate hypothesis. The rejection and acceptance of these hypothesis determines the result of unit root tests. In addition, it is assumed that, across the cross sections,
the similar autoregressive process was followed. The following equation represents the structure of the unit root test:

\[ \Delta y_{it} = \alpha_i + py_{i,t-1} + \sum_{j=1}^{p_i} \alpha_j \Delta y_{i,t-j} + \epsilon_{i,t} \]

### 3.3.2 Application of Diagnostic tests

To address the problems of cross section dependence, autocorrelation, and heteroskedasticity in panel data, the model is tested for “modified Wald and Breusch-Pegan/CookWeisberg heteroskedasticity test, Wooldridge test for autocorrelation, VIF test for multicollinearity and cross-section dependence test” of (Pesaran, 2004). In addition, for checking the possibility of any multicollinearity bias, the results of correlations among variables are examined.

### 3.3.3 Application of system-GMM approach

The generalized methods of moments is the general framework utilized for deriving estimators. It is based on the assumptions about the random variable moments to determine objective function (Blundell & Bond, 2000). It is used for the estimation of dynamic models of panel data. The “GMM-SYS estimator” is the system which contains the level and first difference equations. Which is the alternative of “standard first difference GMM estimator” (Arellano & Bond, 1991). It is evidenced in the literature that the regression models of panel data are exposed to problems of heteroskedasticity, autocorrelation and cross section dependence along with multicollinearity. To address these problems of cross section dependence, autocorrelation, and heteroskedasticity, the model is tested for “modified Wald and Breusch-Pegan/CookWeisberg heteroskedasticity test, Wooldridge test for autocorrelation, VIF test for multicollinearity and cross-section dependence test” of (Pesaran, 2004). Also, the correlation among variables is examined for determining the relationship among variables. Thus, the following equation has been incorporated for the application of GMM model:

\[ \hat{y}_{it} = \alpha_i + y_{i,t} + \sum_{p=1}^{P} B + \sum_{q=1}^{Q} B + \sum_{r=1}^{R} B + E_{i,t} \]

In the mentioned model, the quality of education of 10 Asian countries is represented with \( \hat{y}_{it} \), the constant term is represented with \( \alpha_i \). \( y_{i,t-1} \) denotes the lag value of quality of education, \( Z_{it} \) represents the predictor variables, while \( E_{i,t} \) is the error term. In addition, the unobserved factors of quality of education is represented with \( v_{it} \) and \( e_{it} \) shows the idiosyncratic errors.

### 4. Empirical Analysis

#### 4.1 Results of Unit Root Test

In order to identify the stationary properties of the data which have been collected for the analysis, the author applied LLC (Levin Lin Chu) test. For the LLC test, the basis of null hypothesis of the variables are considered on the assumption of unit root against the alternative hypothesis of absence of unit root in the series. The identification of null hypothesis is done on the basis of unit root and non-stationary property of data. Whereas, the absence of unit root and stationary property of the data is used as the basis for the identification of alternate hypothesis. The presented results are based on the rejection and acceptance of null hypothesis for level and 1st difference both. When LLC test was applied, as shown from table 1 all the variables in the level series were found to be stationary except PG and LR which are non-stationary. But when the 1st difference is applied, all of them become stationary. So, all these facts and results show that all the variables that are included in this study are stationary.
Table 1. LLC unit root

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Level</th>
<th>1st difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>PW</td>
<td>-2.633</td>
<td>-5.498**</td>
</tr>
<tr>
<td>CO</td>
<td>-3.983</td>
<td>-4.393***</td>
</tr>
<tr>
<td>GE</td>
<td>-3.59</td>
<td>-6.298***</td>
</tr>
<tr>
<td>PG</td>
<td>-4.237*</td>
<td>-7.583***</td>
</tr>
<tr>
<td>LR</td>
<td>-3.483*</td>
<td>-5.548***</td>
</tr>
<tr>
<td>QE</td>
<td>-2.485</td>
<td>-9.348**</td>
</tr>
</tbody>
</table>

4.2 Results of Diagnostic tests

For obtaining the accurate statistical inferences, the diagnostic checks are applied on the data with the application of modified Wald and Breusch-Pegan/Cook-Weisberg heteroscedasticity test, Wooldridge test for autocorrelation, VIF test for multicollinearity and cross-section dependence test developed by (Pesaran 2004). The results are presented in table 2 and 3. The results shows the significant heteroskedasticity levels and among the variables, and also the cross-section dependence is observed.

Table 2. Diagnostic checks

<table>
<thead>
<tr>
<th>Heteroskedasticity</th>
<th>MW. Breusch-Pagan/Cook-Weisberg</th>
<th>$\chi^2$-value: 9.13**/ $\chi^2$-value: 4.98*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autocorrelation</td>
<td>Wooldridge</td>
<td>F-statistic: 6.93*</td>
</tr>
<tr>
<td>CD dependence</td>
<td>Pesaran</td>
<td>Test statistic: 2.042*</td>
</tr>
<tr>
<td>Multicollinearity</td>
<td>VIF</td>
<td>Mean VIF: 2.94</td>
</tr>
</tbody>
</table>

Table 3. Correlation Matrix

<table>
<thead>
<tr>
<th>Variables</th>
<th>PW</th>
<th>CO</th>
<th>GE</th>
<th>PG</th>
<th>LR</th>
<th>QE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PW</td>
<td>1</td>
<td>.548</td>
<td>.502</td>
<td>.395</td>
<td>.492</td>
<td>.234</td>
</tr>
<tr>
<td>CO</td>
<td>.548</td>
<td>1</td>
<td>.582</td>
<td>.344</td>
<td>.394</td>
<td>.542</td>
</tr>
<tr>
<td>GE</td>
<td>.502</td>
<td>.582</td>
<td>1</td>
<td>.284</td>
<td>.399</td>
<td>.362</td>
</tr>
<tr>
<td>PG</td>
<td>.395</td>
<td>.344</td>
<td>.284</td>
<td>1</td>
<td>.283</td>
<td>.583</td>
</tr>
<tr>
<td>LR</td>
<td>.492</td>
<td>.394</td>
<td>.399</td>
<td>.283</td>
<td>1</td>
<td>.582</td>
</tr>
<tr>
<td>QE</td>
<td>.234</td>
<td>.542</td>
<td>.362</td>
<td>.583</td>
<td>.582</td>
<td>1</td>
</tr>
</tbody>
</table>

4.3 PCSE estimation Results

In order to apply GMM approach estimations, suggested by (Arellano & Bover, 1995; Blundell & Bond, 2000), to eliminate the problem of endogeneity, the dependent variable’s lagged values are used. The literature emphasized the importance of “first-differenced GMM and “system GMM” approach (Blundell & Bond, 2000). It is identified that the 1st differentiated model is not effective in providing the accurate results in the presences of small sample size. And it is highlighted by (Bond & Windmeijer, 2002) that system GMM application provides the accurate results with the high accuracy, due to the utilization of large number of instruments, and the connection of in the levels regression with the regression in first-difference. In addition, the system GMM model is applied as it addressed the sample size bias along with the improved precision of the model. The two major techniques i.e. static
estimation and dynamic estimation was estimated by the current study to mitigate the issues of cross section dependence, heteroskedasticity and determination of robust standard errors.

The static estimation by using “Prais-Winsten regression” was performed with “correlated PCSE and dynamic estimation” by utilizing the “one step system GMM estimation”. It is required to incorporate the dynamic and static estimation in order to ensure that the findings are robust. The country and time fixed effects are applied for capturing the heterogeneity which is unobserved. The assumption of “PCSE estimation” is that across the panels, the disturbances are contemporaneously correlated and possess heteroskedasticity and have the ability to handle the panel which is unbalanced

Table 4 represents the GMM estimations both dynamic and static. It is indicated from the results that PW is significant in both dynamic and static estimations and indicating that public wellness has significant impact on quality of education. Similarly, it is shown that (GE) Government effectiveness also had a significant impact on the quality of education in Asian countries according to dynamic and static estimations. In the same way, dynamic and static estimations show that the variable (PG) Population growth and (LR), literacy rate have a significant impact on quality of education in selected countries of Asia. Contrary, no significant impact of competitiveness level on the quality of education is observed from the results of both the estimations.

Table 4. Results from PCSE estimation

<table>
<thead>
<tr>
<th>Dependent Variable = QE</th>
<th>PCSE estimation</th>
<th>Sys-GMM estimation</th>
</tr>
</thead>
<tbody>
<tr>
<td>PW</td>
<td>0.219** (0.582)</td>
<td>0.201** (0.282)</td>
</tr>
<tr>
<td>CO</td>
<td>0.103 (0.891)</td>
<td>0.104 (0.768)</td>
</tr>
<tr>
<td>GE</td>
<td>0.294** (0.745)</td>
<td>0.284** (0.683)</td>
</tr>
<tr>
<td>PG</td>
<td>0.139* (0.931)</td>
<td>0.140* (0.485)</td>
</tr>
<tr>
<td>LR</td>
<td>0.194** (0.438)</td>
<td>0.183** (0.344)</td>
</tr>
<tr>
<td>Constant</td>
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<td>0.492** (0.759)</td>
</tr>
<tr>
<td>R²</td>
<td>0.638** (0.841)</td>
<td>-</td>
</tr>
<tr>
<td>No. Of Observations</td>
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<td>-</td>
</tr>
<tr>
<td>No. of Instruments</td>
<td>-</td>
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</tr>
<tr>
<td>Arellano-Bond test for AR (1) (Pr W z)</td>
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<tr>
<td>Arellano-Bond test for AR (2) (Pr W z)</td>
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</tr>
<tr>
<td>Hansen test of overid restrictions</td>
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</table>
5. Discussion and Conclusion

5.1 Discussion

The present study is conducted in order to investigate factors that affect the quality of education in Asian countries. For this purpose, the impact of Public wellness, competitiveness, and Government effectiveness is examined on the quality of education. Also, the impact of control variables i.e. Literacy rate and Population growth is also analyzed. Multiple hypotheses have been formulated to investigate the relationships. For hypothesis testing system GMM approach was applied. It was assumed that the level of public wellness possessed by the citizens Asian countries have significant impact on the quality of education. This hypothesis was accepted as the wellness levels in terms of health, way of living and satisfaction with current human development policies, the quality of education system will be improved. The results are consistent with the findings of (Sun et al., 2017). The next hypothesis was that level of competitiveness has significant impact on quality of education, this hypothesis was rejected as no direct association between a country’s overall competitiveness level and its education system was observed, because the other factors like government expenditures, the number of educated citizens, quality controls and educational policies determine the effectiveness of the education quality. The other hypothesis was that government effectiveness has certain significant impact on quality of education. The author has tested this hypothesis and has declared it as accepted as the effective governmental policies in the educational decisions like education budget, educational investment, development of educational institutes, expenditures on education infrastructure of a country determines the quality of its education system (Odhiambo, 2011; Oldfield & Baron, 2000; Ossiannilsson, Williams, Camilleri, & Brown, 2015). The results are consistent with the findings of (Solihin, Mursinto, & Sugiharti, 2017). Also, the impacts of two control variables i.e. Literacy rate and Population growth in influencing quality of education have also been found as significant. As the high literacy rate leads towards educated citizens and human capital and led towards the overall improved education system of the country, the effective mechanism for increasing the literacy rate should be devised. These results are also in accordance with previous study of Dufara (2017).

5.2 Conclusion

The motive of the study is the investigation of factors that impact the quality of education in Asian countries. This had been studied with analyzing the impact of Public wellness, Government Effectiveness and country Competitiveness in the presence of control variables i.e. Literacy rate and Population growth. For this research, the panel data has been collected over the period of 25 years for 10 Asian countries from World Bank and Global Economy data base. The data is specific to employed variables. After the completion of data collection, several tests were applied in order to test the hypotheses using the system GMM approach. The tests include LLC unit root test, diagnostic tests of Heteroskedasticity, Autocorrelation, Cross-section dependence and Multicollinearity, and the estimation of static and dynamic GMM. The purpose of these tests was to examine the impact of incorporated variables on the quality of education. In the last, various limitations have been given along with the recommendations to resolve and improve them effectively by the future researchers.

5.3 Implications

The quality of education is the vital component for the growth of country as it determines the competivenees of its citizens and enhances the chances of development of a country. In this study the determinants of quality of education in Asian countries was examined with the incorporation of public wellness, Government effectiveness and competitiveness level, literacy rate and population growth. Based on the research objective, the study embraces several theoretical, practical and policy making implications that will improve the education quality in the examined countries of Asia with the participation of citizens with high degree of wellness, effectiveness of government in educational policies and enhancement of literacy rate. The study will provide assistance to future researchers in
understanding the determinants for judging the quality of education throughout the world. Also, the study will guide the governmental authorities to reevaluate their governance systems effectively for the education sector along with the focus on well-being of the citizens as their satisfaction with their wellbeing determines the smooth functioning of the overall education system. In addition, it is indicated that literacy rate determines the quality of education, it is suggested to devise policies for upgrading the education system and enhancing the literacy rate of the country.

5.4 Limitations and Future research indications
Like many other studies, this study is also not free from certain limitations and loopholes, which can be effectively filled by future researchers to improve the quality of their researches. The sample size of data can be increased to determine more comprehensive results. The study is concentrated on Asian countries only, the specific tests have been used in this study which limits the scope of the study. For covering the stated limitations, the researchers can increase the sample size of the collected data. Any other region, Other than Asia can also be used along with panel data approach for increasing the study scope.

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FORMS OF INTERSECTORAL INTEGRATION IN AGRICULTURE

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Annotation. The process of intersectoral integration is facilitated by the development of strategies for the changing economic environment to increase the stability of integrated structures. The nature of integration processes is determined by the features of product subcomplexes, the conditions of commodity markets, the economic behavior of producers, regional and other factors. In the implementation of the algorithm for selecting an effective form of integrated formation, the rationale for an effective integration mechanism becomes important. Economic relations arising from the restructuring of individual industries by creating a range of vertically integrated structures that can become the basis for the stable functioning of the country's agricultural sector are becoming relevant. Reasons for joining include: increasing market competition; motives for reducing production costs and risks, implementing a common sales strategy in marketing, purchasing, advertising, and expanding sales markets; attracting investment; and the need for financial recovery of production.

Keywords: intersectoral integration, agro-industrial complex, communications, interaction, integrated structures, enterprises, factors, methods, methodology, grain market, resources, holding, The Republic of Kazakhstan


JEL Codes: R11, R58

1. Introduction

The most important direction for improving the efficiency of agricultural enterprises is the development of intersectoral agricultural integration, integration relations at a qualitatively new level and the formation of integrated structures. In the process of integration, strategies are developed to adapt to the changing economic environment in order to survive and increase the stability of integrated structures. Features of product subcomplexes, conditions of commodity markets, economic behavior of producers, regional and other factors determine the nature of integration processes (Ushachev et al., 2018; Ushachev, 2015; Monni et al., 2017; Bublienė et al., 2019; Petrenko et al., 2019; Akhmadeev et al., 2019; Havierníková, Kordoš, 2019; El Idrissi et al., 2020).

The rationale for an effective integration mechanism involves the implementation of an algorithm for selecting an effective form of integrated formation; at the first stage of which, the analysis of factors that affect the effectiveness of integration processes (including such uncontrolled factors as the macroeconomic situation, soil and climate conditions, political factors), as well as a comprehensive analysis of the commodity and financial markets to assess the competitive advantages of the integration chain and its individual links and the choice of effective competitive strategies is carried out.

The second stage provides for the selection of specific integration options based on the Bank of integration forms and mechanisms, which should be created on the basis of generalization of the experience of integration of
industrial, agricultural, trade and financial capital in Kazakhstan and economically developed countries. At the third stage, alternative integration options are evaluated. In General, due to integration, the efficiency of the enterprise without large investments of additional funds can increase in the first year of operation in the new conditions by 30-60% only by activating internal capabilities and taking into account the external environment. At the same time, several integration options can be used, which are most suitable for each specific enterprise.

The final choice of direction can be made based on the results of a SWOT analysis of integration options for various types of business associations. Currently, economic relations that arise on the basis of the restructuring of individual industries by creating a wide range of different vertically integrated structures that can become the basis for a stable revival of the agricultural sector are becoming relevant (Altukhov, 2014).

The main reasons that force enterprises to join are: increased market competition; the desire to reduce production support; reducing risks, dangers and threats, including by diversifying activities; centralizing the implementation of the overall sales strategy (marketing, purchasing, advertising, sales, obtaining trademarks, etc.); improving production efficiency; expanding sales markets; attracting investment; the need for financial recovery of production.

2. Methods of research

The development of intersectoral integration between agricultural and processing enterprises requires a set of interrelated organizational and economic methods of influencing the interests of all parties. When forming these methods of influence, economic relations should be oriented towards achieving the following goals: solving the problem of equivalence of exchange; achieving consistency of interests; ensuring proportionality and rhythm of joint production.

As a result, strategic goals are formed, the most important of which are: improving the management of financial flows; obtaining new sources of financing for expanded reproduction; improving the technology and efficiency of its own production, its focus on the active promotion of goods and services to the external and internal markets; connecting to the trade turnover with the external market not only individual enterprises, but also entire production and technological chains. (Dobrovolskienë, 2017).

3. The discussion of the results

The economic basis for integration in the agro-industrial complex should be a balance of interests of participants in the technological process. Intersectoral imbalance is most pronounced in the structure of the price of final products (Charykova, Latynin, 2015).

In modern economic conditions, the situation is such that the share of direct agricultural producers in the retail price of food products is significantly underestimated. The calculation of the share of grain prices in the cost of final products in the regions shows that the economic interests of agricultural producers are affected both at the stage of flour production and at the stage of bread and bakery products production. The share of the cost of flour in the price of bread is 37%, grain - from 15% to 22%.

A similar trend in the distribution of the share of the price of raw materials in the final product can be traced in the analysis of the price structure of livestock products. Therefore, one of the main problems of the current stage of development of the agro-industrial complex is the industry balance of prices along the vertical chain.

The calculations made to justify the standard costs of agricultural production are the basis for the supply of prices on the market and price relationships in the reproductive chain: production – processing – sale (Tokhayeva et al.,
2020). The forecast sales prices for bread and bakery products, milk and dairy products, meat and meat products were calculated taking into account the growth of purchasing power and real income of the population. In the distribution of revenue from the sale of final products in proportion to the average cost of production in the meat subcomplex, the share of agricultural producers in the retail price will be 68-70%, processing enterprises-20-21%, trade-10-11%; in the dairy subcomplex-73-74, 17-19, 8-9%; in grain products-58-54, 37-42, 5-6%.

The calculation of economic indicators of production and sale of agricultural products in the conditions of integration of agricultural and processing enterprises has shown that the highest level of efficiency is achieved when implementing measures aimed at optimizing internal and external factors, economic relations in the agro-industrial complex (Kantureyev, 2019).

Thus, agro-industrial integration – this is a natural economic phenomenon of the objective process that contributes to the stabilization, efficiency improvement and sustainable development of producers of agricultural products, raw materials and food. The strategy for developing agro-industrial integration should be focused on creating vertically integrated structures with a closed technological cycle that are more stable and stable (Mizanbekova et al., 2020). This is facilitated by saving transaction costs and resources by expanding the scale of production, ensuring the sale of agricultural products within an integrated structure, the ability to centralize resources and direct them to the highest priority production, overcoming local monopolism and forcing intermediaries out of circulation, increasing the interest of processors in the development of the raw material base, and simplifying procedures for coordinating the interests of integration participants (Mizanbekova et al., 2019).

The strategy for the development of integration processes in the agro-industrial complex makes it possible to separate a number of conceptual provisions: the most important catalyst for integration and its right point is the creation of a strong "core"- the integration center.

Its role is most successfully performed by enterprises of the food and processing industry, through which all cash flows pass:
- as "points of growth" – structural units of the "core" of integration should be economically stable farms that take "under their wing" weak agricultural enterprises;
- the most effective models of integration are agricultural formations, relations in which are built between legally independent agricultural enterprises on a contractual basis, and structures formed by administrative and economic Association of farms;
- the main organizational form of most integrated associations is an active society;
- vertical integration prevails, implemented through the creation of industrial product subcomplexes, which include enterprises for the production, processing and sale of agricultural products;
- horizontal integration continues to develop – through the establishment of intersectoral territorial structures;
- aktiviziruyutsya the process of complication of the organizational-economic forms of integration, which created a diversified combination systems combining vertical and horizontal levels; increasing participation in the integration processes of the state, which invests budgets to the funding sources agromyzinae (Sharipov, Kantureev, 2018).

The structure of the grain subcomplex is determined by the industries that provide grain production in agriculture, procurement and storage. The subcomplex also includes the industries that provide it with the means of production and the corresponding production infrastructure.

The grain subcomplex is associated with a number of agricultural industries that produce other types of products that use grain raw materials – brewing, alcohol, and starch.

The main link around which all divisions of the subcomplex are formed is agriculture, which provides the production of grain resources.
On average, soft wheat in Kazakhstan has been marked by a trend that has formed in recent years to reduce the acreage with a relatively unchanged yield, although it decreased in 2019 to the level of 9 C/ha on average. The total production volume for soft wheat was 10.4 million tons (fig.1).

Exports of soft wheat in the 2019/2020 season will decrease by 21% compared to the previous season and will amount to 4.8 million tons, and the export of flour will be halved to the level of 1.24 million tons (in grain equivalent). There is a major decrease in exports due to Uzbekistan, which has been the main importer of Kazakh wheat in the past 5-7 years, but this season is projected to reduce imports by about 1 million tons, which is mainly due to the high yield in this country, as well as a decrease in the volume of quality wheat in the Kazakh market. Acreage for durum wheat in 2019 was reduced by 10% to 430 thousand hectares, due to the fact that prices in the 2018-2019 season were lower than in previous seasons and the market switched to more marginal crops. With a reduced average yield of about 13 C/ha, production is estimated at 560 thousand tons, which is 23% less than in 2018.

The basis for establishing optimal proportions between the branches of the grain subcomplex and the pace of development of each of its branches is the volume and structure of national economic demand for products.

The effectiveness of clusters depends on the level of development of inter-industry integration, inter-industry relations, forms of interaction of enterprises that are part of this Association, and mutually beneficial economic relations between partners. At the same time, it is necessary to take into account the specific features, as well as the existing resource, labor, and financial potential of each industry (Alimkulova, 2018.). On the basis of the above approach, the main factors determining the choice of the method of interaction of enterprises in the functioning of clusters, the main principles of intersectoral integration, improvement of economic relations of agricultural enterprises are determined (fig.2).
Figure 2. Main factors of interaction of enterprises in the formation of clusters in the agro-industrial complex

Appropriate regulatory mechanisms are used to regulate the relationships of cluster members, ensure their common interests, coordinate individual and corporate goals, and regulate internal assortment, resource, price, and other proportions (Semin, 2019).

The priority directions of development of the cluster system in the agro-industrial complex of Kazakhstan are to increase the competitive advantages of:
- producers of agricultural raw materials by providing favorable economic conditions for their cultivation, stimulating producers in the growth of agricultural production, providing them with basic means of production (seeds, agricultural machinery, fertilizers, fuel, etc.), the development of large and medium-sized farms along with improving the production and economic activities of households;
- enterprises of the system for processing agricultural raw materials by modernizing them, providing them with high-tech, resource-saving equipment, developing waste-free production, deep, complex processing of raw materials;
- enterprises of the system of procurement, storage, transportation, packaging and marketing of agricultural raw materials and finished products by developing alternative forms of purchase and sale, primary and deep processing of agricultural products, improving the wholesale and retail network, using effective methods of product storage, etc.;
- development of inter-industry integrated links between agricultural enterprises in the process of promoting products from the manufacturer to the consumer along the technological chain "production-purchase-storage-processing - transportation - packaging-sale" on the basis of mutual benefit, mutual interest of the parties.

Appropriate regulatory mechanisms should be used to regulate the relationships of cluster members, ensure their common interests, coordinate individual and corporate goals, and regulate internal assortment, resource, price and other proportions (Razminienė, Tvaronavičienė, 2018).

One of the most effective forms of intersectoral integration, as shown by world practice and existing domestic experience, is the formation of agro-industrial holding structures that combine agricultural production and enterprises, those that supply resources for agriculture and process its products, as well as enterprises that sell manufactured products (Petrikov A., 2018).
Achieving the main objective of agricultural holding formations, which is to increase food production and improve the efficiency of their operation, can be achieved, first of all, by improving the relationship between their constituent enterprises, taking into account the economic interests of all participants in integration, creating conditions for productive work of employees of enterprises (Sidorenko, 2015, Tireuov 2016).

Single grain holding was created on the principles of voluntary and equitable Association of the participants of the grain market maintaining their legal and economic independence to achieve the following common goals: increasing access to financing spring sowing and harvesting for the rural producers, but also guaranteed sale of grain in autumn period at the market price; sale of grain and subsequent distribution among the grain producers - participants of the Contract of the net profits from the activities of the Corporation; creation and development of grain storage and export transshipment infrastructure (Tireuov et al., 2018).

The agreement on joint activities within the framework of the Unified grain holding (EZ) was signed between JSC "national company "food Corporation" (a subsidiary of "KazAgro") and the Union of farmers of Kazakhstan. The ECC was created to expand producers ' access to financing for spring field and harvest operations, guaranteed grain sales in the autumn period at market prices, grain sales and subsequent distribution among grain producers – participants of the holding of part of the net profit from the activities of the "food Corporation", the creation and development of infrastructure for storage and export transshipment of grain. 56 participants joined the Unified grain holding of the Republic of Kazakhstan: 36-from the Akmola region, 14 - from Kostanay, 5-from North Kazakhstan and one from Pavlodar region, representing small and medium-sized farms with a sown area of 200 to 20 thousand hectares. This innovation was implemented through a voluntary Association of grain market participants in the form of a consortium based on JSC "NC "food Corporation". The national company has terminals, elevators, experience and personnel. The creation of a single grain holding United Kazakhstan farmers, exporters-traders, millers, transport workers, agricultural machinery manufacturers, elevators in one consortium.

The main goal of which is to sell the General product profitably and get the maximum profit. At the same time, the consortium members will fully retain their legal independence.

Integrated structures of the holding type represent a complete form of integration that has stricter links. (Tvronavičienė, 2018). They are widespread in various sectors of the agro-industrial complex of Kazakhstan: in grain (grain companies). Currently, there are about 40 large grain companies operating in the country, which own the majority of procurement and processing enterprises: grain receiving enterprises, elevators, flour mills, bakeries, etc.

The grain Union of Kazakhstan has more than 80 elevators with a total capacity of 10.2 million tons, 26 mills for 300 thousand tons per year and 21 bakeries with 500 tons of products per day. Grain companies are the main business entities of grain farming, their business model pursuing: owners of property shares and land shares merged into production cooperatives, limited partnership, joint stock company, LLP, etc., developing in economy, the processing industry produced goods and organizing its implementation; many of them are large, integrated enterprises.

For this type of integrated 15-20% of farms of different management forms in the country: Akmola region: production cooperative (PC) "Rodina", a production cooperative(PC)"Izhevsk" PC "Michael", too "Free" in North Kazakhstan – commandite partnership(CT) "Zinchenko& K" etc.

One of the forms of intersectoral integration was formed as a result of the sale and transfer of agricultural enterprises under the management of investors.
Currently, such companies control 2/3 of the grain area in the North of the Republic. The advantages of this form of integration are: combining three areas of the agro-industrial complex and ensuring a complete technological cycle of reproduction, which allows you to restore the destroyed economic ties, establish logistics and sales of products.

They are competitive in the domestic and foreign grain markets; integrator investors serve as a guarantor to banks for obtaining loans to farms, which allows agricultural formations to maintain their integrity and avoid bankruptcy; elevators and HPP, flour mills are stably provided with agricultural raw materials and rhythmic work, oil depots and agricultural processing enterprises are able to provide themselves with fuel and lubricants, machinery, spare parts, chemicals in large quantities at wholesale prices and sell to agricultural enterprises at the minimum market price, have the opportunity to use the services of an agricultural service without intermediaries.

It should also be noted the negative factors of the functioning of large integrated structures in the form of grain companies: agricultural formations, farmers lost their property shares and land shares, the right to produce and income, and thus turned from owners-owners to employees; the conditions of cooperation are not met, in which each participant must receive a share in the final product; the parent company (the owner and its owners) - the founders of the LLP further strengthen the position of the monopolist, where prices and all surplus product created by all areas of the agro-industrial complex from production to sale are controlled. Their interest in increasing income from wheat production and not investing in the development of agricultural production, production and social infrastructure.

Conclusions

Assessing the current state of development of intersectoral integration in the agro-industrial complex of Kazakhstan, it should be noted significant trends: a variety of forms of integration, including public-private partnerships, increased state support for the development of agricultural cooperation, improving the regulatory framework for integration processes, encouraging the Association of agricultural producers with enterprises of storage, processing and marketing of agricultural products, infrastructure development in the process of product promotion to the consumer using cluster and logistics methods etc. Activation of state measures for the development of agricultural cooperation and intersectoral integration, improvement of the regulatory and tax base will provide integrated formations with self-financing, the ability to invest their own funds, and increase the interest of integrator firms in obtaining the final product.

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GOVERNMENTS FOR BETTER EDUCATION: TAKING PANEL DATA OF STATE LEGITIMACY, DEMOCRACY AND PUBLIC SERVICES

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Abstract. State legitimacy is increases quality of education as in the absence of it the higher education institution will make more profit and gave low quality of education. If the state legitimacy prevails in the country, then the government will be able to regulate these institutions and can bring better policies in the country. Democracy gave right to the students to study whatever they want, to get enrolled in whatever education and can have their own point of view. Democracy empowers students and thus this will contribute to the quality of the education. In any nation the number of public services given to the individuals increase the life standard in the same way if scholarships and funds should be given to the students, electricity would be provided to the educational institution then the quality of the education can be improved. So, state legitimacy, democracy and public services have significant association with the quality of education. The aim of this study was to assess the impact of three dependent variables including state legitimacy, democracy and public services on the independent variables on the quality of the education. The data was collected from ten different Asian countries including are Pakistan, India, Malaysia, Indonesia, China, Afghanistan, Nepal, Bangladesh, Turkey and Saudi Arabia. The timeline of the study is 29 years from 2019 and the data was collected from The Economic Form, The World Bank reports as well as the Transparency International. The analysis was performed by using EViews and various statistical tests were applied including ADF, LLC, cointegration test and ARLD test. The results of ARLD test showed that all three dependent variables were significantly associated with the quality of education. Literacy rate was correlated with the rise in quality of education in both long and short run, but population growth showed rise in quality of education in long run but not in the short run. Only state democracy showed positive association in the long run but showed no association in the short run. The results of our study have social, political and economic implications.

Keywords: quality of education; state legitimacy; democracy; public services; Asia


JEL Codes: R58, O53

1. Introduction

Quality education has fundamental role in tapping the full potential of human resource of the country having valuable technical skills. The rising importance of education quality in Asia has turned the debate from the access to education to provision of quality education. The challenges in the education system of Asia are majorly emanated from the substantial quality of education which is equivalent to no education at all. There is little argument on the fact that poor standards of education are tantamount to merely fulfilling the formality of provision of basic education to child. Quality education employs human capital with technical skills which has significant impact on the sustainable development and economic growth of the country. High-end human capital has higher return than low-
end human capital (Faggian, Modrego, & McCann, 2019; Fitzsimons, 2017; Pelinescu, 2015). Different theoretical and empirical studies have explored the channels through which government positively affects the quality of education such as technical training of teachers, R&D, and financial assistance (Hopkins, 2015; Howard, 2018; Qayyum, Zipf, Gungor, & Dillon, 2019).

![Figure 1. Democracy and Education](image)

This study aims to probe the various channels which intervene in ameliorating the poor education quality of the country such as state legitimacy, democracy and public services. Along with the traditional factors of quality education, state legitimacy and regulations in education also contribute in checking the quality control of education. Moreover, the state legitimacy may have two-way causality with quality education because later also strengthen the state legitimacy and compliance of regulation (Mahrinasari, Haseeb, & Ammar, 2019). Fayolle, Verzat, and Wapshott (2016) explained in their manuscript that education research by entrepreneur strive for legitimacy and regulations to overcome the complexities in the field (Anser, Zhang, & Kanwal, 2018; Gong & Yi, 2018; Olasupo & Idemudia, 2017; Tight, 2019). Moreover, democracy may also have the considerable impact on the provision of quality education to masses because it’s the government of majority with least exploitation. Ideologically, democracy connotes with the provision of equitable basic opportunities to people without discriminating on the basis of wealth position, language, and caste. Another channel through which government may also raise the quality of education is the provision of public services in education system (Bassok, Fitzpatrick, Greenberg, & Loeb, 2016; Hampton, 1993; Odhiambo, 2011). Government though optimal provision of public services and public spending in education system may raise the standards of education in the state (Haddad, Freguglia, & Gomes, 2017).

The deteriorating quality of education in Asia has captured the attention of policy makers. Raising the quality education in Asia has become the matter of urgency to exploit the full potential of human resource. Without improving the quality of education, optimal level of technical skills and human capital is hard to attain. Consequently, it will obstruct the sustainable development of the State (Pelinescu, 2015; TyndorfJr & Glass, 2017). However, challenges in quality education have been addressed by various studies, but no empirical study has present in literature for Asia which has explored the impact of State legitimacy, democracy, and public services on quality education. Moreover, no studies have employed the multivariate regression model to explained quality education...
in Asia (Patrnos, 1990; Pfeffer, 2015; Zeichner & Conklin, 2017). Our study aims to fill the gaps in the literature of quality education by explaining it empirically with state legitimacy, democracy, and public services (Dinç Aydemir & Aren, 2017; Gong & Yi, 2018; Muda, 2017). Novelty of this study is that it has employed panel data technique to control the time wise and cross section wise variation in data. Moreover, add into the empirical literature of quality education by explaining it with government quality variables. This study has following objectives:

- To analyze the impact of State legitimacy on quality education in Asia.
- To determine the role of Democracy in education quality of Asia
- To explore the effect of Public service on quality education in Asia

The past studies on quality education captured the attention of policy makers in education which has positive implication (Dinda, 2016; Pelinescu, 2015; TyndorfJr & Glass, 2017). Furthermore, the previous literature on quality education is foundation of theoretical and practical frameworks. This study also means to contribute in same lines. In next sections study comprises discussion on the literature review; methodology and data collection; results and policy recommendation.

2. Literature Review

Literature on educational quality presents various theoretical and empirical studies which discussed different quality assessment theoretical model to improve the education quality. Noaman, Ragab, Madbouly, Khedra, and Fayoumi (2017) also developed the theoretical model for assessing the education quality of university which includes e-learning as important quality indicator for education. Moreover, different model to improve the quality education has been tested such as provision of technical training to teachers, provision of basic infrastructure, adoption of e-learning (Arkorful & Abaidoo, 2015; Azeiteiro, Bacelar-Nicolau, Caetano, & Caeiro, 2015; King & Boyatt, 2015; Hasan, Hatidja, Nurjanna, Guampe, Gempita, Ma’ruf, 2019; Senan, 2018; Girdzijauskaite, Radzeviciene, Jakubavicius, 2019).

The adoption of e-learning in education is meant to support teachers’ and students’ access to learning material (Khalid, Pahi & Ahmed, 2016). However, procrastination in adopting the latest learning techniques is mainly spurt from the lack of legitimacy, control, and regulations in education system. For this purpose, we have explored the literature on the impact of government quality variables such as democracy, state legitimacy and public service on the education quality.

2.1 Educational quality and State legitimacy

State legitimacy assure the strict compliance of rules and regulation in the State. It refers to good governance, compliance of rules and regulation, and practice of democratic rights. The prevalence of state legitimacy assures the strict compliance of rules and regulation and laws and order. State legitimacy assures that all policy decisions are executed under the light of law and regulations (Tran, 2018). Same is perceived for the education system in state legitimacy that the policy decision for education will be in the best interest of the education quality of the state. Furthermore, the State legitimacy will assure the credibility and accountability of the government. Government in state legitimacy is accountable for every decision taken in different sphere including education. Mbiti (2016) mentioned in his study that despite of increasing enrollment rate, the quality standards of education in developing countries cannot be uplifted due to lack of accountability in education. Moreover, the state legitimacy will also indirectly facilitate the diffusion of quality education to masses through the channel of democracy. State legitimacy has both direct and indirect impacts on the education policy of the State because the correlation between the State legitimacy and democratic practice in the country is also supported by the various studies in the literature (Van Beek,
2018; Yang & Zhao, 2015). State legitimacy by provision of democratic rights will contribute in designing the policy for education which in the best interest of the students. Hence, in the light of above discussion we can generate the following hypothesis:

**H1**: There is a significant impact of state legitimacy on quality of education in Asia.

### 2.2 Educational quality and Democracy

Rule of democracy is an indicator of good governance in the country, which also promotes the quality of education. The democratic rule of government is the government of majority which takes the policy initiative for the betterment of society. Biesta (2015) also illustrates in his book that good education quality is widespread in the age of democracy and politics. In his study, he focused on democracy, ethics and politics as a factors of education quality of the country. Democracy, by promoting the democratic and political rights of the people, attempts to provide equitable quality education for further strengthening rule of democracy. Higgins and Coffield (2016) in their book paid tribute to Dewey's contribution in building the relationship between democracy and education. Fortunato and Panizza (2015) empirically explored the interaction between the democracy and quality of education by employing cross-sectional panel data. The index of democracy has been taken from the freedom house which has positive correlation with quality of education. The empirical findings of the study also confirm the positive linkages between democracy and education quality in the country. However, there are few studies which do not support the significant role of democracy in promoting the quality education. Dahlum and Knutsen (2017) investigated the linkages between the democracy and the education by conducting empirical research. The study employs the panel dataset of 128 countries from 1965 to 2016 to test the hypothesis: Democracy provide education access to relatively more students than autocracies. In addition, study also explore the positive relationship between democracy and better learning and technical skills of students. The empirical findings of the study inferred that democracy has not significant association with the provision of quality education. Furthermore, study illustrated that democracy does not significantly offer better education than autocracies. According to Belcastro (2015) the democratic legislation in USA has jeopardize the education quality by slandering the voice of teachers and truncating the curriculum to commensurate with corporate measurement. The mix views of researcher have been found in the literature about the association of democracy and education quality. Hence, on the basis of above literature we can construct following hypothesis:

**H2**: There is a significant impact of democracy on quality of education in Asia.

### 2.3 Education Quality and Public Services

The public services is refer to the provision of basic services to the people living in its jurisdiction. Public service is the nonexclusive public goods which is provided to all member of society regardless of caste, ethics, income, and mental and physical abilities. The public services also aim to serve the education system of the state by spending on education. Diffusion of public services in education raises the quality of education by providing equal opportunity to all strata of population without any discrimination. Public services is also proxied by the public spending on education which is relatively higher in OCED and European countries than Asian economies. Kundu (2017) conducted an empirical research to find the long-term relationship between effectiveness of public services in education and quality education in India. For this purpose, the study employed the time series data and cointegration model (Johansen cointegration test) to explore the long run relationship between public services and education quality. The empirical findings of the study also support the presence of cointegration relationship between public services and education quality. Therefore, in the light of aforementioned studies in literature we can build our hypothesis as follow:
H3: There is a significant impact of public service in education on quality of education. This manuscript aims to contribute in the literature of quality education by investigating its association with government quality indicators such as state legitimacy, democracy, and public services. In the literature, hardly any study has been found which has explained the quality of education by controlling the impact state legitimacy, democracy and public services.

3. Materials and methods

3.1 Data collection

This study investigates the relationship between better quality of education with three different factors like state legitimacy, democracy and public services. Data was collected regarding these factors with the span of 28 years before 2019. Ten countries included in the study are Pakistan, India, Malaysia, Indonesia, China, Afghanistan, Nepal, Bangladesh, Turkey and Saudi Arabia was included in the study. The data regarding the depending variables were collected from The Economic Form, The World Bank reports as well as the Transparency International. The collection of the data was accompanied with the units of the variables of the factors.

3.2 Modeling

After the collection of the data analysis was performed. The data comprise of one independent variable and two controls and dependent variables. There was one dependent variable that is quality of education and other three dependent variables were state Legitimacy, democracy and public services. Additionally, to compare the results of our study a set of controls was also included. These control variables include literacy rate and per capita income. The measurement units were also included in the study based on their own factors. The unit for measuring the quality of the education is the student and teacher’s satisfaction about the education standard and availability. State legitimacy includes the percentage of application of the policies and rules of the government. Democracy is measure by the percentage of the freedom of expression in the educational sector and right to choose the relevant course in the country. Public services include the number of the services like availability of the library, managing the funding for the research purposes and ensuring the health of the population. The population count is done in numbers. The measurements of control variables were also included in the study. The control variable is literacy rate and it is measure of the number of the people who can read and write their names in the country other control variable includes the population growth of the country. It is measured in the by the increase in the population each year.

\[
QE_{it} = \beta + \beta_1 SL_{it} + \beta_2 SD_{it} + \beta_3 PS_{it} + \beta_4 LR_{it} + \beta_5 PG_{it} + \epsilon_{it}
\]

In the above given equation, QE shows the term quality of education, SL shows state legitimacy, SD shows state democracy, PS shows public service, PG shows population growth, LR shows literacy rate and \(\epsilon_{it}\) is used to represent error. The series is converted to the to the per capita and the model after the log form can be written as,

\[
\ln QE_{it} = \beta + \beta_1 \ln SL_{it} + \beta_2 \ln SD_{it} + \beta_3 \ln PS_{it} + \beta_4 \ln LR_{it} + \beta_5 \ln PG_{it} + \epsilon_{it}
\]

3.3 Analysis of the data

To analyze the data different test were applied like the unit root test, cointegration test, coefficient estimation test and Granger Casualty test for various purposes. The details of each of these tests are given below;

3.4 Panel unit root test
A panel unit root analysis was the first tool used for this study to evaluate and investigate the collected data. This experiment was designed to determine the order of integration and to see if data is stationary (null hypothesis). Levin–Lin–Chu (2002), Im–Pesaran–Shin (2003), and Fisher-type (Choi, 2001) are commonly used for the analysis. Conventional test lacks the ability of to resolve certain power and size of the collected data. These issues are addressed by the panel unit root test. The standard distribution graphs provided by the both tests are the same. In this study LLC test of the panel unit root test is applied as it gives homogenous autoregressive process. Whereas, heterogeneous autoregressive process is done in the IPS test. In LLC root test basically two hypotheses are made called null and alternate hypothesis. The null hypothesis is that the data included in the study is non-stationary. This non-stationary data is due to the presence of the unit root. Whereas, the alternate hypothesis concludes that data is stationary. And the unit root is present in data. Another test applied with the LLC is the ADF known as Augmented Dickey Fuller Test. It is also used to check if the data is stationary or not. The null hypothesis in ADF is that unit root is present in our data. Whereas, alternate hypothesis signifies that our time series is stationary.

\[ DF_t = \gamma SE(\gamma) \]

If \( \gamma = 0 \) then the null hypothesis will be accepted and if the \( \gamma < 0 \) then the alternate hypothesis will be accepted.

## 3.5 Cointegration test

The next test the author uses in this analysis is the Panel cointegration test. The fundamental purpose of using this particular test is to confirm the occurrence of any co-integrated and long-term equilibrium relationships between variables. In this test null and alternate hypothesis are also made. Null hypothesis in panel cointegration test is that our independent variable has no cointegrated relationship with the dependent variables. Whereas, alternate hypothesis is that our independent variable has cointegrated relationship with the dependent variables. Two other approaches involved in this test are Kao and Pedroni (1994). The dimensions are checked through these approaches and conclusion regarding null and alternate hypothesis are made according to the result of these approaches.

## 3.6 ARDL Test

Unit test identify the order of the series and cointegration of the series is determined by the panel ARDL test (Pesaran, Shin, & Smith, 2001). The conventional cointegration test are not flexible like ARDL test. Pesaran et al. (2001) stated the importance of the panel ARDL test over conventional test that this test can work best for the small data size. By keeping the lag length optimal the relationship of the log-run is calculated in this test. Two types of test are used in this test like Wald test and F test is done to analyze the relationship of variables.

\[ \Delta \ln QE_t = \beta_0 + I = 0 \Delta P \beta_1 \Delta \ln QE_t - \delta + I = 0 \Delta q \beta_k \Delta \ln S_L_t - q + I = 0 \Delta r \beta_t \Delta \ln S_D_t - r + I = 0 \Delta s \beta_t \Delta \ln P_S_t - s + I = 0 \Delta u \beta_t \Delta \ln L_R_t - u + I = 0 \Delta v \beta_t \Delta \ln P_G_t - v + \pi \Delta QE_t \Delta E_t - 1 + \pi \Delta SL_t \Delta SL_t - 1 + \pi \Delta SD_t \Delta SD_t - 1 + \pi \Delta PS_t \Delta PS_t - 1 + \pi \Delta LR_t \Delta LR_t - 1 + \pi \Delta PG_t \Delta PG_t - 1 + v \Delta t \]

In this equation the \( v \Delta t \) accounts for the error term and \( \Delta \) represents the short. Wald test is always used for analysis when short run are more than 1. The short run difference of variables is zero in the short run. When (Pesaran et al., 2001) is used then the F-statistics value will compare the e I(0) and I(1).

## 4. Results
To analyze any data of mixed integration the ARDL test can be used. However, it cannot be applied unless the data is not in I(2) series. To analyze this integration panel unit root test including ADF and LLC tests are applied. Usually, both these tests are applied by using intercept. After these tests are applied then analysis with trend and intercept are done. This trend is with level and difference.

4.1 ADF and LLC unit roots

The results of ADF and LLC unit roots are given in Table 1 and 2. This test was applied in order to investigate the order of integration and to check the stationary properties of the variables. In the ADF test it can be seen from the level series of the table that all variables except the population growth and quality of education have accepted the null hypothesis, this means that majority of acceptance shows that in level series, unit root exists and the data is non-stationary. Whereas, in LLC test all variables except state legitimacy, population growth, and quality of education have accepted the null hypothesis; this means that majority of acceptance shows that in level series, unit root exists, and the data is non-stationary. But after applying the log the data became stationary as shown by the first differentiation series in both ADF and LLC tests.

<table>
<thead>
<tr>
<th>Constructs</th>
<th>ADF Test</th>
<th>LLC Test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Level</td>
<td>1st diff.</td>
</tr>
<tr>
<td>SL</td>
<td>1.104</td>
<td>6.287**</td>
</tr>
<tr>
<td>SD</td>
<td>0.261</td>
<td>4.846**</td>
</tr>
<tr>
<td>PS</td>
<td>0.954</td>
<td>12.293***</td>
</tr>
<tr>
<td>PG</td>
<td>4.361*</td>
<td>6.298***</td>
</tr>
<tr>
<td>QE</td>
<td>6.287*</td>
<td>12.287***</td>
</tr>
</tbody>
</table>

4.2 Cointegration test

The Kao cointegration test was applied in the study so that the presence of cointegrated relationships can be estimated and investigated between the variables by using F-statistics. Optimum lag length as shown in the table is A.I.C. The detailed results of this test have been given in Table 2 of the study. According to the results shown in the tables the F-statistics 24.1 have exceed the upper bound CV. This value rejects the null hypothesis of cointegration. Whereas the LBCV at 1 percent is 2.83 and UBCV at 1 percent is 5.77 and 4.20 at 10 percent.

<table>
<thead>
<tr>
<th>O.P.L. length (A.I.C)</th>
<th>F-Stat. (Bound Test)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2,0,1,0,1,0)</td>
<td>24.0921***</td>
</tr>
<tr>
<td>V.C</td>
<td>1% 5% 10%</td>
</tr>
<tr>
<td>L.B.C.V.</td>
<td>2.83 2.14 1.97</td>
</tr>
<tr>
<td>U.B.C.V.</td>
<td>5.77 5.01 4.20</td>
</tr>
</tbody>
</table>
4.3 Panel ARDL Estimation

The results of ARDL test and its long and short run relationship are shown in table 3.1 and 3.2. The relationship of the quality of education in the long run results showed a positive and significant association. Our results showed that state legitimacy implies the rise in quality of education by 21%, state democracy rise the quality of education by 19.3%, and public services gave raise the quality of education by 18.3%. Population growth and literacy rate gave rise to quality of education in the long run by 28%. This shows that the positive impact of long run of our variables on the quality of education. In short run relationship only state legitimacy (SL), public services (PS) and literacy rate (LR) showed the positive association with our independent variable that is quality of education. The presence of state legitimacy in short run give rise the quality of education by 39.92%, public services give rise the quality of education by 24.98% and literacy rate give rise the quality of education by 29.44%. Our controls including the population growth have 28.4% and literacy rate have 28.7% impact on the rise of quality of education in the long run. Whereas, population growth in short run have no impact on the rise of quality of education but gave literacy rate 18.7% rise in the quality of education.

<table>
<thead>
<tr>
<th>Run Long Results</th>
<th>B</th>
<th>t-value</th>
<th>Summary &amp; Diagnostic Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>QE</td>
<td>2.732***</td>
<td>-</td>
<td>R²</td>
</tr>
<tr>
<td>QE (-1)</td>
<td>1.478</td>
<td>-</td>
<td>Adj. R²</td>
</tr>
<tr>
<td>QE (-2)</td>
<td>1.298***</td>
<td>-</td>
<td>D.W.</td>
</tr>
<tr>
<td>SL</td>
<td>0.210</td>
<td>3.283***</td>
<td>X²SC</td>
</tr>
<tr>
<td>SD</td>
<td>0.193</td>
<td>2.023***</td>
<td>X²W</td>
</tr>
<tr>
<td>PS</td>
<td>0.183</td>
<td>2.474***</td>
<td>X²AR</td>
</tr>
<tr>
<td>PG</td>
<td>0.284</td>
<td>4.246**</td>
<td></td>
</tr>
<tr>
<td>LR</td>
<td>0.287</td>
<td>3.387**</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>0.875</td>
<td>4.482***</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Short Run Results</th>
<th>B</th>
<th>t-value</th>
<th>Summary &amp; Diagnostic Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>SL</td>
<td>0.227</td>
<td>3.992***</td>
<td>R²</td>
</tr>
<tr>
<td>SD</td>
<td>0.103</td>
<td>1.754</td>
<td>Adj. R²</td>
</tr>
<tr>
<td>PS</td>
<td>0.223</td>
<td>2.498**</td>
<td>X²SC</td>
</tr>
<tr>
<td>PG</td>
<td>0.014</td>
<td>1.037</td>
<td>X²W</td>
</tr>
<tr>
<td>LR</td>
<td>0.187</td>
<td>2.944***</td>
<td>X²AR</td>
</tr>
</tbody>
</table>

5. Discussion and Conclusion

5.1 Discussion

As the study was conducted in order to investigate and explore the impact of state legitimacy, democracy and public services increase the quality of education in presence of two control variables i.e. population growth and literacy rate, some hypotheses were generated for this purpose. Our first hypothesis was that the state legitimacy has significant impact on the quality of the education. Our study proves this hypothesis that the presence of state legitimacy there will be a positive impact on the quality of the education. The result are in accordance with the
(Katz, 2008; Van Zanten & Maxwell, 2015; Yang & Zhao, 2015) that associated the implementation of state legitimacy there will be positive impact on the quality of the education. Our second hypothesis was state democracy have the significant impact on the quality of the education. The results are in accordance with the (Biesta, 2015; Fortunato & Panizza, 2015; Reid & Filby, 2018) that also suggest that state democracy have positive influence with the quality of the education. Our study shows that state democracy have positive impact on the quality of education in the long run but not in the short run. Our third hypothesis was that the public services have significant impact on the quality of education. Our study showed that in both long and short run public service has positive impact on the quality of the education. (Aaberge, Langørgen, & Lindgren, 2017; Agostino & Arnaboldi, 2017) also suggest that better the public services better will be the quality of education in any region.

State legitimacy is increases quality of education as in the absence of it the higher education institution will make more profit and gave low quality of education. If the state legitimacy prevails in the country, then the government will be able to regulate these institutions and can bring better policies in the country. Democracy gave right to the students to study whatever they want, to get enrolled in whatever education and can have their own point of view. Democracy empowers students and thus this will contribute to the quality of the education. In any country the number of public services given to the individuals increase the life standard in the same way if scholarships and funds should be given to the students, electricity would be provided to the educational institution then the quality of the education can be improved.

5.2 Conclusion

Our study was conducted in the data collected from the ten Asian countries to assess the role of state legitimacy, democracy and population growth on the quality of the education. Different tools were used to analyze the data including ADF, LLC, cointegration test and ARDL test. The results of our study concludes that all the dependent variables have positive influence on the quality of the education in the long run and except state democracy all other dependent variables have the positive impact on the independent variable that is quality of the education in the presence of two control variables literacy rate and population growth.

5.3 Limitation and implication

This study has some implications as well as some limitations. This study have provided with the literature about the impact of the three variables state legitimacy, democracy and public services on the quality of the education, this can be considered as theoretical implication. The practical implication of the study is that the developing countries of Asia who have been struggling with democracy, state legitimacy should pay more heed to resolving them as this will not only improve the quality of education but with the economic status of the country as education brings prosperity and wellbeing to the nation. This study has also provided assistance and guidance to the policy making departments of government to make such policies and regulations that increase the implementation of these variables to enhance the quality of education in these countries. The limitation of this study includes the sample size is small and is only limited to ten countries of the Asia. A larger prospective study including larger sample size and more countries from different continents of the world should be included. Also, more efficient models for analysis can be used like GMM modeling, fixed and random effect modeling.
References


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THE MEDIATING ROLE OF THE INNOVATION IN THE RELATIONSHIP BETWEEN THE COMPETENCIES AND ORGANIZATION PERFORMANCE: A CASE STUDY

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Abstract. The main purpose of the study was to examine the impact of the entrepreneurial competency on the performance of SME in the Indonesia. In addition to that mediating role of the innovation in the relationship between the entrepreneurial competency and the SME performance is also examined. The study has employed the survey-based methodology and the data is collected form the SMEs. The response rate of the study is 63.2 percent. The structural equation modeling which is one of the mist robust techniques is employed to examine the mediating and direct relationship between and among the variables. The results of the study highlights that the entrepreneurial competency, and innovation are the significant determinists of the SME performance. The entrepreneurial competency has also significant impact on the innovation. The innovation also appeared as a mediator in the relationship between the entrepreneurial competency and the SME performance. The study is among the very few studies on the issue and pioneer study on the sample Indonesia firms. The study will be helpful for policy makers and researchers in formulating the policy.

Keywords: Entrepreneurial Competency, Innovation, Performance, SMEs, Indonesia


1. Background

Several researches have proven the contribution and significance of Small and Medium Enterprises (SMEs) in the global economy (Chienwattanasook & Jermsittiparsert, 2019a, 2019b; Jermsittiparsert & Rungsrisawat, 2019). Alone in the United States, there exist around 5.7 million businesses but only 14000 large companies are employing 500 or more employees (Cai & Jun, 2018). SMEs significance can also be recognized by considering the European industrial system, since SMEs are providing employment opportunities to around 100 million citizens, thus serving as a real backbone of the European economy (Dimitrova, 2018).

In the European economy, SMEs act as the engine of economic growth since 99% of European businesses comprised of SMEs, and the European Union (EU) institutions have been implementing several policies to target SMEs (Bailey, 2017). This explains the SMEs significance in European economy (Wadhwa et al.,2017). In most countries, SMEs significantly contribute to the domestic services and products, national employment and economic performance (Abehi, 2017). While developing social and economic policies, both developed and developing economies paid no significant attention to the SMEs (Poole, 2018). Several researchers reported and acknowledged the significant role of SMEs (Mallett, Wapshott, & Vorley, 2018). In businesses and economy, as well as their contribution in the United States, Australia, and the United Kingdom (UK) i.e. the SMEs have been successfully generating jobs, and achieving growth and innovation (Burns, 2016).

Furthermore, another important component of SMEs is the technological innovation in the form of societal prosperity and economic development (Wadhwa, McCormick, & Musteen, 2017). It is because of the successful
commercialization of their invention, which will generate employment opportunities and wealth for their partnering firms and investors (Mallett, Wapshott, & Vorley, 2018). Meanwhile, the aim of small firms that are based on high technology (SHTFs) is to bring innovation (Williams, 2019). In terms of SMEs, the Indonesia is the third largest country in ASEAN. The technology transfer in Indonesian SMEs in lower (figure 1) in compression to, Singapore, Malaysia and Thailand.

![Figure 1. Technology Skill](source: Asean SME Index 2014)

In 2011, the National SME Development Council (NSDC) in Malaysia has reported a total of 662,939 registered enterprise organizations, including services, construction, agriculture, mining and quarrying, and manufacturing sectors, out of which 5.9% were manufacturing enterprises, 90.1% services sector enterprises, 3% were construction enterprises, 1% were agricultural firms, and 0.05% were the mining and quarrying enterprises. Overall, there were a total of 645,136 establishments in Malaysia, and 97.3% of these enterprises were SMEs. However, SMEs cover 580,985 or 90.1% of the enterprises in the services sector, 37,861 or 5.9% of the enterprises in manufacturing sector and 6708 or 1% in agricultural sector, whereas, in the construction sector, SMEs cover 19,283 or 3% of the overall enterprises. In addition, 496,458 or around 77% of the small and medium enterprises are the micro organizations (Shamsuddin et al., 2017).

Since SMEs account for the one-third of Malaysian GDP and offering employment opportunities to more than 4 million citizens (comprising of 60% of total employment) (Shamsuddin, Sarkawi, Jaafar, & Abd Rahim, 2017), thus it has become a significant component of the Malaysian economy. The recent data census reported 20% expansion of SMEs to a level of 662,939 by the year 2011. In 2005, the business establishments of SMEs have reported to increase from 97.3% to 99.2%. Thus, in order to maintain shared prosperity and balanced growth, the growth of SMEs is essential as the economy transfers from lower to high value-added and high-income economy. The three quarters of the SME sector exclusively contribute to the improvement of poverty situation, mainly because of the existence of micro enterprises. However, this sector is also an important mean to achieve self-employment and income for the low-income households, particularly in sub-urban and rural areas. Therefore, a further study must be conducted concerning business performance and entrepreneurial competencies. This framework mainly focuses on the entrepreneur’s central role in firm’s operations. Thus, coordinating with the dominant entrepreneur is beneficial for the small enterprises (Mahrinasari, M. S., Haseeb, M., & Ammar, J. (2019).
2. Hypothesis Development

In the entrepreneurship field, entrepreneurial traits is one of the most researched and empirically tested concept (Hossain et al., 2017). The current set of literature (Embi et al., 2019) revealed locus of control, and the achievement and propensity of risk taking as the main entrepreneurial traits which influence the venture performance. The capability of identifying opportunities and recognizing advantage is a significant entrepreneurship aspect. (Rahman et al., 2015) suggest that competence and entrepreneur’s capability to receive, evaluate and create high-quality opportunities in the market are also connected. Therefore, entrepreneurs must engage in stable exploring of services and products, which may add more value to the purchaser, because grabbing and exploiting an opportunity depends largely upon the customer demand knowledge (Sutteret al., 2019).

Notably, innovation and entrepreneurship link has been reportedly underlined in prominent studies; see further (Ahmed, Shah, Qureshi, Shah & Khuwaja, 2018). Furthermore, an entrepreneur may be regarded as a potential opportunity detector, since the entrepreneurs can effectively detect opportunities, which may remarkably and directly influence the growth performance of a business (Fahim, 2018). In fact, it cannot be denied that this ability is not gifted to everyone and only some entrepreneurs are capable of accurately anticipating the difference in investment gains and costs (Rahman et al., 2015). Thus, the ability of an entrepreneur to accurately detect potential opportunity would directly increase the investment gains (Shamsuddin, Sarkawi et al., 2017; Prasetyo, Kistanti, 2020; Bombiak, 2020).

In addition, the entrepreneurs manage various stakeholders during daily business operations, such as, suppliers, employees, authorities, customers, local governments, competitors etc. (Embi et al., 2019). Therefore, entrepreneurs must essentially develop good relationships among diverse individuals to get access to the resources and information (Baron et al., 2016). In addition, the small firms are connected to each other in a network to obtain advice and support from the professionals (lawyers, consultants and accountants) on the basis of the evidence obtained from the government bodies, suppliers and customers, and the training institutions (Teixeira et al., 2019). The enterprise is capable of minimizing uncertainty associated to business development by obtaining information from its social networks and relations (Pitafi et al., 2018). As a result, an entrepreneur’s social networks will directly influence the growth performances of business both in the short-run and in the long-run. It is generally observed that a combination of applicable skills would give rise to the improvement in labor productivity (Teixeira et al., 2019). Similarly, obtaining skills for a specified time or effort would also generate increased productivity. Meanwhile, benefits associated to education and training in the form of skills pose adaptability effect on the individual’s productivity (Baron et al., 2016).

Entrepreneurial business referred as the new industries that are associated with creative entrepreneurial activities (Biraglia & Kadile, 2017), where creativity is defined as original and effective. In prior studies innovation and entrepreneurship were found to be related in context to resource and communication system (Rasheed et al., 2017). In another vein, it has been argued that cities and regions serve as innovation and creativity incubators (Teixeira et al., 2019). Although entrepreneurial innovation and creativity refers to the creation of future. A few researches have provided awareness, training and education to the entrepreneurs and prepared them to creatively take part in innovation, although most training institutions focus mainly on the managers’ training and not on the training of entrepreneurs (Kuratko, 2016).

An entrepreneur establishes an organization in order to follow and demand creative human actions and virtual understanding capability (Teixeira et al., 2019). Developing an idea and putting it into a growth-oriented and feasible business is entirely dependent upon entrepreneurs’ ability 1) to offer training programs; 2) to develop an integrated
business, and 3) to establish innovative and advanced system functionality (Shamsuddin et al., 2017) which can be gained through integrating personal efforts to accelerate the creative thinking process.

According to (Bock 2016) putting the existing potential opportunity into idea and then converting it into practice referred as innovation. In another definition, innovation is defined as a core process which examines the organization’s offerings and what it is optimizes to produce and deliver outcomes (Chuang & Lin, 2017). Thus it can be concluded that entrepreneurial skills, such as, innovation and creativity are recognized as the factors which truly define the term entrepreneur (Rahman et al., 2015). The discussion concerning the dimensions of entrepreneurial competencies represent various competencies, such as, learning, opportunities, analytical, networking, commitment, personnel, innovative and strength (Baron, Franklin, & Hmieleski, 2016). According to (Bock 2016) strategic thinking or strategic competency shows an entrepreneurs’ capability of expanding prospect vision and strategic action, enabling them to think beyond day-to-day operations. In addition, entrepreneurs are capable of taking decisions that are associated to strategic actions (Sirén et al., 2017). Entrepreneurs set clear organizational goals and objectives and get an overview about how and where they are going to compete (Drover et al., 2017). Thus, entrepreneurs can formulate and implement a suitable strategy for achieving the set goals and targets.

This capability is associated with the capability of an entrepreneur to increase resources and competitive advantage and overcome organizational risks (Huda et al., 2019). (Zou et al., 2016) stated that it is the planning capability and strategic positioning of an entrepreneur which enable to avoid conflicts. In addition, it also allows to strengthen capacity and resource utilization in a reasonable manner (Sirén et al., 2017). This planning capacity and strategic position enable firms to generate greatest output with limited set of resources. Under competitive market, the innovative capability of an entrepreneur facilitates in achieving product differentiation over its competitors, thereby yielding economic benefits to the firm (Salunke et al., 2019). Those studies which have analyzed the impact of entrepreneur’s family and past experience, their professional background and education have found that these factors are linked to the entrepreneurs’ human capital concept (Fayolle & Gailly, 2015).

(Altinay et al. 2016) suggest that entrepreneur’s good education positively affects the level of output, leading to better organizational productivity. For the entrepreneurs to be able to be distinctive from their competitors, knowledge acts as an ideal factor for turning an unorganized business into a well-organized business (Salunke et al., 2019). Increasing the entrepreneurs’ education will improve their effectiveness and will also enable them to learn and notice market changes in advance (Sirén et al., 2017). Thus, it is difficult to get an in-depth research concerning various dimensions of entrepreneurs’ knowledge in companies and regarding the influence of individual’s dimensions on the companies’ business success.

In terms of entrepreneurs’ knowledge, the success of a company is provisional and is largely dependent upon the education and experience of entrepreneurs (Nabi et al., 2017). A study (Coghlan, 2019) attempted to draw the researchers’ attention towards the importance of information in organizations. According to (Hopkin 2018), definite knowledge acts as a significant source to achieve company success. (Wadhwa et., 2017) also stressed that knowledge plays a significant role in the success of an organization. Furthermore, knowledge acts as a sustainable source of competitive advantage, and economic performance. Knowledge is suggested to be a significant performance tool in the literature, to enhance competitive advantage of an enterprise (Poole, 2018). Similarly, a study was also conducted to assess the significance of knowledge on the Slovenia’s economic growth. Thus, the three entrepreneurial competence dimensions include operational competencies, strategic competencies and human competencies, on the basis of which following hypotheses are developed:
H1: Entrepreneurial competency (EC) has significant impact on the SME performance. Various definitions have been proposed by scholars regarding innovation, concerning non-technological innovations and technological innovations, or the institutional and non-institutional innovation (Williams, 2019). It's ultra-high-tech innovations and mostly incremental innovations involve larger companies that have some degree just that connect most of the entrepreneurs activities innovativeness which mortified to have the vision of an entrepreneurial point from the discovery of such a broad definition and focus appropriate(Hossain et al.,2017).

Furthermore, a system must possess the ability to create ideas for effectively utilization of this system to obtain long-term benefits and to get support from a modern creative organization. Creativity, innovation and entrepreneurship is always contact between research basis, entrepreneurial creativity and the new business, original, often to be useful, and a potential growth-oriented business as the creation of ideas about the chances of the first entrepreneurs or business as an activity (Embi et al., 2019).

Various studies are available in the literature concerning entrepreneurship and strategy, marketing and innovation management in different sectors. According to the first perspective, innovation is a form of learning or something new(Sutter et al.,2019). In addition, innovation acts as a powerful mean for the organizations to respond against the environmental changes, or it is the adoption of new idea, method, service or product in an organization (Shamsuddin et al., 2017).

The existing literature shows different classifications of organizational innovativeness. Moreover, a number of scholars have also discussed the concept of innovation dichotomy. Such as, (Baron et al.,2016) have classified organizational innovation as 1) technological innovation, involving products, services and processes; and 2) administrative innovation, involving administrative structure, programs, and process. Recently, besides the strategy-driven features in the research of innovation, market orientation and learning orientation have also gained substantial awareness (Teixeira et al.,2019). Literature indicates that researchers have widely integrated the innovation’s technological policy determinant in their studies (Biraglia & Kadile 2017).

Although, the existence of less empirical evidence concerning SMEs on such issues is quite unexpected. However, (Abbehi 2017) suggest that organizational innovation is regarded as a uni-dimensional phenomenon. Firms have a tendency to effectively implement or initiate diverse innovation activities in their operations, such as, technological, product, administrative and process innovation. Innovation can be incremental or radical (Burns, 2016). According to(Burns, 2016), innovation refers to a communication among radical innovations and team diversity, where radical innovation relatively involves more risk (Fahim, 2018). Therefore, it is difficult to assess the involved risk in the new knowledge creation process. Despite the wide range of SMEs-based innovation studies, the inputs and outputs to achieve successful innovation are still unknown and vague.

H2: Innovation (INN) has significant impact on the SME performance.

While ensuring the survival under uncertain business environment, firms must adopt innovation, since it acts as a core competitive advantage component. Therefore, the best way is to move from orientation to innovation for the effective strengthening of organizational innovation. According to the researchers, the basic competency features involve short-term performance and product quality, while, creating and enhancing are the basic competency features in the long run. According to (Dimitrova 2018), integrating knowledge and experience is the key to competence. Several past studies (Williams 2019) have discussed organizational learning and its contributing factors, in order to assess the company’s innovative performance, for instance, networking, and benchmarking. Similarly, studies have
also discussed different aspects of innovation, such as, product-related, behavior-related and technology-related aspects of innovation. (Pitafi et al., 2018) mentioned that in North East England, several fundamental innovation aspects have been integrated by SMEs as a firm’s growth strategy, but he did not examine the relationship among innovation and growth.

Another study recognized innovativeness as an understanding of the multidimensional corporate quality. Such as, the innovation and risk-taking dimensions include future orientation, pro-activeness, creativity, and openness to change. Similarly, (Pitafi et al., 2018) also discovered four dimensions, namely, profitability, creativity, utility and strategy.

Corporate entrepreneurship explains a company’s venturing and innovation in order to achieve corporate performance (Drover et al., 2017). Likewise, (Huda et al., 2019) found that a company’s strategic orientation and competitive structure affect the company’s innovative performance. With a purpose of encouraging innovative culture in organizations, successfully managed to establish a positive association between SMEs and the committed leaders’ vision, their enthusiasm, inward investment for capturing future opportunities and information gathering. Other studies based on small businesses, successful innovation degree strategically manage to learn as well as to innovate and take risks and market presence represents is ready to predict, with a clear strategy and have according to their ability to be based. In a study conducted among American SMEs are the most innovative companies from aggressive and degrees of risk were ready to take the view that, taking the risk confirmed the release.

Several researches have studied the association among innovation and organizational performance and reported a strong and influential relationship among SMEs performance and innovation (Sirén et al., 2017). However, several prior researches have also reported mixed findings concerning the organization performance and innovation relationship, as some studies found positive, some negative, while others reported no relationship between the two variables. According to (Fayolle & Gailly, 2015), the organizational performance and innovation relationship depends on the organizational characteristics and its performance measurement. Furthermore, diverse innovation types or dissimilar combinations yield different organizational performance.

A research by (Fayolle and Gailly 2015) has attempted assess the role of innovation as a mediator in the relationship of firm performance and logistics service capability, and findings suggest that the effects of logistic service capability and flexibility capability on the company’s financial performance were found to be positively moderated by innovation. (Coghlan 2019) also attempted to analyze innovative features from the 200 SMEs data and the business performance and innovation connection in UAE and Dubai. The results revealed and explained the SMEs innovative features and also reported a significant association between business performance and innovation.

Moreover, various studies have indicated that a company’s performance is significantly influenced by the entrepreneurial competency, that can be observed in the form of greater flexibility and responsibility, increased employee morale, quality improvement, readiness for new opportunities, and greater customer loyalty (Coghlan, 2019). In addition, the studies also discovered the direct and statistically significant impact of top managers’ action competencies on market performance. It has been estimated by analyzing the indirect impact of top managers’ action competencies on the revenues and sales growth using market performance and customer satisfaction factors. Thus, further research is needed concerning the innovation adoption within SMEs constraints and characteristics. Researchers suggest that there are limited studies available on the organizational innovation adoption, therefore more longitudinal studies are needed in the SMEs context. Following hypothesis is developed, based on the literature and above arguments:
H3: Entrepreneurial competency (EC) has significant impact on the innovation (INN).
H4: Innovation mediates the relationship between entrepreneurial competency (EC) and innovation (INN)

3. Methodology

The aim of present study is examining the relationship between latent variables so for this purpose the best method is method of latent analysis. This study aims to examine the linkage between interpleural competencies, performance, and role of innovation. Therefore, a quantitative approach was chosen in this study. As per the study of (F. Hair Jr, Sarstedt, Hopkins, & G. Kuppelwieser, 2014) data must be normally distributed for using SEM technique therefor in this study we have used PLS-SEM techniques for analysis as there is no requirement for normal distribution of data. (Hair et al.2014) has suggested that the best alternate of SEM is PLS-SEM like LISREL and AMOS among all statistical techniques. According to (Chin et al. 2003) the PLS path modelling is the most appropriate technique for complex models that have hierarchy of constructs with moderation and mediation effects. We must use PLS path modelling for the theoretical development at early stage of validating and assessing the exploratory models. In addition, for the explanation of endogenous construct it also helps researchers. One of an exclusive features of PLS is the sensitivity of multicollinearity.

Moreover, PLS determines the measurement and structural with the help of multiple regression because it may reduce the issue of multipolarity. According to models (Chin et al. 2003) in reflective and formative measurement models we may use PLS. before selecting the analysis method, by using SPSS we have tested the following assumptions as well. There are three different steps of analyzing the data in general and social research. For data analysis in first step we organize and clean the data, in second step we describe the data however the hypothesis testing includes in third step, so this step is also called as inferential statistics the preparation stage involves in examination data accuracy. On the other hand, for the description of key characteristics of data we have used the descriptive statistics which will gives the main summary about the variables and sample of this study. The study is carried out on small and medium enterprises of Indonesia. The response rate of the study is 63.2 percent.

4. Results

We have used descriptive and inferential methods to describe the variables, relation among different variables and for the data analysis. We have used SPSS for description of data while we have used Partial Least Squares Structural Equation Modelling (PLS-SEM) to test the association among the variables. At first for hypothesis testing we assess the measurement or outer model of present study. We have followed the two steps for examining the goodness of fit. The first step is validity of construct in which composite reliability, factor loadings and Cronbach’s alpha, convergence validity are included. Whereas in second step is Discriminant validity which consist of (Fornell & Larcker, 1981) criterion. The measurement model of this study is shown below in fig 1 and outer loadings as well as R square value is also mapped in Figure 1.
The key criterion of convergent validity is the reliability confirmation of its indicators (Rowold & Heinitz, 2007). In present study 0.6 is the lowest value for slandered loadings which is significant according to the literature. (Hair et al. 2014) has stated that the construct validity is the level at which the construct of measurement measures the concept properly for which they were designed to measure.

Table 1. Outer loadings

<table>
<thead>
<tr>
<th></th>
<th>EC</th>
<th>INN</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC10</td>
<td>0.882</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC11</td>
<td>0.891</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC2</td>
<td>0.856</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC3</td>
<td>0.877</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC4</td>
<td>0.845</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC5</td>
<td>0.901</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC6</td>
<td>0.872</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC7</td>
<td>0.896</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC8</td>
<td>0.847</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC9</td>
<td>0.897</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INN4</td>
<td></td>
<td>0.899</td>
<td></td>
</tr>
<tr>
<td>INN1</td>
<td></td>
<td>0.855</td>
<td></td>
</tr>
<tr>
<td>INN2</td>
<td></td>
<td>0.812</td>
<td></td>
</tr>
<tr>
<td>INN3</td>
<td></td>
<td>0.882</td>
<td></td>
</tr>
<tr>
<td>INN5</td>
<td></td>
<td>0.844</td>
<td></td>
</tr>
<tr>
<td>INN7</td>
<td></td>
<td>0.755</td>
<td></td>
</tr>
<tr>
<td>INN8</td>
<td></td>
<td>0.761</td>
<td></td>
</tr>
</tbody>
</table>
The current study has used Average Variance Extracted (AVE) to evaluate the convergent validity on the basis of (Hair et al. 2014) and (Fornell & Larcker 1981) criterion. In terms of convergent validity, the value of AVE indicates the appropriate results as 0.5 is the minimum threshold for all the constructs the AVE value ranged from 0.514-0.906. The suggested value for composite reliability is 0.7 as per the studies of (Fornell & Larcker, 1981). The AVE value exceeds from the suggested range which represents the good level of construct validity. These results indicate the convergent validity of outer model.

For the validation of measures discriminant validity, we have used the method of (Fornell & Larcker, 1981).

### Table 2. Reliability

<table>
<thead>
<tr>
<th></th>
<th>Cronbach’s Alpha</th>
<th>ρ_ho_A</th>
<th>CR</th>
<th>(AVE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC</td>
<td>0.970</td>
<td>0.971</td>
<td>0.973</td>
<td>0.769</td>
</tr>
<tr>
<td>INN</td>
<td>0.925</td>
<td>0.930</td>
<td>0.940</td>
<td>0.691</td>
</tr>
<tr>
<td>P</td>
<td>0.957</td>
<td>0.960</td>
<td>0.963</td>
<td>0.723</td>
</tr>
</tbody>
</table>

As shown in Table 2 we have placed the square root of AVE for constructs diagonally in the matrix of correlation.

The model’s reflective accuracy is explained by the coefficient.

### Table 3. Discriminant validity

<table>
<thead>
<tr>
<th></th>
<th>EC</th>
<th>INN</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC</td>
<td>0.877</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INN</td>
<td>0.831</td>
<td>0.831</td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>0.761</td>
<td>0.797</td>
<td>0.850</td>
</tr>
</tbody>
</table>

After the assessment of the measurement model, the next step in the structural equation modeling through PLS is the assessment of the structural model. The structural model explains the relationship between the dependent and independent variables. The structural model explaining the relationship between the EC, INN, and Performance is shown in the figure 3.
The bootstrapping procedure is adopted to estimate the direct and indirect effects of the EC and INN on the performance of SMEs. The “t-values” and the “p-values” are considered as a criterion for determining the significance of the path relationships. The findings of the study revealed that all direct paths EC -> INN, EC -> P, and INN -> P are significant at p-value less than 0.5. The results of the study highlight that the EC and INN are the significant determinants of the SME performance in Indonesia, and the findings are in line with prior studies of (Coghlan, 2019). The entrepreneurial competency has also significant impact on the innovation (table 3, table 4, table 5, table 6, table 7).

|                | (O)   | (M)   | (STDEV) | (|O/STDEV|) | P Values |
|----------------|-------|-------|---------|--------|----------|
| EC -> INN      | 0.931 | 0.931 | 0.011   | 84.208 | 0.000    |
| EC -> P        | 0.561 | 0.565 | 0.069   | 8.176  | 0.000    |
| INN -> P       | 0.555 | 0.562 | 0.191   | 2.897  | 0.002    |

The study has also examined the mediating role of the innovation in the relationship between entrepreneurial competency and performance. The results have revealed that the mediation path EC -> INN -> P is significant at p-value less than 0.5.

|                | (O)   | (M)   | (STDEV) | (|O/STDEV|) | P Values |
|----------------|-------|-------|---------|--------|----------|
| EC -> INN -> P | 0.516 | 0.523 | 0.178   | 2.892  | 0.002    |

The accuracy of reflective model is explained by coefficient. Which is determined with the square root of correlation between the value of forecasted endogenous construct and the values of real endogenous constructs. According to (Hair et al. 2014) the combined effect of on endogenous latent construct of model by the exogenous latent construct is reflected by the coefficient. Coefficient of determination range is 0 to 1, where the higher value indicates the high forecasted accuracy. For the value of R² there is no rule of thumb projected by the researchers, though the value of R²=0.75 indicates the substantial forecasting and if the value of R²=0.50 it shows moderate forecasting and R²=0.25 shows the weak forecasting.
Table 6. R-square

<table>
<thead>
<tr>
<th></th>
<th>R Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>INN</td>
<td>0.866</td>
</tr>
<tr>
<td>P</td>
<td>0.356</td>
</tr>
</tbody>
</table>

The predictive accuracy of the current model is measured through the blindfolding which is mapped in the figure 4 below.

![Figure 4: Blind folding](image)

The q-square value of INN (0.559) and P (0.240) indicate the strong and moderate level of predictive accuracy of our model respectively.

Table 7. Q-square

<table>
<thead>
<tr>
<th></th>
<th>SSO</th>
<th>SSE</th>
<th>Q² (=1-SSE/SSO)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC</td>
<td>2,387.000</td>
<td>2,387.000</td>
<td></td>
</tr>
<tr>
<td>INN</td>
<td>1,519.000</td>
<td>669.786</td>
<td>0.559</td>
</tr>
<tr>
<td>P</td>
<td>2,170.000</td>
<td>1,649.831</td>
<td>0.240</td>
</tr>
</tbody>
</table>

5. Conclusion

The prior researches on innovation place great significance on networking, benchmarking, training and learning. Such as, highly innovative firms have been placing and recognizing the significance of providing industrial based education to the young individuals through modern apprenticeships, student placement, school visits for improving the employees’ productivity, thereby indicating evident contrast of highly innovative firms from the SMEs in every
respect (Altinay et al., 2016). Firstly, a revised theoretical framework is needed. Second, there is a need to discover different communication standards involving contingency relations; thirdly, the need to identify those properties which require attention, even if they cannot be operationalized easily. Finally, choosing the usage of operational activities and performance indicators (Fayolle & Gailly, 2015). Therefore, Bock (2016) had organized that the competitiveness of small and medium entrepreneurs in the response characteristics of this study shows that it is necessary to pass a theoretical framework approach to the concept. The study has employed the survey-based methodology and the data is collected form the SMEs. The response rate of the study is 63.2 percent. The structural equation modeling which is one of the most robust techniques is employed to examine the mediating and direct relationship between and among the variables. The results of the study highlights that the entrepreneurial competency, and innovation are the significant determinists of the SME performance the entrepreneurial competency has also significant impact on the innovation. The innovation also appeared as a mediator in the relationship between the entrepreneurial competency and the SME performance. The study has argued that the Moreover, an entrepreneur’s social networks also directly influence the enterprise. An enterprise can get access to valuable resource-based information and potential purchaser-related information as well as the preferential governance policies through its relationship with the government sector (Sirén et al., 2017).

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Abstract. A model of stability of the equilibrium of the enterprise in the context of ensuring economic security is proposed, which allows predicting the nature of the particular point of equilibrium of the enterprise and the type of attractor. The model has been tested at the VOLKSWAGEN plant (Wroclaw, Poland) and it has been revealed that after 3 years the saddle-focus of the first kind, which is an unstable equilibrium, will be a singular equilibrium point. Therefore, structural changes at the plant should be expected. However, this is not a bad condition for the enterprise, it only indicates the upcoming choice between the opposite trajectories of its development. Therefore, it is imperative to develop in advance measures to manage the economic security of the enterprise on the basis of changing management parameters, namely: increasing the profitability of the assets of the enterprise, finding a loan with a lower percentage and reducing the share of expenses of the company per employee, the joint implementation of which will help the company in the future to fall into the field of sustainable limit attractor and avoid the chaotic attractor, that is, bankruptcy. The author has developed an information base for calculating the model in accordance with financial statements with a view to its application in the practical activities of enterprises. The model results are presented visually in the form of phase portraits based on the use of the Maple package.

Keywords: safety; enterprise sustainability; phase portrait; development trajectories; attractor


JEL Classifications: F35; F42

1. Introduction

The strategic European integration course of Ukraine before joining the European community requires the protection of national interests of the country. From the content of Art. 17 of the 1996 Constitution of Ukraine: ensuring economic security is one of the most important functions of the state (Constitution of Ukraine, 1996). The activities of state bodies to protect the economic interests and economic security of the country are an integral part of ensuring national security. The emergence of external threats to the national security of the state requires not only rapid response, but also existence of effective mechanisms to counteract the possible causes of these phenomena of negative consequences.
Protection requires the vital values and interests of both societies in particular and the state on the whole. In this context, an important area is to ensure the customs security of the state, which provides the protection of society from prohibited, dangerous and substandard products, formation of the adequate level of competitiveness of the country in the world market, promotion of investment attractiveness of Ukraine and its regions, protection of interests of business entities, etc. The implementation of customs security functions rests with the relevant state structures - customs authorities. Based on the above, it is relevant to study the concept of customs security, legal status and features of the functioning of customs authorities in the context of ensuring national security of the country.

2. Literature Survey

Today, the security problem causes a wide response and the reason for its appearance is very transparent - the growth of threats to humanity and their multi-vector nature. Among the modern threats, the following ones can be distinguished (Stewart, A. (2018)): destabilization of the system of international economic relations, a high degree of uncertainty in the actions of participants in the economic space, disintegration trends, the escalation of international tension, the permanent emergence of global and local crises, limited world resources, and their high cost.

Recently, state security, enterprise security, and personal security are not considered separately - they are interconnected and interdependent (Behei, M. (2017), Plēta, T. et al. (2020)). If any objective or subjective reason (for example, war) poses a threat to national security, then it poses a threat to both the enterprise and the individual (Hilorme, T., et al. (2019)). All this determines the relevance of studying world experience in solving the complex problems of ensuring the economic security of any business entity and its institutionalization (the historical process of transition from a phenomenon, which is self-managed and self-organized to managed and organized) (Adekanye, MO, & Rahman, SS (2018)). Thus, international institutions manage global economic security and generate international economic law, which is an important means of supporting it, and state institutions manage national economic security and are the main repeaters of the norms and laws that ensure it (Drobyazko, S., et al. (2019), Drobyazko, S., et al. (2020)). An enterprise should have a certain information and management structure that would neutralize the negative variety of environmental influences (Bernus, P., et al. (2016)). Neutralization may consist in the fact that the structure blocks external threats, or hides from them in areas safe for itself, or launches futurization (proactive) measures of its self-preservation (Ștefănescu, C., Comănescu, LE, Buhuși, C., & Bilcan, GA (2019)). In turn, an enterprise as an open system can use a wide variety of environmental resources and safety strategies depending on its internal information content (Lai, F. W., & Shad, M. K. (2017)). Therefore, the solution to this conceptual question must be sought in the integration of the dialectical contradictions of self-organization and management (Wu, G., & Wang, J. (2020)). Self-organization differs from management in that its essence is explained by the nature of the system, which, by itself, spontaneously finds a certain spatial, temporal, or functional structure without additional impact from the outside (this is a property of all open systems) (Sulphey, MM, & Alkahtani, N. (2017)). The management is a phenomenon of only human rational systems (this property of socio-technical systems) (Tetiana, H., et al. (2019)). On the one hand, management limits the diversity of the state of the enterprise, and on the other hand, accelerates its development and achievement of goals. The economic security of an enterprise as a complex system consists of two elements: managed and managed systems (Harrer, J., & Wald, A. (2016)). The management system belongs to the management of the enterprise, including the head of the security service, in the managed system in the context of this study we understand the economic security of the enterprise as its business process. Feedback can be both positive and negative. Thus, with positive feedback, the management system converts the deviations of the output parameter of the signal (fluctuation) into a management solution and transmits it to the input of the managed system in order to increase this deviation (Kang, Y. (2016 May)). It can be said that positive feedback "accelerates" the deviations of the output parameter.
However, the action of positive feedback can have side effects (Hong, J., Zhang, Y., & Ding, M. (2018)):

1) the appearance of the hysteresis loop, which is characterized by the phenomenon of "saturation";
2) the emergence of a "vicious circle", which leads to undesirable results. Positive feedback destabilizes the system, disturbs its state of stable equilibrium, which can lead to an increase in the efficiency of the system and to its destruction.

In the case of negative feedback, the deviation of the output parameter signal (fluctuation) is transmitted to the input of the managed system in such a way as to attenuate ("cancel") this deviation (Jiang, B., Muzhikyan, A., Farid, AM, & Youcef-Toumi, K (2017). That is, the negative feedback "keeps" the output parameter unchanged or reduces its negative consequences. Negative feedback stabilizes the system and maintains its stable equilibrium state by adapting to threats and counteracting potential degradation (Soomro, Z. A., Shah, M. H., & Ahmed, J. (2016)). The system can self-regulate if it has a standard for correction and self-improvement on the way to the attractor.

3. Methods
It is possible to distinguish specific methods of research: statistical methods - to study the state and dynamics of activity of enterprises; Internet analysis - to evaluate the popularity and relevance of the definition of "economic security of the enterprise"; taxonomic method and fuzzy logic method - to determine the resulting parameter of economic security of the enterprise; iterative analysis - for in-depth study of the structure, functions, processes, and goals of economic security of the enterprise; black box method - to study the connection between the managing system of the enterprise’s economic security and the managed one; gold section method - to determine ranges of economic security level; IDEFO functional modeling method - for modeling of the business process taking into account entropy and synergy; nonlinear dynamics methods - to improve the synergistic model of enterprise stability; phase space method - to predict the state of stable equilibrium of an enterprise.

4. Results
In the conditions of increasing turbulence of the external environment, it is important to predict the state of stable equilibrium of the enterprise. Predicting the dynamics of events and owning a scenario of development allows effectively managing the enterprise’s economic security, which requires the development of an adequate mathematical model, which would be based on fundamental laws and a priori knowledge of the processes of system functioning, taking into account the causality of factors of influence.

Mathematical modeling of stability of the enterprise provides an opportunity to predict the state of stable equilibrium, which allows developing appropriate measures to manage the enterprise’s economic security. Sustainability of production activity of the enterprise is determined by such parameters of the order as: number of highly organized personnel, availability of equity capital, and volume of investments (credit).

The mathematical model of stability of a medium-sized enterprise is presented as a system of three differential equations:

\[
\begin{align*}
\dot{F}_1 &= -bF_1 + aF_2 + aF_2F_3 = f_1(F_1, F_2, F_3) \\
\dot{F}_2 &= cF_2 - dF_1 + cF_3 - dF_1F_3 = f_2(F_1, F_2, F_3) \\
\dot{F}_3 &= -hF_3 + gF_2 = f_3(F_1, F_2, F_3) 
\end{align*}
\]

where 
\( F_1 = F_1(t) \) - the number of employees of the enterprise at time t, persons;
\( F_2 = F_2(t) \) - the amount of equity capital at time t, US dollars;

\( F_3 = F_3(t) \) - the volume of investments (credit) at time t, units of measurement;
$F_3 = F_3(t)$ – the amount of borrowed capital, that is, the loan at time t, US dollars.

$\hat{F}_1, \hat{F}_2, \hat{F}_3$ - derivatives of independent variable $t$;

- a - a proportionality coefficient, which shows how much of the capital an enterprise can allocate to attract new employees;
- b - a proportionality coefficient, which summarizes the various reasons why the employee may be fired or he or she will be released;
- c - a proportionality coefficient, which shows the efficiency of the enterprise's investment (taking into account the influence of various taxes, payments, fees - they have a dissipative influence on the “energy” of the enterprise and threaten to reduce profitability)
- d - a proportionality coefficient, which characterizes the value of the enterprise costs per employee;
- g - a proportionality coefficient, which affects the availability of equity capital;
- h - a proportionality coefficient, which indicates difficulties in obtaining a loan. For example, a high percentage of credit increases the risk of default, which threatens bankruptcy.

For an average firm, the coefficients $a$ and $d$ must be relatively large since they both relate to employee costs, and the coefficient $c$ and $b$, on the contrary, should not be large because, first (in case of $b$), the firm's profit from operations in the market is not too high, otherwise the firm would be rich rather than average; and secondly (in case of $b$), in a civilized society, the staff turnover is low in an average firm.

In the model $F_1, F_2, F_3$ - replaceable factors or they are called order parameters in the thesaurus of synergetics; $a, b, c, d, g, h$ are constant factors (proportionality coefficients) or control parameters.

Based on the developed mathematical model of the behavior of the object of management, the possibility of forecasting the state of stable equilibrium of the enterprise appears. There are several types of forecasting that require an understanding of the laws of development:

1) Inertial forecasting or extrapolation lies in the fact that the process continues the trajectory that was before it began, that is, the future parameters of the system are determined on the basis of previous development trends.

2) The design scenario consists in certain probabilities of possible alternatives of development or desired state in the conditions of future turbulent macro environment. The scenarios depend on the resources invested in the future.

3) Management design consists in forecasting the consequences of the decisions made. The researcher does not have information about the inertia of the process but knows an instant "snapshot" of certain parameters that affect the development. The scientific challenge lies in the fact that the knowledge of the instantaneous distribution of parameters of a complex socio-economic system and their connection in the future allows obtaining a predictive temporal reversal of what will happen. Later, this type of forecasting is applied.

As noted above, nonlinear dynamics studies the properties of dynamic systems, which are systems that describe a process in time, namely the transition from a state of stable equilibrium to an unstable equilibrium and vice versa.

The main tasks are: first, the search and classification of a singular equilibrium point, and second, the identification of sets, which attract (attractors) or repel (repellers). To perform a qualitative analysis of the dynamic system, what the enterprise is, the method of phase space is used. It is based on the geometry of time and gives the opportunity to visualize the behavior of the enterprise. The advantages of this method are a significant simplification of the description of the state of the dynamic system.

The phase space of the system is an abstract multidimensional space, in which the change of the coordinates of a point (ie its movement) over time forms curves (phase trajectories) that clearly describe the evolution of a nonlinear, "chaotic" system in a geometric form (phase portrait). The main characteristic of a space is its dimension, that is, the number of order parameters that must be specified to determine the state of the system.
The phase portrait is a collection of all phase trajectories describing all its possible modes. On this basis, it is possible to determine a particular equilibrium point of the system as a benchmark to which it will come over time.

The singular point of the phase space is the equilibrium point at which the process is established and the order parameters do not change, so why the derivatives are zero. At this point, different phase trajectories are attracted or repel (divergent) (solutions may branch out). In the first case, an attractor is formed, in the second - a repeller. The singular point of the phase space is a mathematical category, and within the framework of economics, it is proposed to call it a state of stable equilibrium.

The classification of singular equilibrium points is presented in Table 1.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Stability</th>
<th>Instability</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. By the nature of the singular point of equilibrium</td>
<td>Stable node</td>
<td>Unstable node</td>
</tr>
<tr>
<td></td>
<td>Stable focus</td>
<td>Unstable focus</td>
</tr>
<tr>
<td></td>
<td>Stable center</td>
<td>Unstable center</td>
</tr>
<tr>
<td></td>
<td>Saddle instability</td>
<td>Saddle instability</td>
</tr>
<tr>
<td>2. In the direction of the phase trajectories relative to the equilibrium point</td>
<td>Attractor - Phase trajectories are attracted to the equilibrium point which is stable</td>
<td>Repeller - phase trajectories repel an equilibrium point that is unstable</td>
</tr>
<tr>
<td>3. By the number of equilibrium states</td>
<td>Multistable</td>
<td>Bistable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Monostable</td>
</tr>
</tbody>
</table>

*Source: Designed by the authors*

In the economic context, the phase trajectories are the trajectories of economic development of the economic entity or the trajectories of individual (main and supporting) business processes and interests of stakeholders. If they are all within the area of attraction of the attractor, then there is no need to make instant management decisions to change the situation. Conversely, if they are not within the area of attraction of the attractor, then there is a need to make instant management decisions.

A visualization of the phase portrait of such special points as "center", "saddle", and "saddle center" in 3D is shown in Figure 1-3.
A dynamic system can have several attractors (alternative paths of development) at the same values of control parameters. For example, the movement of a ball on the surface of a complex descending relief, on which there are a number of holes and tubercles. Of course, each local well has an area of attraction to which the ball rolls. If it goes beyond these limits, it will slide into another hole. The choice of the further path of development occurs at the point of bifurcation (fork).

The activity of an enterprise with a lot of cross-business processes, many relationships with different stakeholders seems chaotic at first glance but, in reality, it follows a hidden order. We can distinguish four nonlinear functions, four forces, and four types of attractors that exaggerate order from disorder, among which there are point, periodic, quasiperiodic, strange attractors.

The model was tested at the VOLKSWAGEN plant (Wroclaw, Poland). Based on the formula 1, the author defined control parameters (proportionality coefficients) in accordance with the statistical and financial statements of the enterprise and developed an information base for the calculation of the mathematical model.

Unlike others, this study is supplemented by statistical analysis. And for this purpose, it is introduced into the model in the initial data for 2014-2018, which are presented in one-dimensional form based on the mathematical standardization procedure according to formula 2:
Generally, standardization of the order parameters (dependent variables) does not affect the stability study procedure. Moreover, the values of the variables are not important at all. Only the relationship between them and the values of the control parameters (constant coefficients) in the evolution equations are important.

The end of observations, namely 2018, is the beginning of the forecast, so constant factors (proportionality coefficients) are included in the model for this year. Using the Maple package, the system of differential equations (1) for the values of the proportionality coefficients is: \( a = 5,15; \ d = 10,17; \ b = 1,73; \ g = 34,46; \ c = 4,24; \ h = 22,50 \), numerically integrated with the Runge-Kutta method with a constant step on a time interval \([0,5]\).

The roots of the characteristic equation at the aforementioned numerical values of the proportionality coefficients determine the existence of only a trivial singular point as justified objectively, that is, one real and two complex conjugates with a negative real part.

Visually, the results of the model of stability of the studied enterprise are reflected in Figure 4, where the following designations are adopted: \( k_{l,1} = F_1 \) - the number of employees of the enterprise; \( k_{l,2} = F_2 \) - the volume of equity capital; \( k_{l,3} = F_3 \) - the volume of credit. However, unfortunately, in Maple, the drawings are presented in two-dimensional space.

**Figure 4.** Forecast of the state of stable equilibrium before implementation of measures for management of economic security of the enterprise

*Source: Designed by the authors*
Since the VOLKSWAGEN plant is in a saddle instability, at the point of bifurcation, which is the moment of choice between different attractors (in our case, between chaotic and limiting), the manager of the enterprise needs to change the value of some control parameters so that the plant is in a stable equilibrium for example, in a stable limit cycle.

It is proved that only by changing the values of the control parameters, it is possible to direct the enterprise in the area of attraction of the desired attractor in order to avoid bankruptcy. Therefore, measures have been developed to manage the economic security of the enterprise, namely:

1. Increase in profit from operations on the market, ie increase in profitability of assets of the enterprise (for example, 4.24% to 9%).
2. Search for credit with a smaller percentage. The attraction of credit can protect the company from bankruptcy and allow it to develop: to increase production volumes much faster than in its absence, not to reduce staff, and to pay decent wages.
3. Reduction of the share of expenses of the enterprise on one worker, that is wages, social expenses and expenses on the maintenance of labor, which are not a part of the payroll fund (for example, 10.17% to 5%).

Reduction of the share of expenses of the enterprise on one worker threatens with a decrease of own capital of the enterprise (lack of profit). Because of this, there is a reduction in the number of workers, a decrease in the quality of the work of execution, which will lead to a decrease in production volumes and a decrease in the amount of equity capital. However, over time, the trend will change with the decline in profits and the massive layoff of employees, the company will start to make a profit, which will again attract highly qualified staff. In turn, attracting more qualified staff will reduce the need for credit due to increased profits. Although then there will be costs associated with training new workers, which will cover their content with their own resources.

Thus, a kind of repetition generates a stable limit cycle (in this case, the order parameters fluctuate around the optimal values). Until the system makes a choice between possible directions of further evolution, it is impossible to unambiguously determine the fate of the system. The arsenal of synergetics has the concept of a cone or funnel of an attractor, which seems to draw on itself different trajectories and causes the "fate" of the enterprise. Without changing the management parameters, the enterprise has no chance to get into the "desired" attractor or the "desired" future.

Based on the above, it can be argued that the sense of synergistic management of the economic security of the enterprise is to achieve a state of stable equilibrium, which is the main criterion for the quality of all management decisions.

5. Discussion

One of the main conclusions of chaos theory is that the three order parameters change so that the state of the system (enterprise) cannot be predicted for a long period of time, only within the forecast horizon. At the same time, the inability to know all the initial conditions and factors of influence does not make it possible to predict the future. It can only be described with a certain amount of probability since the real activity of the enterprise is much more diverse, which is also created by the employees themselves.

In turn, the instability of the trajectories of chaotic systems makes them extremely sensitive to control. Therefore, firstly, it is important for the leader and chief of the security service to “flap wings” at the right time in the right
place, and secondly, given that small mistakes can lead to big consequences, to realize the full measure of responsibility for what happens.

Consequently, if the enterprise is in the field of attraction of stable equilibrium, which can be called a “channel”, then fluctuation processes will not violate its stable state and the behavior of the system will be predictable. However, if the enterprise is in the “pool” of unstable equilibrium or in the “joker” area, then even a slight deviation can lead to its destruction (“butterfly effect”). In this case, the behavior of the system is unpredictable and random. At an unstable equilibrium point, solutions can branch out (bifurcation).

**Conclusions**

The enterprise’s sustainability model has been improved in the context of ensuring economic security based on the phase portrait method, which allows predicting the nature of a particular equilibrium point of an enterprise and the type of attractor, and early development of measures for managing economic security of the enterprise, the implementation of which will allow the enterprise to be in the field of a stable limit attractor in the future to avoid the biggest threat - to be in the field of attraction of a chaotic attractor, which for the enterprise is tantamount to bankruptcy.

The author developed an information base for calculating the model, adapted it to the financial statements of the enterprise and tested it at the factory VOLKSWAGEN (Wroclaw, Poland). It was revealed that after 3 years at the plant (the end of observations, namely 2018 is the beginning of the forecast), the saddle-focus of the first kind will be a singular equilibrium point, which is an unstable (bifurcation) point and at which a choice between opposite attractors (simple and chaotic) will take place. This means that structural changes are expected, a greater threat to it is a hit in the future in the field of attraction of a chaotic attractor, that is, bankruptcy.

It is proved that only by changing the values of the control parameters, it is possible to direct the enterprise in the field of attraction of the desired attractor in order to avoid bankruptcy. Therefore, measures have been developed to manage the economic security of the enterprise, namely: increasing the return on assets of the enterprise (from 4.24% to 9%); search for a loan with a lower percentage; reduction in the share of enterprise expenses per employee (from 10.17% to 5%). The early joint implementation of measures will allow the enterprise in the future to fall into the field of a simple limit attractor, that is, to achieve a state of stable equilibrium.

Perspectives for further research is the development of strategies to ensure the economic security of the enterprise, taking into account the constructed model. As a primary need, the economic security of the enterprise should be justified from the point of view of strategic management, that is, for the effective management of the enterprise today the priority is to ensure the economic security of the enterprise, for which an important problem is to develop a strategy as the main guideline in this direction.
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ENTREPRENEURIAL ORIENTATION AND THE SMES PERFORMANCE IN THAILAND: THE MEDIATING ROLE OF STRATEGIC ORIEN TATIONS

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Abstract. The prime objective of the current study is to examine the impact of the entrepreneur orientation, market orientation, and the learning orientation on the performance of the SMEs in the Thailand. The study has employed the survey-based methodology. The response rate of the current study is 81 percent. The study has employed the structural equation modeling using SEM-PLS. The data is collected from the manufacturing SMEs in Thailand. The research findings obtained in this study contribute to the literature. The study attempted to analyze the effects of learning orientation, entrepreneurial orientation and market orientation on the SMEs performance in Indonesia. In previous studies, single strategy implementation resulted in suboptimal performance. Therefore, the present study further extended this theory by considering all three strategic orientation measures, i.e. market orientation, learning orientation and entrepreneur orientation as the significant SMEs performance drivers. The empirical findings obtained in this study provide supporting evidence in favor of resource-based view (RBV), which suggests the alignment of strategies for higher organizational performance. The findings offer deeper understanding about the effects of EO, MO and LO on the overall SMEs performance in Indonesia. The present study provides insights for the practitioners and policy makers which may facilitate them in the formulation of SMEs related policies. The analytical outcomes suggest that the SMEs managers must closely coordinate with the quality and marketing departments, thereby assisting them in promoting higher performance and customer satisfaction.

Keyword: entrepreneurial orientation; strategic orientation SME; Thailand


JEL Codes: O32

1. Background

The Small and medium sized enterprises (SMEs) significantly contribute to the economic growth and GDP of a country (Jermsittiparsert & Rungsrisawat, 2019). SMEs play a major role in the economic development and is a major source of employment generation, particularly in case of emerging economies (Wang, 2016; Saengchai, Mitprasat, & Jermsittiparsert, 2019). It is generally believed the large firms are the major contributors of foreign exchange earnings and economic development, however, this is not the case because economies like Korea, Taiwan and Japan have become developed economies through SMEs (Jomo, 2019). Several researchers suggested SMEs as the innovative demand initiator having the capabilities of generating potential employment opportunities (McAdam et al., 2016). In developing economies, SMEs play a more rigorous role since it is considered to be a key source in boosting-up economic development equal or more than what is achieved by Multinational Large enterprises (MNEs). SMEs contribute to the economic development through various ways, yielding immense benefits in the form of job creation, and lower capital cost (Soun, 2015). In addition, SMEs have a flexible and elastic structure as compared to large firms (Slusarczyk et al., 2019). Studies (Gupta and Batra 2016) have reported strong association among organizational performance and entrepreneurial orientation (EO). Majority
of the developed and developing economies recognized that supporting SMEs entrepreneurial activities is a powerful way of achieving national growth and economic development. Generally, SMEs are faced with huge resource constraints (Rizos et al., 2016). However, (Jiménez-Zarco et al.,2019) observed that SMEs often display successful entrepreneurial features due to their flexibility, proactiveness, agility and more keenness towards risks as compared to large organizations. A study (Shariff, Ahmad and Hafeez 2017) investigated the relationship of entrepreneurial orientation (EO), market orientation (MO) and firm performance, and revealed the significance of EO and MO in enhancing the organizational performance. According to (Masa’deh et al. 2018), combining entrepreneurial orientation (EO) and market orientation forms the cultural basis of improving organizational performance. Although, market orientation focuses more on customers and competitors which have influence on the performance. The existing set of literature suggest that the combination of MO and EO would improve the SMEs performance. Thus, (Liu and Atuahene-Gima 2018) suggest that a business’s competitive ability of proactively responding to customer and market demand, will consequently lead to competitive organizational performance, in context to innovation. Learning orientation (LO) may result in competitive advantage achievement (Kharabsheh et al., 2015). It enables organizations to neutralize threats and exploit opportunities and allows to identify customer wants and needs as compared to their rivals, thereby ensuring organizational growth and profitability(García-Sánchez et al.,2017). Reviewing the literature has indicated various cases where a lack of knowledge regarding environmental changes and implicating such changes into the business have turned several firms into less effective firms as compared to their competitors. A few researchers have argued a positive impact of learning orientation on innovation, and also reported its positive impact on the organizational performance. Finally, a study (Jiménez-Zarco et al. 2019) reported a significant association among business performance and learning orientation. In today’s ever-changing business environment, intense global pressure has directed enormous attention towards challenges faced by the SMEs in global market. Although, identifying factors which may help to deal with environmental challenges is of prime importance for the top managers, entrepreneurs, strategists, and SMEs owners (Martin & Kinoti, 2017).

2. Literature Review and Hypotheses

Firm Performance and Market Orientation

Superior customer value directly relates to the superior performance and is an essential condition for performance and competitive advantage (Hussain et al.,2016). Consequently, market orientation (MO) stimulates the organizational performance(Dutta et al.,2016). Globally, the organizations and researchers have been widely investigating market orientation’s impact on firm performance. Various researches have regarded market orientation as a main competitive advantage source and a crucial factor in achieving organizational performance. In addition, researchers (Davcik and Sharma 2016) have empirically assessed market orientation and provided supporting evidence for the idea that market orientation plays a crucial role since it significantly influences the performance of an organization. According to (Lopez 2018), factors of MO emphasize more upon customer retention and less on customer acquisition, signifying that MO has a lesser impact on company’s sales and greater impact on its profits. Later, another study (Masa’deh et al. 2018) suggested that in order to enhance organizational performance, SMEs must focus more on the implementation of market orientation. Similarly, (Katsikea et al. 2019) discovered that firms which embrace MO can successfully explore potential opportunities as compared to their competitors, which enables them to gain market share and customer loyalty and will consequently improve organizational performance. Researchers have argued that implementing MO helps SMEs to achieve competitive advantage, since SME’s are less structured, less formal, are much closer to customers as compared to larger firms and have less organizational layers. Thus, MO enable firms to foresee and quickly as well as appropriately respond to the customer needs and requirements. In this regard, MO can improve firm performance in various ways, such as, 1) a joint focus on internal organization is created (Peng & Lin, 2017), through which various business units come into collaboration to realize
their common organizational goals and objectives, resulting in superior performance. 2) Market orientation gives rise to customer-oriented behavior, leading to greater customer satisfaction and improved service (Negi, 2017), which consequently result in higher customer turn-over. 3) MO improves organizational performance by allowing organizations to anticipate and respond to customer preferences and needs that are obtained through market intelligence. Thus, (Dutta et al. 2016) suggested that MO increases customer retention which subsequently enhances organizational performance. Additionally, it also leads to elevated customer satisfaction and service and improved financial performance of an organization. However, (Martin and Kinoti 2017) failed to find any connection between performance and MO, while weak association was found by (Jomo 2019). Similarly, (Soun 2015) also found no relationship among MO and subjective and objective performance measures. Although, (Jomo 2019) have conducted an extensive research to assess MO as a determinant of organizational performance and they suggested MO as a uni-dimensional construct, which comprises of competitor orientation, inter-functional coordination and customer orientation. They found each of these indictors as equally important for the organizational performance.

Firm Performance and Entrepreneurial Orientation (EO)
The past literature has indicated that most EO based studied were conducted in the larger firm’s context. Recently, a few studies have tried to investigate the entrepreneurial orientation’s impact on the performance of SMEs (Markin et al., 2018). However, majority of these studies were conducted in developed economies. According to (Peng and Lin 2017) 95 percent of organizations around the globe are SMEs and are contributing significantly in the global economy through innovative and novel production and generating employment opportunities. Thus, it is essential to examine SMEs performance and factors which significantly influence the SMEs performance. According to the literature, most small and medium sized enterprises show resistance to adopt EO in their organizations and their decision depend mainly on their intuition of anticipating market requirements, resultantly, a mismatch occurs between market needs and product offerings. Furthermore, prior studies also indicate that only a few researches have tried to evaluate correlation among SMEs performance and EO in case of developing economies and reported that positive correlation exists between performance and EO. Therefore, EO is considered to be an important strategic orientation for the performance of SMEs, which can significantly improve profitability and growth in today’s competing business environment. According to (Koçoğlu et al. 2015), entrepreneurial orientation (EO) is a potential mechanism to trigger business performance through innovation, proactive behaviors and risk taking. In another study (S. L. Martin and Javalgi 2016), it is found that entrepreneurial orientation (EU) makes the organization distinctive over its competitors through achieving superior performance. In view of (Negi 2017) the business environment in today’s era is distinguished by shorter product cycle. Thus, in current competitive environment, EO facilitates in enhancing the organizational performance. Similarly, another study revealed that businesses are required to constantly look for new opportunities, in order to survive and to stay competitive during uncertainty of future profits.

Entrepreneurial orientation (EO) is a significant strategic orientation construct which aims to improve firm performance (Lawal et al., 2018). EO is generally used in entrepreneurship area to determine the ability of a firm to bring changes in processes, enhance its performance and to innovate. However, it is worth noting that EO and the role of EO in enhancing SMEs and large businesses performance has successfully drawn the attention of several researchers. Several studies on performance and EO are available in the literature particularly in case of large firms, however, limited studies were found on the relationship of SMEs performance and EO, in case of developing economies(Moreno-Moya & Munuera-Aleman, 2016). Furthermore, the extent or scope of this relationship may differ depending on the type of research. A few studies have reported strong and significant impact of EO on the firm performance and also confirmed that entrepreneurial firms exhibit better performance as compared to non-entrepreneurial firms. Meanwhile, (Lopez 2018) found an insignificant relationship among firm performance and
EO. Similar findings were obtained in (Liu and Atuahene-Gima 2018) study who found no significant relation between EO and firm performance. In addition, (Rizos et al. 2016) discovered that business performance does not get influenced by entrepreneurial orientation because of the presence of other effects of exogenous variables involved in the study. However, a positive partial relationship was found by (Hussain et al. 2016). A few researches also discovered lower influence or less significant effect of EO on the organizational performance, while some failed to find any significant linkage between the two variables. (Liu and Atuahene-Gima 2018) conducted a study to assess the relationship between performance and EO but found no significant association between them:

Performance and Learning Orientation (LO)
Learning orientation refers to the organizational value which affects the tendency and ability of a firm to generate, disseminate, and exploit knowledge. According to (Bakar et al. 2017), learning is a continuous information transferring and utilization process that is often employed by firms to gain competitive advantage. Hence, while competing in changing and dynamic environment, firms must integrate learning processes, bring in behavioral changes and enhance their performance. Thus, by effectively satisfying invisible and visible customer needs and by focusing on customer perceptions, organizational learning (LO) may yield various positive outcomes, such as, customer maintenance, new product success, access to the desirable quality as demanded by customers and increased profitability and flexibility (Bakar et al. 2017). It will also allow firms to quickly respond to existing and new environmental threats and opportunities. (S. L. Martin and Javalgi 2016) suggest learning as a strategy to integrate and govern both external and internal environments. (Cameron and Green 2019) defined learning as an organizational technique to merge or combine the internal information. In another study (Moreno-Moya and Munuera-Aleman 2016) learning is suggested as an outcome of a combination of knowledge acquisition and its implication in SMEs. (Fraj et al. 2015) referred learning orientation (LO) as an organizational tool for improving and developing their capabilities to remain competitive under constantly changing and challenging market environment. LO enhances and opens up new and creative ways of performing business. According to (Chang et al. 2017), learning orientation (LO) refers to the behavior of a firm which aims to affect the interpretation, renewal of shareholders-employees relationships and knowledge sharing within the firms. Although, (Bakar et al. 2017) suggested that firms will be faced with a main challenge of establishing a culture that is characterized by organizational learning. In fact, the learning orientation will enable each organization to create potentially effective vision and knowledge for the individual behaviors, resulting in performance improvement of a firm, 2). (Mas'adeh et al. 2016) defined learning orientation (LO) as the extent that an organization receives and shares information regarding expectations and needs of its customers, market changes, new technological development, and competitors’ actions, to develop new and better services and products as compared to its rival businesses. Learning commitment requires training initiatives, payment of individuals who convert learning into performance, and support from the top management. Basically, organizations must motivate and encourage workers to innovate and create new ideas, self-evaluate their activities to improve their performance, and to challenge the status quo. The firm performance and LO relationship have acquired enormous attention among the scholars. Therefore, a number of studies have attempted to examine this relationship and reported LO’s positive effect on organizational performance. (Hussain et al. 2016) explained LO as value of learning within the organization. Researchers (M. MARTIN and KINOTI 2017) have argued that a learning organization emphasizes to understand customers, and to effectively satisfy customer needs and requirements by introducing new and improved services and products. The resource-based view (RBV) advocates that the cut-throat competition arises when organizations discover and integrate unique inputs in their operations. According to (Davcik and Sharma 2016), firms with learning orientation are capable to efficiently and effectively use learning capabilities. Furthermore, learning orientation (LO) enables to understand consumers’ desires and needs. Thus, firms must learn and understand needs of their customers in order to secure competitive position and to create superior value in the market. The literature also indicates that innovation and learning orientation are directly linked since learning orientation is regarded as an essential
component of innovation. In addition, customer value positively and directly influenced by learning orientation (Hussain et al., 2016). (Bature et al. 2018) suggested the learning orientation (LO) as another organizational capability of using resources to achieve superior performance and to create higher customer value. Similarly, (Bakar et al. 2017) were of the view that learning orientation refers to an organizational activity i.e. to use and create knowledge for gaining competitive advantage. These organizational activities involve obtaining and exchanging information and knowledge regarding market changes, customer needs, new technological and product development, and actions superior to its competitors. Hence, firms must incorporate learning orientation as an essential factor to achieve superior performance. Another study (S. L. Martin and Javalgi. 2016) suggested LO as an important competitive advantage factor, that is directly associated with innovation. However, (Anwar 2019) have argued that learning orientation adoption may have positive effects on the SMEs performance. LO aims to understand the organization’s link with its environment in correspondence to its competitor and customer. Therefore, understanding organizational environment allows to quickly grasp potential opportunities as well as proactively minimizing potential threats. It has been observed by (Cameron and Green 2019) that integrating learning orientation enables to satisfy as well as surpass expectations and needs of the customers. In that way, (Hussain et al. 2016) claimed that there is a higher tendency that learning oriented organizations will become market leaders. Therefore, in 21st century, customers are striving to become knowledgeable concerning the products they intend to buy and also make comparisons and well-informed decision making before purchasing. Thus, SMEs are needed to embrace learning orientation in order to remain profitable and to continuously and successfully meet customer needs. Many studies have reported significant positive linkage among SMEs performance and learning orientation. It thus explains that LO is associated to wide organizational activities which aim to create and share relevant information and awareness about market competition. However, other studies (Shariff et al. 2017) discovered a significant association among SMEs performance and LO. Although, majority of these studies were conducted under the context of developed economies.

Hypotheses

Several studies have been conducted concerning the relationship of performance and business management in larger organizations. However, not enough studies were conducted on SMEs, particularly in case of developing economies (Kharabsheh et al. 2015) and (Hussain et al.2016). Several scholars (McAdam, McAdam, Dunn, & McCall, 2016) and (Liu & Atuahene-Gima, 2018) are of the view that the developed economies achieved success because of SMEs. Literature shows that a very few researches have investigated the crucial factors that are responsible for the success of SMEs in Indonesia. Although, those researches that were conducted concerning the SMEs success in Indonesia have not particularly examined the strategic perspectives and innovative culture as the success determinants of SMEs. Therefore, the present study attempts to fill this research gap. Thus, regardless of the significance of SMEs, a study (Mahmood and Hanafi 2013) found that in many countries SMEs show low performance because of weak entrepreneurial capabilities, lack of skilled human resource, technological constraint, weak management system, dearth of timely information, poor-quality products, and inadequate exploitation of information technology. In view of (Mohamed 2018), the developing economies must transfer their potential value into concrete, consolidated and mainstream efforts, in order to become a developed economy. The prior studies regarding strategic orientation, including market orientation, entrepreneurial orientation and learning orientation have focused mainly or partially on the case of larger firms. Therefore, the present study aims to analyze strategic orientation in SMEs context. However, the SMEs tendency may have varied implications in case of each orientation (Koçoğlu et al.2015). Thus, the present research will provide a detailed literature review concerning the implementation of orientation and its impact on the performance of SMEs. Market orientation (MO) particularly emphasizes upon customers and the connections among departments that facilitate in improving organizational performance, thereby allowing firm to achieve competitive advantage. Similarly, learning orientation (LO) is expected to expand organizational output. Organizations generally learn from their experience, employees, and their external environment which improve the
overall performance and also enhance organizational productivity. In the same context, entrepreneurial orientation (EO) significantly contributes to the organizational performance. As mentioned above, the studies concerning SMEs internal capabilities are almost non-existent in case of Indonesia. Therefore, this study will particularly emphasize on internal competencies of manufacturing SMEs, such as LO, EO and MO and will determine how application of these competencies can facilitate in achieving greater organizational performance. Based on the previous discussion, it is therefore hypothesized that

H1: EO has significant impact on the performance of SMEs in Thailand.
H2: EO has significant impact on the LO of SMEs in Thailand.
H3: EO has significant impact on the MO of SMEs in Thailand.
H4: LO has significant impact on the performance of SMEs in Thailand.
H5: MO has significant impact on the performance of SMEs in Thailand.
H6: LO mediates the relationship between the EO and performance of SMEs in Thailand.
H7: MO mediates the relationship between the EO and performance of SMEs in Thailand.

3. Methodology

A total of 300 questionnaires were distributed to the respondents for the current study. In response, 250 questionnaires were received back. Out of 250 questionnaires, 244 had complete information and rest 6 were discarded because of incomplete information. Therefore, 244 questionnaires were used for further analysis. The biasness of data was not checked for the collected data, as the data was collected through self-administration. The respondents were given questionnaires by hand and a time of one week for completion. The questionnaires were received within the allocated time and nonconformities test was not used between respondent and non-respondent.

PLS method has been used for data analysis. There are various reasons for using this technique. One of the key reasons is less requirements in PLS-SEM method. It was stated by (Hair et al. 2011) that this method can be applied on small sample size as compared with other approaches such as AMOS. Structural models with high complexity and constructs can be analyzed through PLS method. There is no need for normal distribution of data to be analyzed by this method. PLS method is used for predicting and defining the constructs in structural model (F. Hair Jr, Sarstedt, Hopkins, & G. Kuppelwieser, 2014). PLS-SEM is used for examination of data and hypotheses development. The purpose of PLS approach is to maximize the variance of unobserved dependent construct (Hair et al.,2011). It was recommended by (Bagby et al.1994) that two-stage performance is used for PLS performance. The reliability and validity of the measurement model is determined in the first stage of approach. However, the second stage involves the determination of structural model. Measurement model is referred as outer model in PLS-SEM method. The path modelling can be categorized into reflective and formative path modelling. However, the selection of measurement model is given support of theory (Hair et al., 2014).

4. Results

The measurement goodness to ensure validity and reliability has been assessed in the study for measured items. It was stated by (Henseler et al. 2015) that the validity and quality of unobserved constructs through determining convergent validity (CV). It is ensured in construct validity that the variables define and reflect the theoretical meaning of their operational definition. It has been discussed before that CFA analysis has been used for conducting convergent and discriminant validity. Convergent validity refers to the association between similar measures of construct (Preacher et al., 2010) (See figure 1, table 1).
Figure 1. Measurement Model

Table 1. Outer Loading

<table>
<thead>
<tr>
<th></th>
<th>EO</th>
<th>LO</th>
<th>MO</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>EO2</td>
<td>0.879</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EO3</td>
<td>0.894</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EO4</td>
<td>0.870</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EO5</td>
<td>0.903</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EO6</td>
<td>0.879</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EO7</td>
<td>0.885</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EO8</td>
<td>0.845</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LO2</td>
<td></td>
<td>0.926</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LO3</td>
<td></td>
<td>0.900</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LO4</td>
<td></td>
<td>0.879</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LO5</td>
<td></td>
<td>0.894</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LO6</td>
<td></td>
<td>0.840</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MO1</td>
<td></td>
<td></td>
<td>0.901</td>
<td></td>
</tr>
<tr>
<td>MO2</td>
<td></td>
<td></td>
<td>0.898</td>
<td></td>
</tr>
<tr>
<td>MO3</td>
<td></td>
<td></td>
<td>0.913</td>
<td></td>
</tr>
<tr>
<td>MO4</td>
<td></td>
<td></td>
<td>0.859</td>
<td></td>
</tr>
<tr>
<td>MO5</td>
<td></td>
<td></td>
<td>0.826</td>
<td></td>
</tr>
<tr>
<td>MO6</td>
<td></td>
<td></td>
<td>0.875</td>
<td></td>
</tr>
</tbody>
</table>
It is reflected by Convergent Validity that original construct is reflected by the set of indicators, which can be developed on their uni-dimensionality (Henseler et al., 2015). The convergent validity can be accessed through CR (composite reliability), AVE (average variance extracted), and factor loadings. Further, the value of AVE was calculated to assess convergent validity. AVE is regarded as the level at which change in items is described by latent construct (Hair et al., 2014). AVE has been referred as the criterion for CV (Fornell & Larcker, 1981). When the value of AVE is greater than value of 0.50, it reflects that more than half of indicator’s change is because of its unobserved variable (See table 2).

Table 2. Reliability

<table>
<thead>
<tr>
<th></th>
<th>Cronbach's Alpha</th>
<th>rho_A</th>
<th>CR</th>
<th>(AVE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EO</td>
<td>0.958</td>
<td>0.959</td>
<td>0.965</td>
<td>0.775</td>
</tr>
<tr>
<td>LO</td>
<td>0.933</td>
<td>0.935</td>
<td>0.949</td>
<td>0.789</td>
</tr>
<tr>
<td>MO</td>
<td>0.958</td>
<td>0.959</td>
<td>0.965</td>
<td>0.774</td>
</tr>
<tr>
<td>P</td>
<td>0.957</td>
<td>0.961</td>
<td>0.963</td>
<td>0.723</td>
</tr>
</tbody>
</table>

Construct validity is determined through another observed indicator, which is discriminant validity. The level where there is no correlation between different measures is referred as discriminant. Discriminant validity can be defined as the situation where the different characteristics of two different concepts have no association with each other. Therefore, the uniqueness of construct, which are not similar is linked with DV. It has been suggested by (van et al. 2016) that discriminant validity of construct can be determined in two ways, which include cross loadings and criterion of Fornell-Larcker (See table 3 and figure 2).
In order to verify the hypothesized relation, path analysis has been used for testing. This involves the process of inner model analysis. The technique of PLS is regarded as based on variance and prediction oriented. PLS method is related with the prediction of hypothesized relation and theoretical development (Wong, 2013). The structural model assessment has been done through use of algorithm and bootstrapping in PLS-SEM.

The structural model has been determined through testing of hypothesis and association between the variables. This test can be conducted after the determination of measurement model. The process of bootstrapping is non-parametric re-sampling procedure in which estimated significance of parameters is evaluated and used in PLS (Henseler et al., 2015). The bootstrapping process has been performed using t-values in model testing. Almost 500 procedure of re-sampling were used in bootstrapping. The coefficient of determination has also been assessed in the study. The results have revealed that all the path EO -> LO, EO -> MO, EO -> P, LO -> P, and MO -> P explaining the direct relationship are significant (see table 4, table 5, figure 3).
Table 4. Direct Relationship

|        | (O) | (M) | (STDEV) | (|O/STDEV|) | P Values |
|--------|-----|-----|---------|--------|----------|
| EO -> LO | 0.689 | 0.690 | 0.070 | 9.848 | 0.000 |
| EO -> MO | 0.937 | 0.937 | 0.012 | 81.110 | 0.000 |
| EO -> P  | 0.536 | 0.539 | 0.071 | 7.524 | 0.000 |
| LO -> P  | 0.247 | 0.247 | 0.133 | 1.855 | 0.032 |
| MO -> P  | 0.604 | 0.614 | 0.177 | 3.412 | 0.000 |

The mediating role of the LO and the MO in the relationship between EO and performance is explained in the table 5 below.

Table 5. Mediation

|        | (O) | (M) | (STDEV) | (|O/STDEV|) | P Values |
|--------|-----|-----|---------|--------|----------|
| EO -> LO -> P | 0.170 | 0.170 | 0.094 | 1.814 | 0.035 |
| EO -> MO -> P | 0.566 | 0.576 | 0.167 | 3.383 | 0.000 |

The value ranges from 0 to 1. The value of R square is considered strong when it is nearer to 0.8 and weak when it is less than 0.3.

Table 6. R-square

<table>
<thead>
<tr>
<th></th>
<th>R Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>LO</td>
<td>0.475</td>
</tr>
<tr>
<td>MO</td>
<td>0.879</td>
</tr>
<tr>
<td>P</td>
<td>0.377</td>
</tr>
</tbody>
</table>

Additionally, the predictive ability is also determined by the blindfolding procedure and the output is mapped in the figure 3.

Figure 3. Blindfolding.
The results revealed that all the q-square values are non-zero and hence there is no issue of predictive ability (see Table 7).

Table 7. Q-Square

<table>
<thead>
<tr>
<th></th>
<th>SSO</th>
<th>SSE</th>
<th>Q² (=1-SSE/SSO)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EO</td>
<td>1,736.000</td>
<td>1,736.000</td>
<td></td>
</tr>
<tr>
<td>LO</td>
<td>1,085.000</td>
<td>701.965</td>
<td>0.353</td>
</tr>
<tr>
<td>MO</td>
<td>1,736.000</td>
<td>625.853</td>
<td>0.639</td>
</tr>
<tr>
<td>P</td>
<td>2,170.000</td>
<td>1,620.631</td>
<td>0.253</td>
</tr>
</tbody>
</table>

Conclusion

In this study, key variables are introduced and integrated based on the existing literature on LO, MO, and EO to predict the level of performance. To the best of our knowledge, only a limited set of literature is available which has integrated LO, MO, and EO with the SMEs performance in case of Indonesian economy. Within the RBV context, the findings of this study indicate that aligning EO, MO and LO can be useful in explaining the SMEs performance in Indonesia. In addition, findings also suggest that these three strategies must be integrated in SMEs as packages and not individually in multidimensional construct, since each construct contains inter-dependent dimensions. As discussed previously, despite the remarkable significance of SMEs in a country, majority of the researches on EO, MO, and LO were particularly based on large firms’ context. However, this study attempted to extend the existing set of literature on SMEs performance and EO, MO and LO strategies in Indonesia. Lastly, for the purpose of testing the proposed hypotheses, the present study confirmed the validity of research instrument to ensure that these instruments would yield reliable and valid outcomes, as poorly validated measures may lead to invalid conclusions. Furthermore, the findings offer deeper understanding about the effects of EO, MO and LO on the overall SMEs performance in Indonesia. The present study provides insights for the practitioners and policy makers which may facilitate them in the formulation of SMEs related policies. The analytical outcomes suggest that the SMEs managers must closely coordinate with the quality and marketing departments, thereby assisting them in promoting higher performance and customer satisfaction (Masa’deh et al., 2018). Due to the continuous changing external environment and customer and competitor uncertainty faced by firms, it is thus critical for the SMEs managers to adopt the three aspects of strategic orientation i.e. entrepreneurial orientation, market orientation and learning orientation as business strategies in order to understand and anticipate competitors moves as well as to bring improvement in the product and service quality. Thus, managers must keep track record of their potential as well as current customers by adopting new technology, for instance, online communities, websites, e-mail in order to capture potential opportunities. According to the empirical findings of this research, the organizational strategies were found to be important as well as inimitable, non-substitutable, and valuable resources which are capable of creating competitive advantage. Therefore, this study offers significant managerial implications, thereby encouraging SMEs managers towards the EO, MO and LO’s implementation to achieve higher performance and competitiveness under unstable business environment.
References


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CREATION OF AN INTELLECTUAL PROPERTY COURT IN UKRAINE: PROTECTION OF INTELLECTUAL PROPERTY RIGHTS IN A SYSTEM OF ECONOMIC SECURITY OF A COUNTRY

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Abstract. The article highlights the legislative, organizational and economic aspects of the establishment and functioning of the intellectual property courts of the leading European countries and the modern state of the Ukrainian Intellectual Property Court formation. It also covers the stages of the Ukrainian IP Court establishment and formation of its judicial manpower (the arrangement of the candidates’ selection for the posts of the judges of the first instance and the Appeals Chamber to the newly-established body by the High Qualifications Commission of judges of Ukraine (HQC)), as well the processes of the Federal Patent Court of Germany and Switzerland formation. The legal basis for the functioning was identified for already existing Federal Patent Courts of Germany and Switzerland, Tribunal de Grande Instance in France, Intellectual Property Enterprise Court in the United Kingdom, and the Ukrainian Intellectual Property Court that is still on the stage of its generation. Particular attention was put to the peculiarities of the formation of the judicial manpower of the corresponding judicial bodies, jurisdiction, and the instance-system building of the intellectual property judicial bodies. The authors define the leading role of intellectual property in the national economy and substantiate the economic and managerial processes of regulation of legal relations in relation to intellectual property. It is determined that the judicial practice of intellectual property cases should be based on social and economic methods of assessing and determining the level of efficiency of management of intellectual property.

Keywords: national security, judge, patent court, intellectual property management, socio-economic security, Ukrainian Intellectual Property Court (Ukrainian IP Court), the High Qualifications Commission of Judges of Ukraine (HQC).


JEL Classifications: F35, F42

1. Introduction

The principles of supremacy of law and proper justice execution have found their legislative reflection in both existing legislation of Ukraine and the corresponding regulations of the international level. The execution of justice is conducted with adherence to legal requirements and ethics. Hence, its final objective is to restore justice and rules of law in society.

One of the main factors, influencing the efficiency of the development and progress of the legal democratic state and its entrée into the world community; is the availability of qualitative legal human rights, freedoms, and legally protected interest systems. Intellectual property protection is not an exception. Hence, it requires proper legal and organizational support. Concerning legal groundwork, one should mention that the establishment of an effective legal and regulatory framework makes it possible to ensure not only human rights protection in the area of intellectual property of particular individuals but also economic security of the state in general (Reznik &
Shevchenko, 2015). The financial and economic situation in the country ultimately influences its positioning within the global space (Reznik, et. al., 2020; Drobyazko, et al., 2019; Tvaronavičienė 2019; Čizo et al., 2020). In the context of organizational support, the establishment of the intellectual property court is the key to guaranteeing the legal interests of the participants of these legal relationships.

As of now, the provision of the proper level of the protection of rights, freedoms, and legally protected interests of people in the area of intellectual property by the state is carried out through the corresponding judicial bodies – the courts. Considering the above-mentioned details, the study of the peculiarities of the intellectual property court establishment in Ukraine, the determination of its legal status and the key aspects of this body’s activity requires a more profound study. In the framework of the topic under the study, it makes sense to set legal and organizational aspects of the functioning of such a judicial body in the leading European countries.

2. Literature Survey

The study of the peculiarities of the Ukrainian IP court establishment, the determination of its legal status, and the clarification of the key aspects of the activity of this body primarily require the establishment of legal and organizational aspects of the functioning of such body in the leading European countries. Herewith, it is worth mentioning that rights protection in the area of the intellectual property in most European countries belongs to the area of responsibility of the patent courts.

Thus, Germany has The Federal Patent Court (Bundespatentgericht), which was founded on 1 July 1961. At the same time, before the establishment of Bundespatentgericht, the decisions of expertise sections and departments of the German Patent Office, regarding the registering or existing industrial property rights, were a subject to re-examination by the appellate benches only. Regarding the members of the appellate benches, they were represented by the state employees, while the appellate benches themselves, from the organizational point of view, were a part of the German Patent Office. Based on the above-mentioned details, there was a thought that all those decisions had no legal arrangements of protection (The official website of Bundespatentgericht).

After the Basic Law for the Federal Republic of Germany from 23 May 1949 went into effect, one faced the need to reconsider the status of commissions for appeal claims. Para. 4 Art. 19 Basic Law for the Federal Republic provides guarantees to any person whose rights were breached by the state bodies, including the possibility to ask the court for protection (Basic Law for the Federal Republic of Germany, 1949).

On 13 June 1959, the Federal administrative court ordered the administrative action, referring to the principle, specified in Para. 4 Art. 19 of Basic Law for the Federal Republic. The court ordered that the body regarded as German Patent Office is not the court according to the content of the law; the decisions of the Boards of Appeal were the administrative acts, which could be appealed in the Administrative Court. After the addition of amendments to Basic Law for the Federal Republic, Bundespatentgericht was established as an independent, autonomous federative court. Bundespatentgericht is situated in Munich and is mended by the Federal Ministry of Justice (The official website of Bundespatentgericht).

The Bundespatentgericht competencies include the solution of questions about the provision of legal ownership (patent, trademark, useful model, topography, design, the right for a specific type of plants) or the rejection in registering the right of ownership. Based on the appeals petition or and application, Bundespatentgericht can cancel the adopted decision about the given property right, regarding the object of intellectual property through recalling or cancellation (The official website of Bundespatentgericht). It is worth noticing that the invalidity procedure is the proper procedure for revocation of a valid German patent or supplementary protection certificate, or a patent, or the additional protection certificate. The procedure for the determination of invalidity is separated from the grant
of the patent and the judicial examination, and its purpose is to cancel the validity of the official act, upon which the patent was granted. The decision on invalidity cases in the first instance belongs to the jurisdiction of The Federal Patent Court (Bundespatentgericht), and in the second instance – to the jurisdiction of the Federal Court of Justice (Basic Law for the Federal Republic of Germany, 1949).

The judicial manpower of The Federal Patent Court (Bundespatentgericht) consists of 120 judges. According to the provisions of the Basic Law for the Federal Republic of Germany, the Courts Constitution Act, and the German Judiciary Act, the judges of The Federal Patent Court (Bundespatentgericht) are independent and can act in the frameworks, defined by the law. There are notions of substantive and personal independence of judges. The substantive independence resides in the fact that in the course of the decision-making, the judges are not tied with any instructions or recommendations. The personal independence lies in the impossibility of firing or dismissing the judge from his posts without the approval of such a decision by other judges. The judges are subject to disciplinary supervision only under the condition that their principle of independence is not breached (Basic Law for the Federal Republic of Germany, 1949; Courts Constitution Act, 1951; German Judiciary Act, 1972).

In France, the legislation in the area of intellectual property is codified. According to the Intellectual Property Code, any unique work, obtained in any form, can be protected by the law of copyright. The work you can protect with the law includes:
(1) literary and artworks,
(2) pre-production prototypes,
(3) inventions, which can be patented,
(4) audio-visual materials,
(5) computer programs,
(6) computer software or a data base,
(7) paintings and sculptures,
(8) photographs.

The Intellectual Property Code of France distinguishes pecuniary and non-property rights of the intellectual property objects’ authors. While the pecuniary rights imply the sales or use opportunity, which is characterized by pecuniary benefits, the non-property rights guarantee the author the recognition and respect for his work and name. The pecuniary rights are valid throughout the lifetime of the author and during 70 years after his death, while the non-property rights belong to him forever, and can fall to his heirs after his death.

In France, the consideration of cases regarding the intellectual property rights violation, as a rule, takes place in the court of the highest resort – Tribunal de Grande Instance. At the same time, one does not exclude the consideration of such cases in specialized chambers of nine District courts, among which only the Court of Paris has the right to consider patent issues. The cases on the misappropriation of the know-how can be also reviewed in the commercial courts. The Administrative decisions of the National Patent and Trademark Office about the registration of intellectual property objects can be appealed in the Court of Appeal. The Intellectual Property Code includes the subject-matter and territorial jurisdiction of cases, regarding the breach of intellectual property rights. The cases upon the subject-matter jurisdiction are reviewed in Tribunal de Grande Instance. At the same time, there are exceptions: in the case of the violation of the intellectual property rights, the case is prosecuted in the Tribunal Correctionelle (special department of Tribunal de Grande Instance). The territorial jurisdiction of cases on the breach of the intellectual property rights makes provisions for the possibility of their reviewing upon both the place the damage was caused and the address of the defendant (Code de la propriété intellectuelle, 1992).

The United Kingdom has the Intellectual Property Enterprise Court, reviewing the cases, which are related to the
disputes on intellectual property, in particular: patents, copyright, registered trademarks, registered constructions, and other rights of intellectual property. If the amount of damages is less than £500,000, then the case can be reviewed in the Patents Court or Chancery Division. At the same time, the dispute, involving the damages over £500,000, can be considered in these instances if the parties do not reach the mutual agreement in the Intellectual Property Enterprise Court. The Intellectual Property Enterprise Court is a specialized court that is a part of the Business and Property Courts of the High Court of Justice, which is situated in London (Intellectual Property Enterprise Court).

In Switzerland, the Federal Patent Court operates since 1 January 2012. It is situated in the city of St. Gallen. The disputes under civil law on patent were previously referred to the jurisdiction of cantonal courts. The Federal Patent Court has exclusive jurisdiction in the civil cases, related to the patent validity, and infringement of patent rights. Herewith, other patent lawsuits, related to patents, may also be brought before the Federal Patent Court (for example, the disputes concerning the agreements on patent licensing or patent rights). The decision of the Federal Patent Court can be appealed in the body of the highest instance – the Federal Patent Court of the Swiss Confederation.

The legal status of the Federal Patent Court was regulated by the norms of the Federal Act on the Federal Patent Court from 20 May 2009. The Federal Patent Court is the patent court of the first instance of the Swiss Confederation. Its judicial manpower includes the judges with both legal and technical training. The judges are required to possess specific verified knowledge on patent law. The Federal Patent Court consists of two permanent judges and a sufficient number of non-permanent judges. Most non-permanent judges must go through technical training. The Federal Patent Court is located at the location of the Federal Administrative Court, serving as the seat of permanent judges, court officers, and administrative personnel (Federal Act on the Federal Patent Court, 2009). The judicial selection is conducted by the Federal Assembly. The requirement of incompatibility of judges is quite important, it provides for the following:

1. the judges cannot be members of the Federal Assembly, the Federal Council or the Federal Court;
2. the judges cannot be engaged in any activity, worsening their ability to perform the duties, required by their post, their independence or causing the harm to the reputation of the court;
3. they cannot act officially from the name of the foreign state;
4. the permanent judges cannot act as professional representatives of the third parties in the court;
5. the permanent judges cannot be the members of the board of executive directors, the Supervisory board, the advisory board or be auditors of business enterprises (Federal Act on the Federal Patent Court, 2009).

The head of the Federal Patent Court is selected by the Federal Assembly out of Permanent Judges, and, after the election, he will represent the court in relation to the third parties. The Administrative Committee is in the charge of the court administration; it consists of: (1) The Head of the Federal Patent Court; (2) the Vice President; (3) the second permanent judge or, if he performs the functions of the Vice President, a judge who is not permanent. As a rule, the court makes a decision collectively. The jurisdiction of the Federal Patent Court is determined by Art. 26 of the Federal Act on the Federal Patent Court. The Federal Patent Court has an exclusive jurisdiction concerning (a) the disputes on the breach of the license issue for a patent procedure; (b) the adoption of preliminary measures before the commencement of the court proceedings as defined in the paragraph (a); (c) the implementation of decisions, adopted according to the exclusive jurisdiction of the court. Apart from the highlighted features, the jurisdiction of the Federal Patent Court applies to other civilian cases, which have relation to patents, in particular, the right for patents or their misappropriation. It is important to note that the jurisdiction of the Federal Patent Court does not exclude the jurisdiction of the cantonal courts. Thus, if the issue is about invalidity or patent violation, it should be solved by the cantonal court upon the preliminary request or for defense, the judge will give the parties reasonable time to file a claim for invalidity or infringement with the Federal Patent Court. The Cantonal Court
stops the proceedings pending until the final or absolute decision upon the case. If no claim is lodged with the Federal Patent Court within the prescribed period, the cantonal court resumes the proceedings. But in the presence of a defendant’s counter-claim for invalidity or patent infringement, the cantonal court transfers both claims to the Federal Patent Court (Federal Act on the Federal Patent Court, 2009).

Considering the peculiarities of the judicial systems of Germany, France, the United Kingdom, and Switzerland in the area of intellectual property protection, one should mention the following idea. The legal controversies, regarding the breach of intellectual property, are reviewed in the specialized courts, specializing in intellectual property issues, which is a reliable tool in the process of provision the proper and fair the protection of rights of individuals in this area. Particular attention is put to the formation of judicial manpower, consisting of highly qualified professional judges. The consolidation of specific types of activity, in its turn, which is incompatible with the position of judge, acts as a means of provision of the independence and impartiality of the law enforcement authorities.

As for the bodies of the global scale, the activity of which is focused on the rights protection of intellectual property, one can mention The World Intellectual Property Organization (WIPO). WIPO is an international intergovernmental organization, established on the basis of the Convention, adopted in 1967 by the member countries of the Paris International Union for the Protection of Industrial Property, the Berne Convention for the Protection of Literary and Artistic Work, and other special unions. Its Office for the Secretary of State is the International Organization WIPO, dislocating in Geneva from 1974 when WIPO got the status of a specialized organization of UN (The official website of WIPO).

Particular attention should be put to the establishment of the Unified Patent Court (UPC) on 19 February 2013. UPC possesses exclusive jurisdiction to hear all infringement and invalidation (revocation) cases of EU and single EU patents, as well as the infringement and validity certificates of the supplementary protection – the certificates, issued under EU Regulation No 2009/2009 on medical products or the EU Regulation No. 1610/96 on Phytopharmaceutical Products (Agreement on a Unified Patent Court (2013). The legal basis for UPC’s activity is the Agreement on a Unified Patent Court.

UPC was established with the purpose:
(1) to eliminate parallel litigation in the different Member States of EU;
(2) to harmonize substantive patent law, related to the scope and limitations of the acquired patent rights, as well as remedies, in the case of their breach;
(3) to enhance legal certainty concerning the use of patents by means of agreed case law in the area of patent breach and validity;
(4) to provide simpler, faster, and more efficient judicial procedures and the reduction or expenses on solving of patent disputes (Androshchuk, 2019).

3. Methods

The study of legal and organizational aspects of the courts’ establishment and functioning for the consideration of cases in the sphere of intellectual property in the leading European countries, and the current state of the High Intellectual Property Court formation in Ukraine, was conducted with the use of the historical, comparative, formal, legal, and systemic-and-structural methods.

The historical method was used to cover the stages of establishment of the High Court on Intellectual Property of Ukraine and its judicial manpower (the organization of the candidates’ selection for the posts of judges to the first
instance and the Appeals Chamber of the newly-established body by High Judicial Qualifications Commission of Ukraine), as well as the processes of establishment of the Federal Patent Courts of Germany and Switzerland.

The use of the comparative method made it possible to determine the legal framework for the functioning of the already existing Federal Patent Courts of Germany and Switzerland, the Tribunal de Grande Instance in France, the Intellectual Property Enterprise Court in the UK, as well as the High Court of Intellectual Property in Ukraine that is still in the phase of formation. In particular, this applies to the formation of the judicial manpower of the corresponding judicial bodies, jurisdiction, the instance building of a system of judicial bodies for the reviewing of cases in the area of intellectual property. The analysis of the legislative regulation of the courts’ activity on the intellectual property cases in the leading European countries and the state of legal support in Ukraine also made it possible to generate the corresponding proposals, concerning the requirements to the professional experience of candidates. The disclosure of the content of the provisions of the current Ukrainian legislation, which generally regulate the issues of the organizational building of a system of judicial bodies and the implementation of justice in Ukraine, and determine the legal status of the High Court on Intellectual Property (judicial composition, jurisdiction, etc.); was made by means of the use of the formal legal method. The system-structural method made it possible to present the quantitative indicators upon the results of competitive selection to the High Court of Intellectual Property of Ukraine and the Appeals Chamber of the newly-established body.

4. Results

Intellectual economy, intellectual resources and globalization become a linchpin of world economic and juridical development at the same time actively influencing one another and ensuring mutual development (Fig. 1).

![Figure 1. Intellectual property in a system of interconnections of the main world tendencies](image_url)
The availability and effective use of intellectual property causes a new cycle in the development of new technologies and production of intellect-intensive products which stimulate the formation of intellectual economy and new trends of its legal defence. Globalization herewith provides large market outlets for intellectual property. In turn, on the one hand, intellectual economy contributes to the development of intellectual property and, on the other hand, encourages the development of information culture on a global scale (Watson & Stanworth, 2006).

In confirmation of the given arguments, we will consider the tendencies of the world market of intellectual property and its legal defence. Thus, in 2018 inventors submitted 3.17 mln patent applications all over the world which indicates the growth of the corresponding indicator for the eighth year in a row. The total number of trademark applications was 12.39 mln which was 26.8% more than a year before; moreover, this number demonstrates that double-digit growth rates on hold for the third year in a row (International intellectual property alliance (IIPA). The total number of submitted industrial design applications in the world exceeded 1.24 mln while the number of utility model applications was 1.76 mln (Fig. 2).

In 2018 there were 13.72 mln valid patents in the world, about 2.98 mln of which were valid in the United States of America (USA), 2.1 mln in China and 2 mln in Japan. 14.9 mln out of 43.23 mln valid trademark registrations in the world were only in China; the USA(2.2 mln) and Japan(1.9 mln) took the second the the third places according to the number of registrations. The total number of valid industrial designs in the world increased by 5% and was 3.75 mln. A share of China was not only 39% of all valid industrial designs in the world (a bit less than a half) but also almost all valid utility models (92%) (European Patent Office (EPO) (2019).

Globalization accelerates the process of creation, accumulation and use of intellectual property ensuring their redistribution, concentration and intensive representation, which, in turn, involves working with global bases of an intellectual property object and experience of their use and stimulates the development of economic
cosmopolitanism. The latter speeds up the globalization process. Summarizing all the above mentioned, it can be marked that the role of intellectual property in modern economic transformations characterizes the following trends: 1) high specific gravity of intellectual property and intellectual labour in GDP growth; 2) economic growth significantly depends on the use of intellectual property now which determines innovative development and scientific and technological progress; 3) information and innovative sector accounts for 85% of GDP growth in developed countries. The more developed a country is, the more strongly the intellectual property and intellectual labour are used, and vice versa. Self-expansion of intellectual property plays the same role in the intellectual economy as self-expansion of material and real capital in the industrial one.

Thus, the effectiveness of the use of intellectual property and intellectual labor determines the prospects of economy development of this or that country in the following aspects:

1) high specific gravity of income from intellectual activity in the total income of the population. Intellectual activity includes the work in governance, finance, jurisprudence, scientific and educational activity, mass media, culture, etc. It is the scale of intellectual activity in developed countries that speaks about the formation of legal intellectual economy;
2) the key role of information in economic and social processes. In the intellectual economy the significance of information exceeds material products and energy in its scales;
3) transformation of science directly into productive power.

Let us move on to the review of judicial practice of intellectual property protection. The Convention for the Protection of Human Rights and Fundamental Freedoms of 4 November 1950 acts as the normative document, making allowances for the human rights and fundamental freedoms protection. In particular, Art. 6 of the Convention presents the right of an individual for fair judgment: everyone has the right for a fair and public hearing of his case within a reasonable time by an independent and impartial tribunal, established by law. The Convention makes provisions for the protection of the human rights and fundamental freedoms by the judicial proceeding under two conditions: (1) the existence of a dispute over civil rights and obligations; (2) criminal charge of a person in the violation of the law (Convention for the Protection of Human Rights and Fundamental Freedoms, 1950).

One should mention that there are a lot of international agreements, the provisions of which regulate the issues on the intellectual property in the European Union territories. Among them are:
(1) The Paris Convention for the Protection of Industrial Property of 20 March 1883;
(2) Madrid Agreement concerning the International Registration of Marks and the Protocol to it of 14 April 1891;
(3) Nice Agreement concerning the International Classification of Goods and Services for the Purposes of the Registration of Marks of 15 June 1957;
(4) The Lisbon Agreement for the Protection of Appellations of Origin and their International Registration of 31 October 1958;
(5) The Hague Agreement Concerning International Registration of Industrial Designs of 28 November 1960;
(6) Locarno Agreement Establishing an International Classification for Industrial Designs of 8 October 1968;
(8) The Strasbourg Agreement Concerning the International Patent Classification of 24 March 1971;
(9) Berne Convention for the Protection of Literary and Artistic Works of 24 July 1971;
(10) Geneva Convention on the Protection of Producers of Phonograms Against Unauthorized Duplication of 29 October 1971;
(13) Trademark Law Treaty (TLT) of 27 October 1994;
(14) Patent Law Treaty (PLT) of 1 June 2000;

The directives of the European Union, the provisions of which provide for the right of individuals to claim and protect their rights in the sphere of intellectual property in the court, are the directives issued by the European Parliament and of the Council. In particular:

Thus, for example, the Directive 2004/48/EC about the enforcement of intellectual property rights determines the scope of persons who have the right to file an application about the application of measures, procedures, and tools of legal protection. It also regulates the questions, regarding the provision of evidence to the cognizant authorities, temporary, and preventive measures by the court, court injunctions, court expenses, etc. (Directive 2004/48/EC, 2004). Herewith, it is important to mention that the Directive 2004/48/EC does not include any clear procedure on the intellectual property protection by the court, and this issue has the corresponding explanation. The Preamble to a document states that the Directive does not aim set harmonized rules for the judicial cooperation, jurisdiction, recognition, and enforcement of judgments in the civil and business cases as well as sets aside from existing legislation. There are specific tools of the Community, which regulate such issues in the general outline, and, technically, are applicable to intellectual property (Directive 2004/48/EC, 2004).

The fundamentals on human rights protection are defined at the constitutional level. According to Art. 55 of the Constitution of Ukraine from 28 June 1996, the rights and freedoms of individuals are protected by the court. Each person is guaranteed the right to appeal against the rulings, actions or inaction of the state bodies, the local government bodies, and the officers in the court. Art. 124 of the Constitution of Ukraine stipulates for the implementation of justice in Ukraine by the courts only. To this end, the delegation of the courts’ functions and the assignment of these functions by other bodies or officials are not allowed (Constitution of Ukraine, 1996).

The issue concerning the organization of the judiciary and the implementation of justice in Ukraine, operating on the basis of the provisions of the law in accordance with the European standards and guarantees the right of everyone to a fair trial, is regulated at the legislative level by the Law of Ukraine “On Judiciary and Status of Judges” of 2 June 2016. Based on the content of Art. 17 of the Law, under the components of the judicial system one can consider: 1) local courts; 2) courts of appeal; 3) the Supreme Court. Herewith, the legislator stipulates that to view certain categories of cases in accordance with the Law, the higher specialized courts operate in the judicial system. One of their types is the High Court on Intellectual Property (Art. 31 of the Law) (Law of Ukraine On the judiciary and the status of judges, 2016).

It is important to consider the timeline of the events that preceded the creation of the High Court on Intellectual Property in Ukraine. In 2001, the United States of America recognized Ukraine as the US Trade Representative as “Priority Foreign Country”. In terms of intellectual property rights, the state received the worst rating due to the production and export of the largest number of pirated disks. In this situation, the US industry alone lost $200 million annually (Ukraine Designated as Priority Foreign Country Under Special 301).
On 27 April 2001, the President of Ukraine issued a decree “On Measures on Protection of Intellectual Property in Ukraine” to ensure the constitutional rights of citizens for the protection of intellectual property, favorable conditions for the creation of the intellectual property objects, the development of the Ukrainian market of these objects.

In 2001, Ukraine joined the Rome Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations of 26 October 1961; the WIPO Copyright Treaty, signed in Geneva on 20 December 1996, and the WIPO Performance and Phonograms Treaty, signed in Geneva on 20 December 1996; and in 2002 to the Geneva Act of the Hague Agreement Concerning the International Registration of Industrial Designs, signed in Geneva on 2 July 1999, and to the Patent Law Treaty, signed in Geneva on 1 June 2000. The decree also made provision for the study of the creation of the specialized patent court (Decree of the President of Ukraine No. 285/2001, 2001). Thus, one can state that the issue on the establishment of specialized patent legislation was formally raised back in 2001.

However, by 2016, the issue of the establishment of a separate specialized judiciary on intellectual property in Ukraine had not been given sufficient attention. The explanatory note to the Law of Ukraine “On the Judiciary and Status of Judges” of 30 May 2016 stated that the establishment of the High Court on Intellectual Property meets the positive experience of the European countries, and will make it possible to quickly and properly consider the disputes, falling in their jurisdiction, by highly qualified judges of the corresponding specialization (Explanatory Note to the Draft Law of Ukraine On Judiciary and Status of Judges, 2016).

On 29 September 2017, the Decree of the President of Ukraine № 299/2017 established the High Court on Intellectual Property with the location in Kyiv (Decree of the President of Ukraine № 299/2017, 2017). Thus, the creation of a specialized court aimed to: (1) resolve a range of issues in the area of intellectual property, hindering the development of intellectual property relations for a long time; (2) raise the standards of protection of the intellectual property rights in Ukraine. Despite the establishment of the High Court on Intellectual Property as one of the proofs of progress in this area, the US Trade Representative has not changed the position of Ukraine, and it remained in the “Priority Watch List.” Such a decision was justified by the slow progress of Ukraine in this direction (International intellectual property alliance (IIPA) Special 301 report, 2019).

The first selection of judges to the High Court on Intellectual Property was held on 30 September 2017, when the High Qualifications Commission of Judges of Ukraine announced about a competition for the vacancy of judges to the newly-established judicial body and approved the conditions for holding this competition. According to the Decision of the High Qualification Commission of Judges of Ukraine № 98/zp-17 of 30 September 2017, one issued 21 vacant post1 for the Supreme Court Judge on Intellectual Property. The deadline for submitting the applications was 15 calendar days, starting from 1 December 2017 (Decision of the High Qualification Commission of Judges of Ukraine № 98/zp-17, 2017). The requirements to the candidates for the position of the judge were determined by the Conditions of the competition for the vacancy of the posts of judges of the Supreme Court on intellectual property, posted on the official website of the High Qualifications Commission of Judges of Ukraine. The competition allowed individuals who:

(1) submitted the required documents in accordance with the procedure and terms, determined by the Terms of the competition for the vacancy of judges for the High Court on Intellectual Property;

(2) as of the day of the document submission meet the requirements to the candidate, determined in Art. 33, 69 and 81 of the Law of Ukraine “On Judiciary and Status of Judges” for the post of a judge to the High Intellectual Property Court (Conditions of competition for the vacancy of judges of the High Court of Intellectual Property, 2017).
Para. 1 Art. 33 of the Law of Ukraine “On Judiciary and Status of Judges” determines the requirements to the Judge of the High Court on Intellectual Property, which can be represented by an individual who meets the requirements to the candidates on the post of a judge, approved his qualification level upon the results of qualification assessment, and meets one of the following conditions:

(1) has working experience as a judge of at least three years;
(2) has at least five years of professional experience as an intellectual property representative (patent attorney);
(3) has at least five years of professional experience as a lawyer, related to representing the intellectual property in the court;
(4) has total working experience (professional activity) according to the requirements, determined in the Para. 1-3, of at least five years (Law of Ukraine On the judiciary and the status of judges, 2016).

The Para. 19 of the Conditions of competition for the vacancy of judges of the High Court of Intellectual Property of 2017 determined the range of documents, confirming the adherence to one of the conditions, defined in Para. 1 Art. 33 of the Law of Ukraine “On Judiciary and Status of Judges.” To confirm the length of service of a judge, it is enough to provide a copy of the employment record. The more documents were required to confirm the professional experience of an intellectual property representative (patent attorney) and a lawyer in the representation of a court in intellectual property rights cases. (Conditions of competition for the vacancy of judges of the High Court of Intellectual Property, 2017).

The total number of candidates who expressed a desire to participate in the competition was 234 persons, and 219 candidates were admitted: 206 judges, 6 patent attorneys, 5 attorneys and 2 persons with a total length of service. The consideration of the question about the access to the competition took more time than it was planned – from December 2017 to early July 2018. After that, the participants of the competition went through a special inspection, which included the receiving of information about the candidates from the authorized bodies (for example, about education, professional experience, property, the absence of criminal record). From July to September 2018, the High Qualifications Commission of Judges of Ukraine considered the results of the special examination and decided whether to admit the participants to the qualification evaluation within the competition. Thus, out of 219 candidates, only 210 candidates remained. In the framework of the competition, the participants had to pass a law knowledge test, complete a practical task (write a court decision upon the materials of the model case, the phase “Exam”), pass a test with a psychologist, and interview with members of the High Qualifications Commission of Judges of Ukraine. The Commission decided to hold both testing and practical work during one day – on 3 October 2018. Thus, only 148 candidates out of 210 were allowed to pass a qualification evaluation. There were 86 candidates who were admitted to the practical task, the number of people who had completed the “Exam” phase. Upon the completion of the practical task, there were only 63 candidates who continued to participate in the competition. During December 2018, participants who coped with the “Exam” phase had to pass through psychological testing, including the performance of the corresponding tests and interviewing by a psychologist. In the lines of testing, one determined the level of logical, verbal, abstract thinking of candidates, the stability of their work motivation, emotional stability, stress resistance, and other determinants. During July-September 2019, the members of the High Judicial Qualifications Commission interviewed the participants of the judicial selection. Based on the information messages on the official web site of the commission, the results of the interviews are as follows: for 47 candidates – a break is announced for deciding on the results of the qualification evaluation for the post of the judge; 13 candidates were not interviewed / not completed; 2 candidates stopped the competition; for 1 candidate, the qualification evaluation is suspended. As a result, the selection of judges to the first instance of the High Court on Intellectual Property has never been completed.
The new version of the Commercial Procedure Code of Ukraine states that within the High Court of Intellectual Property, there is a Court of Appeal to review the decisions of this court in the first instance (Commercial Procedure Code of Ukraine, 1991). That is why in October 2018, the High Qualifications Commission of Judges of Ukraine announced the competition for 9 vacant posts of judges to the Appeals Chamber. During October-November 2018, the potential participants had to apply the required documents. The selection to the Appeals Chamber follows the analog procedure to the selection of judges to the first instance. At the end of April 2019, the admitted participants took testing on knowledge of the law (it included only 50 people), and the ones who had successfully passed through the test (38), were invited to pass through a practical task the next day. But the results of the practical assignment have not been determined and announced.

The quantitative indicators upon the results of the competitive selection to the High Court on Intellectual Property of Ukraine and the Appeals Chamber of the newly-established body are given in Table 1.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Judicial selection to the first instance</th>
<th>Judicial selection to the Appeals Chamber</th>
</tr>
</thead>
<tbody>
<tr>
<td>The applicants who have applied for the competition</td>
<td>234</td>
<td>97</td>
</tr>
<tr>
<td>The applicants who were admitted to the participation in the competition</td>
<td>210</td>
<td>57</td>
</tr>
<tr>
<td>The applicants who had passed anonymous written testing in the framework of the first evaluation phase “Exam”</td>
<td>86</td>
<td>38</td>
</tr>
<tr>
<td>The applicants who had successfully passed the first qualification evaluation “Exam”</td>
<td>63</td>
<td>-</td>
</tr>
<tr>
<td>The conduction of interviews as a part of qualification evaluation</td>
<td>13</td>
<td>no provision</td>
</tr>
<tr>
<td>The check of practical tasks, done during the exam in the lines of the qualification evaluation</td>
<td>no provision</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: The table was formed with the use of data from the official website of High Qualifications Commission of Judges of Ukraine, regarding the results of holding the competition to the High Court on Intellectual Property and the Appeals Chamber of this court


On 13 February 2020, according to Art. 147 of the Law of Ukraine “On the Judiciary and Status of Judges,” one created the new legal entity – the High Court on Intellectual Property, evidenced by the record to the Unified State Register of Legal Entities, Individual Entrepreneurs and Public Organizations of Ukraine. The new legal entity sits in Kyiv. As of now, other measures are currently held to ensure the required actions for the proper beginning of work for the High Court on Intellectual Property and the presentation of the court as a public authority, in relations with other public authorities, local authorities, individuals and legal entities (Proper Court on Intellectual Property), 2020).

Among the recent events, related to the formation of the High Intellectual Property Court, one considers it important to note the one, held on 13 February 2020 upon the round table initiatives of the Intellectual Property Committee of the Ukrainian National Bar Association, “The High Intellectual Property Court: The State of Formation in the Context of the Competitive Antitrust Reform.” This meeting was attended by judges of the court chamber to review the cases on intellectual property rights protection, the candidates for the post of judges for the High Intellectual Property Court, the lawyers, the scientists, the patent attorneys, the court experts, the human rights representatives,
public organizations, and other specialists in the field of intellectual property. In the course of such an event, they discussed organizational issues on the creation of the High Intellectual Property Court, they pushed the proposals for the legislation improvement that would regulate its activity, viewed the ways of solving the conflict of jurisdictions, and future perspectives of work under the conditions of competitive antitrust reform, etc. (The official website of the Supreme Court of Ukraine).

If the place of the High Intellectual Property Code in the system of courts is determined by the Law of Ukraine “On Judicial System and Status Judges,” the competencies of this judicial body are determined by the corresponding provisions of the Economic Procedure Code of Ukraine. Thus, according to Para. 2 Art. 20, the reviewing of cases on intellectual property fall into the jurisdiction, namely:

(1) the cases in disputes over inventions, the utility model, an industrial design, a trademark (a trademark for goods and services), a trading name, and other intellectual property rights, including the right of prior use;
(2) the cases in disputes, related to the registration, accounting of the intellectual property rights, invalidation, continuation, early termination of patents, certificates, other acts, certifying or on the basis of which the given rights appear or infringe such rights or related legitimate interests;
(3) the cases of recognition of well-known trademarks;
(4) the cases in disputes, concerning the author’s rights and related rights, including the disputes related to the collective management of the author’s property rights and related rights;
(5) the cases in disputes, concerning the conclusion, modification, termination, and execution of an agreement on the disposal of property rights of intellectual property and commercial concession;
(6) the cases in disputes, arising out of relationships, related to the protection from unfair competition, concerning: the misuse of marks or goods of another manufacturer; copying of the appearance of the product; the collection, disclosure, and use of trade secrets; appealing of decisions of the Antimonopoly Committee of Ukraine on the issues specified by this paragraph.

The cases, in certain disputes, the High Intellectual Property Court considers as the court of the first instance. The court decisions, adopted by the High Intellectual Property Court are reviewed by the Appeals Chamber upon the appellate procedure (Commercial Procedure Code of Ukraine, 1991).

Judicial practice of case consideration in the intellectual property area should be based on social and economic methods of assessment and determination of the management efficiency level of intellectual property objects. In the organizational and economic mechanism of intellectual property management we distinguish such management method as: 1) organizational (administrative); 2) economic; 3) socio-psychological; 4) legal (Fig. 3).
Economic methods of management exert their influence on the course of use and representation of intellectual property with the help of such levers as investment in the intellectual capital, prices on intellectual resources, payment for labour of entities of intellectual property management, rent for intellectual property use that is not alienated from its carrier, sanctions, etc. Social and psychological methods of management find their application regarding personnel as an entity of management and relatively whole range of intellectual property types as control objects: corporate culture, relations with customers, trademarks, etc.; Legal methods are implemented by the use of the whole series of legislative acts, first of all of laws and other normative documents on intellectual property, in order to regulate relations between the entities of intellectual property management.

Let us form the recommendations on the application of the cost approach to the cost estimate of intellectual property, which can be used in pre-trial and judicial practice of case consideration in the intellectual property area. The method of replacement value is based on the principle that for a buyer of an intellectual property object it is important to know which way of their purchase will turn out to be more efficient: a buyer is ready to purchase a finished intellectual product or, having spent the means and time, to obtain necessary knowledge himself and create a required product on their basis on his own.

\[ P = \sum Y + \sum I, \]

where \( P \) -is a cost estimate of an intellectual property object;
\( \Sigma Z \) -is the amount of indexed financial expenses on previously obtained knowledge of “a seller of a finished intellectual product”;
\( \Sigma Y \) -is the amount of indexed efforts (expenses of power and time) of a seller on learning of the necessary educational program;
\( \Sigma Y = yt \), where \( y \) -is an opportunity cost;
\( t \) -is a duration of obtaining an object of intellectual property;
\( \Sigma I \) -is a total accumulated depreciation of the previously received objects of intellectual property (obsolescence, forgetting, unfavorable changes in the market).

The concept of “knowledge” is not limited only to an object of intellectual property received in the process of studying a formal educational program- the knowledge is also created in the process of personal interaction of an
individual with the surrounding world. Considering this, in the expression (1) it is necessary to adjust the component \( \sum Y \) so that it would reflect the efforts spent on gaining intellectual experience and, perhaps, broadening the outlook/increasing erudition.

The method of replacement value allows to assess “cost demand” (that is, what costs not a seller of a product but a buyer should incur starting from a certain moment of time):

\[
P_2 = \sum_{i=0}^{\infty} \frac{Z_i (1 + g)^i}{(1 + \text{inf})^i} + PV(Y),
\]

where \( P_2 \) –costs for obtaining an intellectual result; 
\( Z_i \) – financial expenses of the period \( i \) on obtaining an object of intellectual property; 
\( g \) – is an expected growth rate of the tuition fees; 
\( \text{inf} \) – is an expected inflation rate; 
\( t \) – is a number of periods of time which is necessary to receive an object of intellectual property; 
\( PV(Y) \) – is a present value of efforts (time expenses) on obtaining an intellectual result.

Within the limits of this method, while evaluating an object of intellectual property, it is necessary to assess the volume of accumulated intellectual property objects, to make adjustments taking into account their obsolescence and forgetting, and to multiply every adjusted volume of a particular type by the cost per unit of volume of an intellectual property object of this type:

\[
P_3 = \sum_{i=1}^{k} a_i TK_i
\]

where \( P_3 \) –is a cost of accumulated intellectual property objects; 
\( a_i \) –is empirically determined coefficients which match the value and volume of accumulated intellectual property objects of the \( i \) type; 
\( TK_i \) –total accumulated knowledge of the \( i \) type; 
\( k \) –number of types (kinds) of intellectual property objects.

Total accumulated knowledge of an individual should be determined considering the factors of obsolescence of the received intellectual property objects (moral depreciation) and forgetting:

\[
TK_i = \sum_{j=-t}^{0} tk_j (1 - A_i (-j))(1 - 3(-j)) = \sum_{j=-t}^{0} tk_j e^{bt},
\]

where \( tk_j \) – accumulated knowledge of the \( i \) type, obtained for the \( j \) period; 
\( A_i \) – is moral depreciation of an intellectual property object of the \( i \) type per unit of time (intellectual wear); 
\( Z \) – forgetting of an intellectual property object by an individual per unit of time; 
\( b \) – empirical numerical coefficient, inverse in duration; 
\( t \) – is time required to obtain an object of intellectual property in a \( TK \) amount.

With the aid of expressions (3) and (4) it is possible to evaluate the cost of qualified services of an individual:

\[
P_{sv} = P_3 \times n_i \times k_i = P_3 \times n_i \times t_i \times z
\]

where \( P_{sv} \) –is the cost of providing qualified services; 
\( P_3 \) –is the cost of accumulated objects of intellectual property which is determined by an expression (3); 
\( n_i \) – is a share of accumulated intellectual property objects which is necessary to solve the \( i \) problem; 
\( k_i \) – is a number of cycles of use of an intellectual property object while solving the \( i \) problem; 
\( t_i \) – time required to solve the \( i \) task.
z – is a coefficient of proportionality.

Therefore, determination of the value of an intellectual property object within the given method, according to the authors, allows to define “cost supply”. General recommendations for the application of income, market and cost approaches to evaluation of different intellectual property objects are shown in Table 2.

Table 2. Recommended for judicial practice the Approaches to conducting assessment of different intellectual property objects

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Main approach</th>
<th>Secondary approach</th>
<th>Ineffective approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patents and technologies</td>
<td>Income</td>
<td>Market</td>
<td>Cost</td>
</tr>
<tr>
<td>Trade marks and names</td>
<td>Income</td>
<td>Market</td>
<td>Cost</td>
</tr>
<tr>
<td>Copyrights</td>
<td>Income</td>
<td>Market</td>
<td>Cost</td>
</tr>
<tr>
<td>Trained staff</td>
<td>Income</td>
<td>Market</td>
<td>Cost</td>
</tr>
<tr>
<td>Management software</td>
<td>Income</td>
<td>Market</td>
<td>Cost</td>
</tr>
<tr>
<td>Production software</td>
<td>Income</td>
<td>Market</td>
<td>Cost</td>
</tr>
<tr>
<td>Sales network</td>
<td>Income</td>
<td>Market</td>
<td>Cost</td>
</tr>
<tr>
<td>Franchise rights</td>
<td>Income</td>
<td>Market</td>
<td>Cost</td>
</tr>
<tr>
<td>Corporate practice and methods</td>
<td>Cost</td>
<td>Market</td>
<td></td>
</tr>
</tbody>
</table>

The main approach usually ensures the most accurate assessment for a specific asset. The secondary approach can work well but has a number of significant disadvantages. It can be useful for comparison and confirmation of an assessment received using the main approach. The ineffective approach is used if there are no certain circumstances or data to use more efficient approach but the least accurate value is received.

5. Discussion

Considering the held study of the formation process of High Intellectual Property Court, one should mention the following:
(1) first of all, as of now, the judicial manpower for the High Intellectual Property Court is unformed yet;
(2) secondly, the requirements of the Final Provisions of the Economic Procedure Code of Ukraine point to the fact that the formation terms of the High Intellectual Property Court are unlimited.

The grade of professionalism of the future judge is one of the main problematic issues at the stage of the formation of the High Intellectual Property Court. Thus, for example, according to the terms of the carrying conditions of the competition for vacant posts, it will be enough if a person provides only a copy of the employment record book to confirm the work experience to get the post of a judge. The requirement of the Law of Ukraine “On the Judiciary and the Status of Judges” considers the availability of experience of at least three years. Instead, none of the documents indicates that this experience should be related to the field of intellectual property and not in the consideration of other disputes. Thus, the sphere of the dispute resolution as a judge is irrelevant. We think that in the given case, the experience of forming the judicial manpower of the Swiss Federal Patent Court, including the judges with both legal training specifically in the resolution of intellectual property disputes, as well as judges with technical training; can be regarded as positive.

Conclusions

Considering the peculiarities of the judicial systems of Germany, France, the United Kingdom, and Switzerland in the area of intellectual property protection, one should mention the following idea. The legal controversies, regarding the breach of intellectual property, are reviewed in the specialized courts, specializing in intellectual property issues, which is a reliable tool in the process of provision of the protection of the proper and fair rights of
individuals in this area. Particular attention is put to the formation of judicial manpower, consisting of highly qualified professional judges. The consolidation of specific types of activity, in its turn, which is incompatible with the position of judge, acts as a means of provision of the independence and impartiality of the law enforcement authorities. As for the bodies of the global scale, the activity of which is focused on the protection of the rights of intellectual property, one can mention the following ones The World Intellectual Property Organization (WIPO) and The Unified Patent Court (UPC).

The issue of a decree № 299/2017 by the President of Ukraine on 29 September 2017 is the factual reference of the creation of the High Court on Intellectual Property in Ukraine. The first selection of judges began on 30 September in 2017, when the High Qualifications Commission of Judges of Ukraine announced a competition for the vacancies of judges to the newly established judicial body. Nevertheless, the selection of the judges to the Supreme Court of the First Instance has not been completed. The same thing applies to the competition for the vacant posts of judges of the Appeals Chamber of the High Court on the intellectual property, which began in October 2018. The delay of the process of the judicial manpower formation was also influenced by the law, adopted in October 2019, “On Amendments to the Law of Ukraine “On the Judiciary and Status of Judges” and Some Laws of Ukraine on the Activity of Judicial Governance Bodies,” according to which, the powers of all members of the High Qualification Commission of Judges were discontinued, and the new procedure for forming a commission with the participation of international experts was initiated. The formation of the judicial manpower of the Supreme Court or intellectual property is still in process. The official registration of the newly-established legal body – High Intellectual Property Court – took place on 13 February in 2020.

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INDONESIAN CONSUMER BEHAVIOR PERSPECTIVE TOWARD CORPORATE SOCIAL RESPONSIBILITY

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Abstract. This study aims to examine the mediating role of Brand Preference in the effect of Brand Equity on Purchase Intention, as a cause of CSR Image. 700 of the potential customers consuming the low product involvement category in the beverage and toiletries Industry were surveyed, but just 664 usable responses were analyzed with SEM Analysis. The main result shows that Brand Preference has a mediating role in the effect of Brand Equity on Purchase Intention, as CSR Image effect. Other results show that CSR image has a significant effect on Brand Equity, and then Brand Equity directly has a significant effect on Purchase Intention.

Keywords: corporate social responsibility image; brand equity; brand preference; purchase intention

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1. Introduction

Corporate Social Responsibility (CSR) recently is still an interesting topic developed in the various perspective field, previously in terms of business ethics, then developing in the field of management, especially in the perspective of marketing and consumer behavior. The CSR study in marketing and consumer behavior develops when the arousal of stakeholder theory postulated by Freeman (1984, 1994) comes out. Some researchers interested in studying CSR in marketing and consumer behavior are Sen and Bhattacharya (2001); Mohr et al. (2001); Kotler and Lee (2005); Maignan et al. (2005); Jones et al. (2007a, 2007b); Becker-Olsen et al. (2006); Becker-Olsen and Hill (2006); Podnar and Golob (2007); Beckmann (2007); Wang and Justlin (2009); Marin et al. (2009); Castaldo et al. (2009); Trapero et al. (2010); Tian et al. (2011); Ibrahim and Almarshed (2014); Mohamed A. and Thiruvattal (2015); Rodrigues and Borges (2015). However, CSR research in marketing and consumer behavior perspective is still limited, as stated in Ibrahim and Almarshed (2014). Pelozza and Shang (2014); Oberseder et al. (2011) said that CSR literature in marketing and consumer behavior remains statics and also some CSR research results in purchase behavior is in the thigh gap.

Moreover, Beckmann (2006, p. 164) reveals that perceived CSR research that could build negative or positive CSR image has not been yet explored optimally. Then, Beckmann (2007) said that perceived CSR research is still limited and the spectrum of CSR dimensions also is not completed yet. CSR dimensions used are variative, even though some of CSR researches, especially in consumer behavior have conducted (Becker-Olsen et al., 2006; Sen and Bhattacharya, 2001). Therefore, this research is conducted to reveal more consumers’ responses toward CSR activity of the company, implemented in Indonesia, especially in Low Product Involvement, motivated by
Ambarwaty’s finding (2013) stating that in term of CRM (Cause Related Marketing), CSR activity of the company that offers low product involvement does not have a significant effect on purchase intention, based on experimental research design. CRM activity as a type of CSR (Kotler and Lee, 2005) is a company cause or donation activity that contributed to the relevant stakeholders’ needs received from a part of company sales or revenue. On the other hand, Ambarwaty’s finding (2013) shows that high product involvement significantly strengthened CRM effect on purchase intention.

Besides that, Mele (2008) defines CSR is as a way of a company in achieving the balance of economic, environmental, and social matters. In general terms, CSR is the corporate social action whose purpose is to satisfy social needs, as stated by Angelidis and Ibrahim (1993 cited in Bronn and Vrioni, 2001). From this viewpoint, CSR has many benefits not only for practical business such as the increase of company performance, the capacity increase of the company to have high innovation, the development of customers relationship, building brand equity, and the increase of purchasing behavior, boosting the market share growth but also for the society or related stakeholders for being welfare (Maignan and Ferell, 2001; Lichtenstein et al., 2004; Kotler dan Lee, 2005, p. 11-16; Alcaniz et al., 2010; Khan and Manwani, 2013; Cha et al., 2016; Razmieniè, Tvronavičienè, 2018; Moumen et al., 2019; Rezk et al., 2019; Mayorova et al., 2019; Voronkova et. al., 2020; Jeon et al., 2020). However, some researchers still perceived CSR activity skeptically. The CSR activity of the company just is to promote the company’s product or service, not to empower the society, priority just for the sake of the company’s economic benefit, not to fulfill the needs of stakeholders (especially for consumers), and considered by the company as a liability not as an asset, so that the CSR activity of the company builds skeptical CSR image (Hadi, 2011, p. 152 and 167; Ambadar, 2008, p. 7; Ardana, 2008; Speed and Thompson, 2000; Webb and Mohr, 1998).

On the other hand, Ricks Jr. (2005); Chahal and Sharma (2006); Poolthong and Mandhachitara (2009); Pomering and Dolnicar (2009); Lai et al. (2010) revealed that CSR image can build the strong value of the company’s brand, measured by brand equity (Aaker, 1992a, 1992b). Furthermore, some of the previous researchers (Cobb-Walgren et al., 1995; Chen and Chang, 2008; Chang and Liu, 2009) found that brand equity could have effect significantly on brand preference, and also it has a significant effect on purchase intention toward the company’s products or services implementing the CSR activity. It means that CSR image has an effect on brand equity, and then it brings about brand preference and purchase intention.

Moreover, Maignan and Ferrell (2001) found that the negative CSR image affects the evaluation of negative product or service value. The positive CSR image is associated with the positive value of the product evaluation that would bring about consumers’ loyal toward the brand, as a dimension of brand equity (Aaker, 1996, 1992a, 1992b).). Their findings suggest the future research still should find out the strong relationship between CSR and consumer behavior. In line with this, Ersoy dan Calik (2008); Schiffman and Kanuk (2007, p. 516-520); Niedrich dan Swain (2003) said that a study of consumer behavior is the evaluation toward the brand, brand preference, and purchasing intention toward the company’s products or services.

Khan dan Manwani, (2013) cited the Cone Inc research result (2009) that 79 percent of consumers likely to progressively prefer to switch their purchase or consuming toward the products or service of the company implementing CSR. Meanwhile, Indonesian consumers, based on Arli and Lasmono research results (2010) show that when consumers would purchase the products or services, Indonesian consumers would choose products or services of the company implementing CSR as a priority choice, compared to the same products or services of the other companies with the same price and quality, but its company does not implement CSR program. In line with this, Chomvilailuk and Butcher (2010) revealed that there is a positive association between CSR and Brand Equity, even though there is a question about whether CSR initiative will bring about brand preference. Then,
Khan dan Manwani (2013) added that the research about the relationship between CSR and brand equity is still also rare.

Furthermore, the findings of Jeon et al. (2020) in the ridesharing service industry show that perceived CSR (PCSR) or CSR image has affected a significant customers’ attitude toward the company’s brand, known as brand attitude and self-brand connection, but there was no direct effect of PCSR on brand preference. Then, brand attitude and self-brand connection play a mediating role in the effect of PCSR on brand preference. Previous findings by Su et al., (2017) in the hospitality industry show that CSR indirectly has a positive significant effect on customer commitment and behavioral responses. It must go through perceived corporate reputation and customer satisfaction (i.e., loyalty intentions and word-of-mouth). Their results implied that CSR role can not be generalized in all consumer groups, because their finding shows that the specific consumer income will moderate the effect of CSR on perceived reputation and consumer behavioral responses. On the other hand, the research results of Eshra and Beshir (2017) found that CSR activity does not affect Egyptian consumer purchasing behavior, even though Egypt consumers are aware of CSR. Besides, García-Conde et al. (2016) found that CSR directly has a significant effect on the purchase intention of the European consumers, but the purchase intention of the consumers will be stronger if moderated by generative consumers because of CSR activity. Their findings implied that CSR activity is a strategic tool to trigger consumers’ purchase intention in specific segmentation, such as a generative consumer (the future generation). Besides this, the previous research results also by Liu et al. (2014) show that three CSR domains (economic, social, and environment) also do not have a direct effect on China’s consumer of brand preference, except mediated by perceived brand quality. They stated that the branding value of the company is not predicted by CSR performance directly. CSR performance has a weaker impact on brand preference when mediated by perceived brand quality. It can be concluded that the research results of the CSR effect on consumer behavior are inconclusive in each different industry and consumer segmentation or characteristics.

Therefore, this research aims to analyze the effect of CSR Image on Brand Equity, and to investigate whether Brand Equity can build Brand Preference and Purchase Intention toward the company’s products or services, implementing CSR, especially in the Low product involvement category. The specific objective of this research is to examine whether or not brand preference is as a mediating effect in the effect of Brand Equity on Purchase Intention, as a consequence of CSR Image. This kind of objective is a kind of CSR finding from a consumer behavior perspective. CSR in consumer behavior perspective defics that CSR company should fulfill the stakeholders needs to eliminate the impact of negative business performance and to induce positively outcomes for stakeholders, especially consumers' needs (Maignan et al., 2005). This condition is also expected to eliminate the skeptical though or the negative image toward CSR program, so that CSR is perceived or considered not as a lip service or im-marginal activity, but CSR activity of the company is as the heart of the company to improve high company performance and as a competitive strategy.

2. Literature Review

2.1 CSR Image

Before defining CSR image, this paper describes the need to advance the concept and definition of the image, according to some experts. Boulding (1956 in Kuo and Ye, 2009) defined image as a subjective perception toward the objects or events, that is not based on prior individual knowledge or pure information. Kotler (2000, p. 296) stated that image definition is the public perception toward the company products or services, beyond the company control, to create the positive image to the stakeholders by creating the unique value of the products or services to achieve competitive advantage and raising the emotional impression power. Meanwhile, Nguyen and LeBlanc (2001) explained the image of an organization as a whole impression made by the public or consumers’
minds about the organization. The impression arises because of understanding reality. Image formation is a process, starting from ideas, feelings, and past experiences relating to the organization, stored in the memory, and then transformed into meaning.

Moreover, Kuo and Ye (2009) explored two main components of the image in terms of functional and emotional perspective. A functional perspective covers a structured and logical analysis of an object. From an emotional perspective, an image arises from the individual subjective attitudes toward the object, incorporating elements of sentimental. In line with this, Chiu and Hsu (2010) revealed that the image is a result of personal perception, subjectively determined by the object perceived and the image is a function of view of individuals who are limited by the acquisition of one information. A person reacts to an object associated with the image they have in memory retention.

Sometimes some experts equate between image and reputation. Both terms are interchangeable. Image and reputation can be replaced because they have the same meaning (Gotsi and Wilson, 2001). However, Pomering and Johnson (2009) said reputation has a wider dimension construct than image. If the image associated with the corporate identity means a person believes about the organization and answer the question of what people think about the company, while the company identity is an attribute that is used to describe an organization or the way organizations present himself to distinguish the organization in memory of stakeholders, which is used to answer the question "who are you?" (Dowling, 2004). Furthermore, the identity of a company formed a key element in the construction of a pleasant image. Developed a reputation of the company tries to build its corporate image (Fombrun, 1996 in Pomering and Johnson, 2009). Therefore, reputation is an overall evaluation that reflects what people see on the object, which then led to subsequent interpretation, while the image is a part of reputation dimensions.

Pfau et al. (2008) stated that image is a benefit of the CSR practice. Then, they said that image is a key to the organization to survive, which was later confirmed that the image is determined by the public perception of the key. Meanwhile, Dowling (2001), referred by Pfau et al., 2008, defined image as a viewpoint of the organization.

Based on some of those opinions, then the image can be interpreted as the perception of an object or image that is created on the object based on human perception arising from the information of an object and personal experience with the object.

In CSR context, CSR image is an individual perception and belief, formed from the CSR activities. If the CSR activities are perceived and believed to be in the self-interests of his own company, then a negative image of CSR is created. Conversely, if the CSR activity is perceived and believed for social and environmental benefit, then the positive CSR image exists. In other words, the negative CSR image exists when stakeholders are skeptical about the CSR activity. The CSR activity only fulfills legal obligations and not an activity that can provide social and environmental benefits. Instead, CSR imaged positive memories in the consumers' minds due to the CSR activity perceived to empower people towards prosperity and civil society. Related with this, Brown and Dacin (1997) defined CSR image is an individual impression arising from the company's CSR activity. Later, Chen (2011) said that CSR image is one kind of assessment or ethical judgment, relevant to the central question, namely 1) whether the company implementing the CSR activity was pure because of the motivation for supportive and committed to social care; 2) whether the implemented CSR activity was intended to commercial purposes of the company.
2.2 Brand Equity

A brand is considered as a valuable asset for the company, known as brand equity value (Aaker, 1992a, 1992b, 1996). Erdem and Swait (1998); Erdem et al. (1999) argued that brand equity value is a sign of the credibility of a product or service. Then, Yoo et al. (2000) stated that brand equity is the most widely used and has a comprehensive brand dimension to explore the findings of marketing research and consumer behavior, as promoted by Aaker (1992a, 1992b, 1996). However, Yoo and Donthu (2001) used only four categories of asset value beyond the other brands. In connection with this, Yoo et al. (2000); Yoo and Donthu (2001); Netemeyer et al. (2004); and Pappu and Quester (2005) has tested empirically brand equity based on the consumer perspective that can create a reason for consumers to buy a product or service company (Aaker, 1992b). Furthermore, van Riel et al. (2005) revealed that the current industry benefited much from investments in brands to benefit the strength of brand equity. In line with this, Haigh and Gilbert (2005) stated that brand equity can be defined as the measurement that reflects the brand's emotional demand.

According to Keller and Lehmann (2006), the brand provides some function values determining brand equity value, namely: 1) as a symbol or a sign for the company in the bidding for the company products or services; 2) for the consumer brands can give direction to select a product or service that promises a level of quality, mitigate risks, and create trust in your products or services; 3) the brand value is created by the product itself as a marketing activity; 4) brand value is a key success due to the effective marketing activity through marketing communication and the channels of distribution; 5) brand is a financial asset of the company.

Likewise, Laidler-Kylander (2007) stated the brand on a product or service has a dimension to distinguish the product or service in some ways, designed to satisfy the needs and wants of consumers. Moreover, Laidler-Kylander (2007) stated that the term brand equity is used in three different meanings in the marketing literature, namely: 1) related to the total brand value as measured by financial measures, as an integral asset in the balance sheet; 2) a measure of the strength of consumer involvement; 3) as a description of the association and consumer confidence on the brand. The first concept is the actual brand assessment and determines the financial value of a specific brand. The concept of the second and third as the strength of the brand. Most of the literature focuses on the concept of brand equity of both.

Buil et al. (2008) stated that the company can have positive strong brand equity because it can induce higher-margin, build the brand extension, increase more powerful effective communication, and trigger higher consumer brand preferences and purchase intention. Furthermore, The American Marketing Association, cited in Kotler and Keller (2012, p. 241) defines a brand is as a name, term, sign, symbol, or design, or a combination among them, used to identify goods or services and to distinguish them from competitors, as Aaker (1992a, 1992b, 1996) mentions that brand equity is a set of assets and liabilities associated with a brand name and symbol that can increase and decrease the value of the products or services. Brand Equity has five dimensions: brand awareness, brand association, brand perceived quality, brand loyalty, and other assets such as patents, trademarks, and a network connection, to leverage the strongest brand value. A potential buyer can recognize and recall a brand, known as brand awareness. Aaker (1996) argued that brand awareness relates to the strength of a brand in consumer memory and is always measured through the recognition and recollection in different environments. Zeithaml (1988, p. 3 in Aaker, 1996) defines the brand perceived quality is as consumers' assessment of the product superiority that can be distinguished. This is not an objective assessment of product quality, but the subjective assessment of the product or brand quality that is highly dependent on the appraiser perception, so the appraiser perception incorporate elements of cognitive and affective. The definition of brand association according to Aaker (1992a, 1992b) is associated with the memory toward a brand. This association can be obtained from various sources and vary by more joy, strength, and uniqueness of the product or brand (Keller, 1993). Aaker (1992a, 1992b) defines brand loyalty is as consumers' love for a brand. Meanwhile, Chaudhuri and
Holbrook (2001) measure loyalty by evolving a commitment due to the unique brand value. In connection with this, Day (1969) proposed two types of brand loyalty, namely behavioral and attitudinal loyalty.

Behavioral loyalty emphasis on behavior and repeat purchases (Jacoby and Kyner, 1973). Meanwhile, attitudinal loyalty is measured based on cognitive (knowledge and evaluation), affective (emotional thinking), and conative (intention to take action), following the thought of Oliver et al. (1997) and Oliver (1999), using a hierarchy of effects model. Therefore, items measuring loyalty in this study refers to the concept of attitudinal loyalty, as a cognitive (knowledge and evaluation) and affective measurement (emotional sense), attached in the questionnaire in term of the first choice toward the brand, and conative measurement (intention to act) in term of recommendation measurement, developed by Chang and Liu (2009).

Thus, this research uses the definition of brand equity based on the Aaker premise (1992a,b; 1996), implementing brand awareness, brand association, brand quality perceived, and brand loyalty dimensions. It does not include the measurement of other assets (Chang and Liu, 2009; Lai et al., 2010). This measurement was adopted consistent with the research objectives to test the effect of brand equity on purchase intention.

2.3 Brand Preferences
Brand preference is a favorite relative preference, as Chomvilailuk and Butcher (2010) stated. This definition follows the idea of Yoo et al. (2000).

Customers or potential customers will prefer to the brand if they are to take into account to make a purchase or switch brands once purchased the types of other brands. This idea inspired them to test the effect of CSR activities on brand preference, by following the thoughts Maignan and Ferrell (2004) and Ricks Jr. (2005).

Meanwhile, Chang and Liu (2009) revealed that brand preference is biased bond consumers on specific brands. The definition of brand preference by Chang and Liu (2009) developed referring thinking Hellier et al. (2003). Hellier et al. (2003) stated that brand preference is the consumers’ preference for a product or service that can build love with the products or services, designed by another company that is also considered as an alternative for selected companies. Brand preference definition by Hellier et al. (2003) is relevant to the definition adopted by Cobb-Walgren et al. (1995).

2.4 Purchase Intention
Purchase intention is a part of the cognitive behavior components of consumers, referring to the question of how people are likely to buy a specific brand. The purchase intention concept preceded by Day (1969) can be more effective than purchasing behavior to capture consumers’ purchase due to memory limitations. Then, the purchase intention concept has developed by Fishbein and Ajzen (1975) with the theory of reasoned action and continued by Ajzen (1985) to be the theory of planned behavior. Ajzen (1985) defined purchase intention is a cognitive response by individuals in planning the purchase of a product or service. Those concepts are cited by Chiou et al. (2005).

Pavlou (2003) stated that purchase intention can be defined as a situation in which consumers are willing and inclined to make transactions and build relationships in the context of the purchase toward the products or services on the online site. Meanwhile, Summers et al. (2006) stated that purchase intention behavior of someone determined two factors, namely 1) the attitude of individual buying behavior and 2) social perception that insists on an ongoing purchase or not purchases, which refers to the subjective norm. Subjective norm is a function of the confidence of individuals or groups to not perform the realization of purchase. Furthermore, Chang and Liu (2009) stated that purchase intention is a consumer plan to buy a specific brand, and today has become quite high.
attention. In connection with the context of CSR activities in this research, purchase intention is a perspective plan of the individual consumer to buy and use the products or services of the company implementing CSR.

Thus, purchase intention in this research is the confidence to recognize someone to purchase a product or service in the future. Someone's beliefs are at the level of cognitive response that prospective consumers are still planning to purchase a product or service of the company implementing CSR, until to the end phase in which it has not made the actual purchase action.

3. Hypotheses

3.1 The Effect of CSR Image on Brand Equity
Positive CSR image will give a positive effect on the brand equity value of the company, as stated by Bronn and Vrionni (2001); Ogrizef (2002); Blumenthal and Bergstrom (2003); Yan (2003); Girod and Michael (2003); and Klein and Dawar (2004). They stressed that CSR has a relationship with a brand that reaches the imagination of consumers and prove there is a strong causal link between the CSR image and brand value.

Later, Hsu (2012); Lai et al. (2010) stated that there are the higher stakeholder expectations on the activity of CSR, so that the image formed positive CSR, then it will bring the more valuable brand equity. In particular, Hsu (2012) states that the activity of CSR strategically can relate to associating the product to create a different and unique brand value, so it can increase the value of brand equity as a means of competitive advantage.

Chahal and Sharma (2006) also explain that the CSR image has a higher positive effect on the company’s brand equity. It is envisaged as a tool of competitive advantage. In particular, Maignan and Ferrell (2001); Lichtenstein et al. (2004) stated CSR is an effective marketing tool and proactive business philosophy to compete and create a competitive advantage in the face of hyper-competition and rapidly changing environment. Therefore, Chahal and Sharma (2006) concluded that competitive advantage can be driven by the market that integrates the company business policy with CSR, so companies realize that they have to change their business philosophy of good to become better (doing good to doing better).

Salmones et al. (2005); Delgado and Munuera (2001) revealed that CSR Image will positively impact on the awareness and positive brand association and also have an effect on the positively perceived quality of the product or service. CSR Image also could strengthen brand loyalty, giving rise to the commitment and confidence of stakeholders in the value of the company brand equity. Then, this condition can contribute to the willingness to pay for products or services at a higher price (Fornel et al., 1996).

Research findings Lichstenstein et al. (2004) demonstrated that CSR perceived positively influenced not only by identifying consumer purchasing behavior of consumers in the company (C-C Identification), but also the consumer donations to the organization non-profit. Specifically, their findings showed that the CSR perceived positive impact on not only the increase in consumer support on non-profit organizations, but also on the progressive increase in loyalty to the store, which ended in the purchase increase.

Therefore, the first hypothesis in this research is:

**H1: CSR Image has a positive impact on brand equity.**
3.2 Brand Equity Effect on Brand Preference
Brand equity is considered to have some benefits from the perspective of marketing and consumer behavior, among which may increase the preference of stakeholders on the brand and purchase intention (Cobb-Walgren et al., 1995).

Cobb-Walgren et al. (1995) supported Myers (2003); Prasad and Dev (2000), revealed that the higher value of brand equity yields the greater brand preference. Later, Myers (2003) revealed that brand equity has a strong relationship with brand preference. Meanwhile, Prasad and Dev (2000) stated that the high brand equity associated with consumer satisfaction, preference on the brand, loyalty, retention in high brand, will increase high market share, the stronger price premium, and high profits. Therefore, brand equity becomes a vital contributor in creating positive brand preference.

Cobb-Walgren et al. (1995) found that there is a desire of the consumer to pay more for a product or service that has strong brand equity value in the market. The desire of consumers to pay more, indicating no preference of consumers to the brand. Keller (1993) stated that manufacturing companies and retailers are motivated by the value of brand equity that provides strategic implications for the company. Brand equity has platforms in introducing new products and brands from attacking a hinder competition who creates an increase in the stakeholders’ preference toward the brand, establishes a corporate image, and reduces the risk.

The second hypothesis in this research is

**H2: Brand Equity has a positive effect on Brand Preference**

3.3 Brand Equity Effect on Purchase Intention
Brand equity attributed by the positive CSR image effect has consequences on the purchasing behavior of individual stakeholders as well as prospective customers or as consumers (Farquhar, 1989; Aaker, 1992a,b; Keller, 1993). One element in purchasing behavior is to purchase intention before purchasing action is realized. This refers to the theory of reasoned action pioneered by Fishbein and Ajzen (1975, 1980).

The theory of reasoned action reflects attitudes and beliefs that will form the norm toward a brand, and then that will be reflected in purchase intention and actual purchase behavior in the future. Purchase intention is a strong predictor for actual consumer purchase behavior (Broyles et al., 2009). It means that purchase intention can be regarded as a powerful predictor to create the actual purchase on a product or service of the company implementing CSR in the future. Thus, it can be concluded that brand equity can have a positive effect on purchase intention, as a result of a positive CSR image, as the research results by Cobb-Walgren et al. (1995); Chen and Chang (2008); Jung and Sung (2008); Chang and Liu (2009); Moradi and Zarei (2011).

Cobb-Walgren et al. (1995) in particular proved that high brand equity has a significant effect on purchase intention. Meanwhile, O’Cass and Lim (2001) suggested that brand association as one of brand equity elements, affect brand preference and purchase intention.

Empirical research results of Chen and Chang (2008), the same findings as Cobb-Walgren et al. (1995) showed that there is a positive relationship between brand equity, brand preference, and purchase intention, with the moderating effect of switching cost. Brand equity has a higher effect on purchase intention when the moderating effect of high switching costs exists.

Meanwhile, Jung and Sung (2008) measure and compare the brand equity-based consumer products apparel (clothes), and examine the effect of brand equity (awareness and brand association, perceived quality, and brand
loyalty) on purchase intention with three groups of consumers across culture (Americans in the USA, the nation of South Korea in the USA, and South Korea in the Korean nation).

Research findings of Jung and Sung (2008) also showed that among the elements of brand equity, perceived brand quality and awareness/brand association responded by American students have a significantly greater effect than the response by South Korean students in the USA and Korea. For respondents in the South Korean national group in the USA and Korea, brand loyalty is the most important element of brand equity. Then, brand loyalty has a positive relationship with the purchase intention of three consumer groups.

Research findings Chang and Liu (2009) in particular showed that brand equity has a significant positive effect on purchase intention. Research findings by Chang and Liu (2009) also support the findings of Chen and Chang (2008), that brand equity is a predictor of brand preference and then, brand preference can predict purchase intention significantly. This statement implies that brand preference has a role as a mediating effect of brand equity on purchase intention.

In the context of CSR activity, the company’s brand equity implementing CSR has a positive effect on purchase intention. The beginning of the process of stakeholders’ cognitive (perception and belief) individually on CSR activity can provide a positive CSR image. Then, the CSR image forms a positive CSR attribution on building the positive brand equity value of the company. Values that form positive brand equity is more attributed to the positive purchase intention to be in the future in making the purchase decision behavior. This is consistent with the perspective of attribution theory. Therefore, the third and fourth hypothesis in this research is:

**H3:** Brand Equity directly has a positive effect on purchase intention,  
**H4:** The stronger brand preference exists as a mediating effect, the higher purchase intention will be created.

### 3.4 Brand Preference Effect on Purchase Intention

Brand preference attributed to the positive effect of brand equity value will have a positive impact on the purchasing behavior of individual stakeholders toward the products or services of the company implementing CSR. This statement is supported by some thought and previous study findings by Moradi and Zarei (2011); Chang and Liu, 2009; Chen and Chang (2008); de Chernatony et al. (2004); Myers (2003); and Cobb-Walgren et al. (1995).

Specifically, de Chernatony et al. (2004) revealed that preference on the brand has an impact on the behavior of repeat purchases because of high brand equity value. Findings by Chen and Chang (2008) also showed that brand preference has a quite high effect on consumer purchase intention, with the effect of the estimate of 60 percent. Then, the findings of Chang and Liu (2009) which refer Herlier et al. (2003); Devlin et al. (2002); and Bailey and Ball (2006) showed that the brand preference has a positive effect directly on repurchase intention toward the brand products or services of the company.

Formation occurs as a result of purchase intention attributing to the stakeholder process on the preference toward a product or service of the company implementing CSR. When stakeholders are to realize and believe that the brand of products or services from CSR companies’ valuable actors who have high brand equity value, stakeholders will choose and prefer products or services CSR actors to the products or services of other companies implementing CSR. It springs from causal inference on the activity of CSR which is believed to provide benefits to the stakeholders without regard to other factors such as the selling price of the product and quality of products or services. Then, these conditions encourage stakeholders to support the company’s products or services implementing CSR in purchasing behavior, beginning with the purchase intention process toward the product or service of the company implementing CSR. Therefore, it can be concluded that brand preference has a
positive impact on purchase intention toward a brand product or service of CSR actors. Therefore, the hypothesis in this research is

**H5: Preferences brand has a positive effect on purchase intentions**

From the view of that hypothesis above, it can be drawn in the research model below, shown in Figure 1, explaining to the stakeholders that if CSR image is positively formed, strong brand equity will be created. Then, if the strong brand equity building exists, brand preference and purchase intention of the potential customers will be developed. Consequently, it will create purchase behavior, so that sales, revenue, and market share of the company will increase, and finally the profit and growth, in the long run, will be achieved.

![Proposed Research Model](image)

**Figure 1.** Proposed Research Model

4. Methodology

A survey questionnaire in either electronic or print format developed is based on questionnaires of previous studies and administer it to 700 potential customers buying and consuming the products in the beverage and toiletries industry, as a kind of low product involvement category and get 664 useful responses. The questionnaire consists of three parts. The first section asks for general information about the respondent to be used for screening. The second section has statements regarding CSR image, Brand Equity, Brand Preference, and Purchase Intention in which the respondents can agree or disagree on a one to seven scales. The third section has questions regarding the demographics of the respondent. The first section contains questions about respondents’ knowing CSR activity of the company, offering the low product involvement category.

Respondents were asked to state their agreement with each statement on a seven-point Likert scale where the response one represents “very strongly disagree” and seven is for “very strongly agree.” Respondents were asked to rate their level of agreement on the importance of articulating positive or negative CSR image that can build strong brand equity, then consequently has a positive impact on brand preference and purchase intention.

The last section of the questionnaire gathered respondents’ demographic information. The section includes questions about each respondent’s age, gender, education, occupation, and household income. We collected data from respondents in diverse locations. 664 responses fulfill the requirements of the sample out of the 700 surveys distributed.

CSR image measurement refers to the definitions developed by Alcaniz et al. (2010) by adjusting the activity of CSR multidimensional context (economic responsibility, ethical-legal responsibility, and the responsibility of philanthropy). CSR image definition of Alcaniz et al. (2010) adopted on Menon and Kahn (2003); Dean (2002); and Lichtenstein et al. (2004).
The measurement of Brand Equity applies the methodology developed in Yoo and Donthu (2001) and used in Chang and Liu (2009) and Lai et al. (2010). The methodology uses four dimensions of brand equity (brand awareness, brand association, brand perceived quality, and brand loyalty).

Brand preference measurement was taken from Chang and Liu (2009), tested for reliability and validity, developed by Chomvilailuk and Butcher (2010), which was developed by Yoo et al. (2000), firstly developed by Cobb-Walgren et al. (1995). Then, the measurement of brand preference was adopted and developed by Hellier et al. (2003).

Purchase Intention measurement was adopted from Chang and Liu (2009), developed by Cobb-Walgren et al. (1995), which has been tested for validity and reliability, in the context of the CSR activity.

The data were analyzed by AMOS Studio University Edition. We compile CSR Image, Brand Equity, Brand Preference, and Purchase Intention scores by taking the mean of the scores of the individual statements for each respondent. We do SEM analysis to determine if the variables have the hypothesized explanatory power.

4. Results

4.1 Validity Test

The validity test of this research use constructs validity test, consisting of a convergent and discriminant validity test. Convergent validity on the constructs can be seen from the AVE (average of variance extracted) that is worth ≥ 0.5, to have convergent sufficient constructs validity, appropriate rule of thumb by Hair et al. (2006, p. 779) based on the CFA in the outcomes of covariance-based SEM with AMOS 4:01 applications.

<table>
<thead>
<tr>
<th>Construct</th>
<th>AVE Based on CFA Method of Maximum Likelihood</th>
<th>SEM Covariance Based Method of Maximum Likelihood</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSR Image (CCSR)</td>
<td>0.702</td>
<td></td>
</tr>
<tr>
<td>Brand Equity (EM)</td>
<td>0.610</td>
<td></td>
</tr>
<tr>
<td>Brand Preference (PRE)</td>
<td>0.831</td>
<td></td>
</tr>
<tr>
<td>Purchase Intention (NB)</td>
<td>0.910</td>
<td></td>
</tr>
</tbody>
</table>

Source: Data Analyzed by AMOS 4.01

Table 1 shows that the measurement of the constructs item has sufficient convergent validity, all grades AVE exceed the limit value ≥ 0.5. Discriminant validity tests aimed at testing a different construct from other constructs (Hair et al., 2006, p. 778). Discriminant validity occurs when two different constructs producing high scores are not correlated. Discriminant validity is achieved when the value of average variance extracted estimates (AVE) in a construct exceeds (> estimate the correlation squared for every two constructs is different (Hair et al., 2006, p. 778; and 2010, p. 710), which can be seen in Table 2.
4.2 Reliability Test
Reliability test results show almost all indicators of measurement of the constructs are reliable, except for the items brand equity number 5, and brand preference number 4 and 5, not fulfill the requirement value of Cronbach's Alpha based CFA - SEM above 0.70, (Hair et al, 2006, p. 137), presented in Table 3.

Table 3. Construct Reliability Test Result

<table>
<thead>
<tr>
<th>Measurement Item</th>
<th>Cronbach’s Alpha*</th>
<th>Construct Reliability Coefficients</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSR Image</td>
<td>0.89</td>
<td>0.90</td>
<td>Reliable</td>
</tr>
<tr>
<td>Brand Equity</td>
<td>0.87</td>
<td>0.83</td>
<td>Reliable</td>
</tr>
<tr>
<td>Brand Preference</td>
<td>0.85</td>
<td>0.87</td>
<td>Reliable</td>
</tr>
<tr>
<td>Purchase Intention</td>
<td>0.90</td>
<td>0.91</td>
<td>Reliable</td>
</tr>
</tbody>
</table>

Source: Data Analyzed by AMOS 4.01

4.3 Respondent Profile (see Table 4)

Table 4. Respondent Profile, Based on Gender, Age, Education Level, Job Status, Income, Marital Status, and Religions

<table>
<thead>
<tr>
<th>Respondent Profile</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Based on Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>52.00</td>
</tr>
<tr>
<td>Female</td>
<td>48.00</td>
</tr>
<tr>
<td>Based on Age</td>
<td></td>
</tr>
<tr>
<td>Age Range</td>
<td>Fee (in IDR)</td>
</tr>
<tr>
<td>-------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>17 – 22</td>
<td>27,00</td>
</tr>
<tr>
<td>23 – 28</td>
<td>32,30</td>
</tr>
<tr>
<td>29 - 44</td>
<td>30,00</td>
</tr>
<tr>
<td>45 - 50</td>
<td>7,40</td>
</tr>
<tr>
<td>51 – 56</td>
<td>2,50</td>
</tr>
<tr>
<td>Above 56 years old</td>
<td>0,50</td>
</tr>
</tbody>
</table>

**Based on Education Level**

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Fee (in IDR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Junior High School</td>
<td>0,50</td>
</tr>
<tr>
<td>Senior High School/Equivalence</td>
<td>29,60</td>
</tr>
<tr>
<td>Diploma/Academy</td>
<td>10,30</td>
</tr>
<tr>
<td>Undergraduate S1</td>
<td>34,90</td>
</tr>
<tr>
<td>Postgraduate (S2 and or S3)</td>
<td>24,60</td>
</tr>
</tbody>
</table>

**Based on Job Status**

<table>
<thead>
<tr>
<th>Job Status</th>
<th>Fee (in IDR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students</td>
<td>31,40</td>
</tr>
<tr>
<td>Housewife</td>
<td>1,60</td>
</tr>
<tr>
<td>Permanent Administration Employee on Governmental Institution</td>
<td>7,60</td>
</tr>
<tr>
<td>Leader on Governmental Institution</td>
<td>1,10</td>
</tr>
<tr>
<td>The employee on Private Company/BUMN</td>
<td>37,20</td>
</tr>
<tr>
<td>Leader on Private Company/BUMN</td>
<td>3,00</td>
</tr>
<tr>
<td>Entrepreneur</td>
<td>4,40</td>
</tr>
<tr>
<td>Teacher/Lecturer/Mentor</td>
<td>13,70</td>
</tr>
</tbody>
</table>

**Based on Income**

<table>
<thead>
<tr>
<th>Income Range</th>
<th>Fee (in IDR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 1 million</td>
<td>13,48</td>
</tr>
<tr>
<td>1 million - 3 million</td>
<td>47,87</td>
</tr>
<tr>
<td>3,1million - 6 millions</td>
<td>26,60</td>
</tr>
<tr>
<td>6,1million - 9 millions</td>
<td>5,50</td>
</tr>
<tr>
<td>Above 9 million</td>
<td>6,56</td>
</tr>
</tbody>
</table>

**Based on Marital Status**

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>Fee (in IDR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married</td>
<td>44,30</td>
</tr>
<tr>
<td>Not Married</td>
<td>55,70</td>
</tr>
</tbody>
</table>
4.4 Hypothesis Testing

Test the hypothesis in this study uses the results of the estimation model covariance-based SEM, with the maximum likelihood method. SEM Model statistically require data normality.

Results of data normality test both univariate and multivariate, shows the distribution of the data on the measurement indicator is not normal because CR value exceeds the value of ± 2.58, that can be seen in Table 5.

Table 5. Normality Test Result on Research Instrument

<table>
<thead>
<tr>
<th>Construct</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Skewness</th>
<th>Critical Ratio (CR)</th>
<th>Kurtosis</th>
<th>Critical Ratio (CR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSR Image</td>
<td>3,160</td>
<td>5,010</td>
<td>1,346</td>
<td>13,049</td>
<td>1,680</td>
<td>8,144</td>
</tr>
<tr>
<td>Brand Equity</td>
<td>3,120</td>
<td>4,620</td>
<td>1,378</td>
<td>13,364</td>
<td>2,206</td>
<td>10,696</td>
</tr>
<tr>
<td>Preference</td>
<td>3,220</td>
<td>5,630</td>
<td>1,433</td>
<td>13,894</td>
<td>1,489</td>
<td>7,217</td>
</tr>
<tr>
<td>Purchase Intention</td>
<td>3,880</td>
<td>5,430</td>
<td>1,246</td>
<td>12,079</td>
<td>0,603</td>
<td>2,921</td>
</tr>
<tr>
<td>Multivariance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>20,369</td>
<td>15,612</td>
</tr>
</tbody>
</table>

Source: Data Analyzed by AMOS 4.01

Table 5 shows the multivariate normal distribution of data may contain extreme data values. In general, if there is extreme value data in the measurement of the observation, the extreme value data may be released in the next analysis model.

Extreme data values in this study can be evaluated on the value of Mahalanobis Distance ($D^2 / df$) with statistical significance testing is at 3.5, if a large number of samples above 100 (Hair et al., 2006, p. 77). If the data within an increasingly distant from its center point, the data will fall into the category of extreme-value.

Mahalanobis Distance Value ($D^2 / df$) in this study meet the statistical significance value below 3.5. It means, the data on the observation of measurement does not contain the extreme values, as presented in Table 6.

Table 6. Mahalanobis Distance Value ($D^2/df$)

<table>
<thead>
<tr>
<th>Observation Number</th>
<th>Mahalanobis D-squared</th>
<th>Mahalanobis Distance ($D^2/df$), df= 16</th>
</tr>
</thead>
<tbody>
<tr>
<td>411</td>
<td>46.682</td>
<td>2.92</td>
</tr>
<tr>
<td>283</td>
<td>40.129</td>
<td>2.51</td>
</tr>
<tr>
<td>493</td>
<td>37.746</td>
<td>2.36</td>
</tr>
<tr>
<td>361</td>
<td>35.922</td>
<td>2.25</td>
</tr>
<tr>
<td>564</td>
<td>33.501</td>
<td>2.09</td>
</tr>
<tr>
<td>474</td>
<td>32.629</td>
<td>2.04</td>
</tr>
</tbody>
</table>

Source: Data Analyzed by AMOS 4.01
4.5 Fit Model Result

The fit model test is based on Chi-square ($\chi^2$ or CMIN), normed Chi-square ($\chi^2 / df$; or CMIN / DF), GFI (Goodness of Fit Index), RMR (root mean square residual), and RMSEA (root mean square of approximation). All fit model index shows the fit model, as stated in Table 7.

**Table 7. Fit Model Result, Based on SEM Model**

<table>
<thead>
<tr>
<th>Fit Model Index</th>
<th>Recommended Model Value</th>
<th>AMOS 4.01 Model Value</th>
<th>AMOS 4.01 Result, Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absolute Fit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chi-square ($\chi^2$ atau CMIN)</td>
<td>Relative Small</td>
<td>31,365</td>
<td>Good</td>
</tr>
<tr>
<td>Degrees of Freedom (DF)</td>
<td>Big</td>
<td>16</td>
<td>Good</td>
</tr>
<tr>
<td>Normed Chi-square ($\chi^2 / df$; or CMIN/DF)</td>
<td>$\leq 5,00$</td>
<td>1960</td>
<td>Good</td>
</tr>
<tr>
<td>GFI</td>
<td>$&gt; 0,90$</td>
<td>0,990</td>
<td>Good</td>
</tr>
<tr>
<td>RMR</td>
<td>$&lt; 0,05$</td>
<td>0,004</td>
<td>Good</td>
</tr>
<tr>
<td>RMSEA</td>
<td>$&lt; 0,07$</td>
<td>0,041</td>
<td>Good</td>
</tr>
<tr>
<td>Incremental Fit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NFI</td>
<td>$&gt; 0,95$</td>
<td>0,985</td>
<td>Good</td>
</tr>
<tr>
<td>CFI</td>
<td>$&gt; 0,95$</td>
<td>0,992</td>
<td>Good</td>
</tr>
<tr>
<td>Parsimony Fit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AGIF</td>
<td>$&gt; 0,90$</td>
<td>0,964</td>
<td>Good</td>
</tr>
</tbody>
</table>

*Source: Data Analyzed by AMOS 4.01*
Table 8. SEM Result and Direct Effect Hypothesis Testing

<table>
<thead>
<tr>
<th>Proposed Research Hypothesis Statement</th>
<th>Parameter Estimation Value, Unstandardized Research Coefficient</th>
<th>Parameter Estimation Value, Standardized Research Coefficient</th>
<th>CR (Critical Ratio) = t</th>
<th>Direction</th>
<th>Hypothesis Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ho1: CSR Image does not have a positive effect on Brand Equity</td>
<td>0.268</td>
<td>0.266</td>
<td>4.751</td>
<td>Significantly Positive</td>
<td>Ho1: Rejected  Ha: Accepted  Hypothesis: Supported</td>
</tr>
<tr>
<td>Ha1: CSR Image has a positive effect on Brand Equity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ho2: Brand Equity does not have a positive effect on brand preference</td>
<td>0.877</td>
<td>0.861</td>
<td>24.415</td>
<td>Significantly Positive</td>
<td>Ho2: Rejected  Ha2: Accepted  Hypothesis: Supported</td>
</tr>
<tr>
<td>Ha2: Brand Equity has a positive effect on brand preference</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ho3: Brand Equity does not have a positive effect on purchase intention</td>
<td>0.421</td>
<td>0.413</td>
<td>5.038</td>
<td>Significantly Positive</td>
<td>Ho3: Rejected  Ha3: Accepted  Hypothesis: Supported</td>
</tr>
<tr>
<td>Ha3: Brand Equity has a positive effect on purchase intention</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ho5: Brand preference does not have a positive effect on purchase intention</td>
<td>0.469</td>
<td>0.468</td>
<td>5.769</td>
<td>Significantly Positive</td>
<td>Ho5: Rejected  Ha5: Accepted  Hypothesis: Supported</td>
</tr>
<tr>
<td>Ha5: Brand preference has a positive effect on purchase intention</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.6 SEM Estimation Result and Hypothesis Testing

Table 8 shows the value of CR (critical ratio) is said to be statistically significant, when the CR value of 1.96 for two-tailed Hypothesis or 1.64 for one-tailed hypothesis at a significance level = 0.05 (Byrne, 2001 p.76). CR significant value reflects the decisions null hypothesis is rejected, which means that the proposed hypothesis is supported by research data.
Hypothesis testing to detect the role of mediating effect can be evaluated from the total value of the effect. The testing should meet the qualified mediating role, that are 1) the effect of the independent variable on the mediating effect must be a significant, 2) the mediator has a significant effect on the dependent variables, and 3) the effects of the independent variable on the dependent variable should be significant. If the value of the regression coefficient in the total effect is substantially greater than the value of the regression coefficient in the mediating effect, then the effect of the mediating variable plays a role in influencing the effects of independent variables on the dependent variable (Baron and Kenny, 1986). The test result of the mediating effect can be seen in Table 4.9.

Table 9 shows that Brand Equity has a positive significant effect on purchase intention, mediated by brand preference. It means that the stronger brand preference value, the higher purchase intention would be created.

The structural model results can also be seen in Figure 1.

<table>
<thead>
<tr>
<th>Proposed Statement</th>
<th>Research Hypothesis</th>
<th>Indirect Effect of Estimate Regression Value</th>
<th>Total Effect of Estimate Regression Value</th>
<th>Direct Effect Hypothesis Testing Result</th>
<th>Hypothesis Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ho4:</td>
<td>The stronger Brand Preference value, the higher purchase intention would not be created</td>
<td>= 0.861 x 0.468 = 0.403</td>
<td>= 0.413+ 0.403 = 0.816</td>
<td>β = 0.413 CR ≥ 1.64</td>
<td>Ho4: Rejected</td>
</tr>
<tr>
<td>Ha4:</td>
<td>The stronger Brand Preference value, the higher purchase intention would be created</td>
<td></td>
<td></td>
<td>Hypothesis: Supported</td>
<td></td>
</tr>
</tbody>
</table>

Source: Data Analyzed by AMOS 4.01

4. Discussion, Conclusions and Managerial Implications

CSR image in this research model has an effect on brand equity, supported by research data. This finding supports the concept of Chahal and Sharma (2006) that a positive CSR image attributed by CSR activity gives a positive impact on building a strong brand equity value, as the idea of Bhattacharya and Sen (2004); Pirsch et al. (2007). These findings also support the study results by Lai et al. (2010); Melo and Galan (2011); Jeon et al. (2020), although the measurement of the variable used in this research is different. The research measurement of brand equity is based on the multi-dimensions of brand equity. CSR image measurement in this research refers to the finding of Alcaniz et al. (2010). Brand equity measurement in this research used the measurements of total brand value, developed by Chang and Liu (2009). CSR activity attributes to build a positive brand equity value as of 26.60 percent. Then, Brand equity has a statistically significant positive effect on brand preferences, based on the results of t-statistic less than 0.05 (one-tailed test), with the estimated value of the parameter of 86.10 percent. This finding supports the findings of Cobb-Walgren et al. (1995); Prasad and Dev (2000); and Myers (2003); Chen and Chang (2008); Chang and Liu (2009); Chomvilailuk and Butcher (2010); and Moradi and Zarei (2011), and Jeon et al. (2020), specifically measured by self-brand connection (customers’ tendencies to incorporate the brand into their self-concepts to leverage the brand value).

This research result also confirms the previous studies that the effect of the brand equity on the company's brand preference because of CSR image is very high (86.10 percent), nearly matching the result undertaken by Chang and Liu (2009) amounting to 94.00 percent and Moradi and Zarei (2011) amounted to 89.00 percent, and higher
than the finding of Chen and Chang (2008) amounted to 67.00 percent. This high estimated value of brand equity effect on brand preference can occur under the attribution theory. Based on the attribution theory, the potential consumers who originally perceive the CSR activity based on the cognitive process perceive and believe that the CSR activity has a positive benefit. Then, the potential consumers through the process of the information assessment, knowledge, and experience that are stored in the memory, will give a causal inference or an attributed value to build the strongly positive brand equity. This corresponded to a respondent's response toward the brand equity value. 99.82 percent of respondents would recommend the company's products or services implementing CSR and 99.29 percent of the respondents considered themselves loyal to the brand product or service (see Table 10).

Based on the attribution theory, the potential consumers who originally perceive the CSR activity based on the cognitive process perceive and believe that the CSR activity has a positive benefit. Then, the potential consumers through the process of the information assessment, knowledge, and experience that are stored in the memory, will give a causal inference or an attributed value to build strong positive brand equity. This corresponded to a respondent's response toward the brand equity value. 99.82 percent of respondents would recommend the company's products or services implementing CSR and 99.29 percent of the respondents considered themselves loyal to the brand product or service CSR doers. Finally, the attribution value adds more joyful of the consumers...
to the company's product brand, which is known by brand preference. This is consistent with the idea of Schiffman and Kanuk (2007, p. 259). The individual sees himself at the start of behavior from the minor demand and continue on more demand. For example, someone who has donated an amount of $ 25 to the American Heart Association will be encouraged to donate more funds when someone assesses the activity of the Heart Association is useful for social purposes. This condition implies that the special incentives as a result of a positive CSR image have an impact on brand equity, then consequently creates joy over the brand (brand preference), which may ultimately result in the purchase behavior. This is consistent with the results of respondents’ responses that 98.23 percent of respondents prefer the brand of the product or service CSR doers. 98.05 percent of respondents would recognize a product or service the company first implementing CSR and it consequently will make a purchase. It implies that the higher the brand equity attributed by a positive CSR image, the higher the value of the company's brand preference exists. Statistical test result on the effect of brand equity and purchase intention directly without mediating effect of brand preferences shows a significant positive effect on this model, seen from the result of t-statistic more than 1.64 in = 0.05 alpha, with the estimated value of the parameter of 41.30 percent. The estimated value of this parameter can be increased by intervening in brand preference in brand equity effect on purchase intention. The effect of brand equity on purchase intention has a significant positive effect, supporting the findings of the Cobb-Walgren et al. (1995); Chen and Chang (2008); Moradi and Zarei (2011), even though the value of the estimated parameters is different. The estimated value in this research is lower (41.30 percent) compared with the findings of the estimated value by Moradi and Zarei (2011) amounted to 63.00 percent, but higher than the estimated value of the findings by Chen and Chang (2008) amounted to 28.00 percent. Based on the attribution theory, if the potential customer individually believes CSR activities to provide positive benefits, then the CSR activity builds a positive image that then attributes to the strong value of brand equity. When, the strong value of brand equity develops, this value then attributes to a positively higher purchase intention on the product or service of the company implementing CSR. When an attribution on purchase intention arises, as a result of the potential customer considering themselves loyal, the potential customer would recommend the company's brand doers CSR to the others, and a product or service of the companies implementing CSR would be the primary choice (as one of the measurement items of brand loyalty), referring to the response of the respondents respectively 99.29 percent; 99.82 percent; and 55.32 percent. Therefore, the finding in this research model is appropriate that brand equity has a positive effect on purchase intention of the potential customers on the product or service of the company implementing CSR.

This finding implies that the higher purchase intention would be created, if the stronger brand equity develops because of higher CSR image attribution. Moreover, if there is a mediating role of brand preference in the effect of brand equity on purchase intention, the higher purchase intention also would be created. CSR positive image can arise the customer's belief on the CSR benefits derived from the activity of CSR, which can provide a sustainable increase in social welfare, by 99.82 percent of respondent responses, stating that the companies implementing CSR activity would promote the development and prosperity of society in the long term.

The estimated value of brand equity effect on purchase intention is lower than the estimated value of brand equity effect on brand preference. This occurred allegedly because of the perceived quality of the product or service. Based on the response result shows that 26.42 percent of respondents said the tendency of the products or services of the company implementing CSR is not high-quality and 0.89 percent said the products or services quality of the company implementing CSR is in low-quality. This is in line with the result of the respondent's response still indicating no doubt to purchase the products or services of the company implementing CSR and to be the first choice of 44.68 percent. These findings also are supported by Liu, et al. (2014), implying that brand preference can have a higher effect due to brand equity, attributed to a positive CSR image. The findings of Liu et al. (2014) confirmed that the consumer’s brand preference will be stronger, if the higher quality of the brand products exists, as a consequence of the CSR image effect.
Brand preferences have a significant positive effect on purchase intention in this research, based on the statistical result of more than 1.64 in alpha level = 0.05, with the estimated value of the parameter of 46.80 percent. This result supports the idea of Hellier et al. (2003); Devlin et al. (2002); and Bailey and Ball (2006) and the study findings by Chen and Chang (2008); Chang and Liu (2009); Moradi and Zarei (2011), which also supports the findings of the Cobb-Walgren et al. (1995); Hellier et al. (2003).

The estimated value of brand preference effect on purchase intention in this research is lower (46.80 percent) compared with the findings of Chen and Chang (2008); Chang and Liu (2009) respectively by 60.00 percent and 85.00 percent, although the research result by Moradi and Zarei (2011) only amounted to 32.00 percent. This difference occurs due to the use of different research designs. The findings of this study did focus on the company's offering in low product involvement category (beverage and toiletries industry in terms of soap products, Coca Cola, Aqua, and Lifeboy in the Indonesian market).

The estimated value of brand preference effect on purchase intention has the same relative value as an estimate of the effect of brand equity on purchase intention. This happens because of the alleged superiority of the products or services quality of the company implementing CSR. This corresponded to a consumer response results. 3.90 percent of potential consumers stated a product or service of the company implementing CSR is not superior to the other competitor brands. 39.54 percent of potential consumers stated that the product or service of the company implementing CSR tends to be not superior. 1.95 percent of the potential consumers tend not to purchase the product or service of the company implementing CSR. 1.77 percent of the potential customers tend not to purchase the product or service of the company implementing CSR.

Oberseder et al. (2011) also stated that consumers will consider the purchase decision by several factors which are the quality of products or services, brand value as measured by brand equity, service, and country of origin of the product manufacturer. This is in line with the finding of Sen and Bhattacharya (2001) that the activity of CSR under certain condition attributes to lower purchase intention on the products or services, because of the product or service quality and consumer conviction toward CSR activity that gives the benefits to the stakeholders, specifically in building prosperity and quality of life.

Then, Bhattacharya and Sen (2004) also found that the consumer's reaction to the purchase decision is not directly caused by CSR activity, but because of price and product quality. It is also a correspondent with the study by Cone (Bhattacharya and Sen, 2004) that 84 percent of American consumers are likely to switch the brand of the product or service of the company implementing CSR. If the price and quality of the products or services of the company implementing CSR are similar to the products or services of other companies, the potential customers would prefer to buy the product or service of the company implementing the activity of CSR.

Furthermore, Oberseder et al. (2011) stated that the activity of CSR is the minor determinant in the purchase decision compared with others (sales price, product or service quality, brand equity value, and country of origin of the product manufacturer). They suggest there are three determinants of purchase decisions, 1) core factor, such as the level and type of information as well as personal attention; 2) central factor, such as the financial situation, which is extremely sensitive to the consideration of the sales price; and 3) peripheral factors, such as the CSR activity, corporate image, and the influence of groups/communities of expertise. Research shows that 61.35 percent of the respondents have a low-income category of under 3 million. Allegedly, the Income of potential
consumers becomes an important consideration in purchasing decisions that are strongly correlated with the selling price. Even more, if consumers are very rational in the selection of products that are highly influenced by the level of education and employment as personal, as the suggestion by Oberseder et al. (2011), the potential customers do not tend to purchase the high-priced product or service. If analyzed based on the level of education, customers’ income, level of job status, the potential customers are willing to buy the product or service because of the core benefit of the product or service. Research shows that education level dominates on bachelor's degree (diploma, undergraduate, and postgraduate) amounted to 69.80 percent, 67.00 percent of the potential customers are on the productive work. It means that the potential customers are willing to purchase the product or service are not emotional, affected by the brand value, described by de Chernatony et al. (2006). Thus, income level, education level, as well as the status of productive work may affect the purchase decision of products or services of the company implementing CSR, which might be considered as a control variable or a moderating effect in this research model, which is currently not examined. Overall, it can be concluded that the attribution theory has an important role in supporting the empirical testing in CSR image effect on building brand equity. Then, the value of brand equity consequently creates brand preference and purchase intention. CSR image effect in building brand equity contributes to the development of CSR concept from the perspective of consumer behavior. The result of this study dismisses the idea of Oberseder et al. (2011) that stated the CSR study from the perspective of consumer behavior, especially in purchase behavior still shows a considerable gap.

This research result has a theoretical contribution that the CSR image is an important factor in building brand equity. Likewise, brand preference is a mediating role in the effect of brand equity on purchase intention. This implies that brand preference contributes very important in increasing the higher purchase intentions of the potential consumers into actual purchases that are likely to be realized. CSR image model in building brand equity in this research contributes to the managerial practices of companies. The brand equity value of the company would be stronger, if the company implements a higher positive CSR image.

Consequently, the stronger brand equity value is, the higher purchase intention would be realized into purchasing behavior toward the products or services of the company implementing CSR. So, it is better for the company doing CSR best to have some benefit values, especially to boost sales volume improvement to increase market share growth. Therefore, the CSR image model in building the brand equity value of the companies implementing CSR is very important for the company because this model will have an impact on the decision of buying behavior in the form of increased preference on the brand and higher purchase intention of potential customers toward the products or services of the company implementing CSR, and also consequently contributes to the improvement of business performance, including the high investment value in the long term and attracting more investors, as the idea of Kotler and Lee (2005, p. 17).

Future study needs to be conducted to examine the level of income, education, and employment status as a variable control or as a moderating variable, or other potential factors as a peripheral factor such as Indonesian customers culture (dominating in group culture) that can moderate the effect of brand equity in purchase intention. This recommendation for future study is relevant to the research result of García-Conde et al. (2016), suggesting to examine the customer segment or characteristic, as a moderator in the effect of CSR on purchase intention, in that brand value can be considered as a mediating effect. It may also examine the quality and price of the product, as depicted in descriptive data in this research and suggestion by Sen and Bhattacharya (2001); Bhattacharya and Sen (2004); Oberseder et al. (2011); Liu et al. (2014).
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IS BUSINESS FRIENDLINESS ENHANCING ENERGY CONSUMPTION IN THE ASEAN REGION?

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Abstract. Business friendliness on one hand is very crucial for healthy economic activity and at the same time it may have other impacts. In this study, the author has designed a complete research in order to find out the impact of three aspects related to business friendliness i.e. ease of doing business, cost of starting business and competitiveness on the energy consumption in ASEAN countries. To study this impact, the author has collected panel data from ASEAN countries comprising the time period of 30 years from the sources such as World Bank and Global Economy. The author has applied the tests such as unit root test, basic diagnostic tests, PCSE and GMM estimation approaches on the collected data in order to analyze the data and evaluate some results. The results obtained from these tests evidently show that all the independent variables, ease of doing business, cost of starting business and competitiveness have significant impact of energy consumption along with the control variable, per capita income. After the detailed results, the author has identified a few theoretical, practical and policy making implications and benefits of this study. After that, some of the limitations related to the study and the recommendation for improvement have also been given.

Keywords: business; enhancement; friendliness; ASEAN; evidences; consumption; energy; cost; competitiveness; ease of doing business; starting business


JEL Codes: O43

1. Introduction

The countries present within ASEAN countries experienced rapid increment in the consumption of energy during 1960 to 1980. A further increment was seen in the growth rate, which gave rise to the enhancing share to ASEAN countries in energy consumption. In year 1960, the total energy consumption of ASEAN countries was lesser than 0.5 percent (BeNhet & Harun). There is lower energy consumption within ASEAN countries when counted per head. The energy consumption within ASEAN countries is seen more dependent over the dependency on oil. In accordance with Charfeddine and Kahia (2019), oil accounted for around 90% of total energy consumption in the region in year 1980. Over the time period of twenty years, an increment was seen in the energy consumption to be five times more, from 10 million tons to around 60 MTOE (Boontome, Therdyothin, & Chontanawat, 2017). Within ASEAN countries, the use of primary electricity, natural gas and coal got incremented. However, a decline is seen in the
share of energy. In accordance with Gellings and Parmenter (2016), there is a significant importance of products of petroleum for the energy use in ASEAN countries. The rapid increment in consumption of energy was seen in ASEAN countries over the previous decades when the oil was major source of energy in the energy market of world. Therefore, the increment in requirements of energy was met through the given source of energy (Dibenedetto, 2011). However, the ASEAN countries did not go along coal era, as done by most of the other industrialized countries, before oil emergence (Hafeez, Chunhui, Strohmaier, Ahmed, & Jie, 2018). Usage of coal had been mainly developed within various industries even before the emergence of oil. However, the use of coal is also made in different ASEAN countries prior to oil penetration. There was low consumption of coal as compared to other non-commercial fuels like vegetable residues and wood. Basically, within ASEAN countries, oil work like the substitution of other fuels that are non-commercial (see Figure 1).

![Ease of doing business](image)

*Figure 1. Ease of Doing Business Ranking of ASEAN Countries*

A significant progress has been observed within ASEAN countries in the context of ease of doing business. A significant progress of countries has been observed, therefore attracting more of the investments towards these ASEAN countries. In Figure 1, the ranking of ASEAN countries has been done in terms of ease of doing business. In accordance with Halder, Paul, Joardder, and Sarker (2015), Singapore is seen at the 2nd position, Malaysia at 9th position. Indonesia is at 73rd position, but managed climbing up to around 19 places from the ranking of year 2017. Despite of all good ranking, the region faces number of challenges when initiating some new business. More of the cost is involved in doing business in ASEAN countries. Some of the examples involve complex procedures, restrictive regulations and involvement of third party that add more cost pressures. Procedures being over regulated can also deter the activities of business and can open up more choices for bribes. Singapore is at the top when referring to competitiveness, in accordance with the Global Competitiveness Report of World Economic Forum, and at second internationally. Moreover, the other countries that have more competitiveness are Vietnam, Philippines, Indonesia, Malaysia and Thailand. In accordance with Huang, Mauerhofer, and Geng
(2016), competitiveness gets derived through various factors like macroeconomics, technology, infrastructure, market efficiency and education.

Many of the researches have been done on energy consumption. However, there is no such research that mainly targets over analyzing that how energy consumption is enhanced from business perspective. Therefore, the aim of this research is to fill this gap in the literature. Moreover, this research will target the ASEAN countries that have not been explored in detail in the past. There are given research objectives of this study:

1. To analyze the impact of ease of doing business on energy consumption in ASEAN countries
2. To check the impact of cost of doing business on energy consumption in ASEAN countries
3. To determine the effect of competitiveness on energy consumption in ASEAN countries

This research will be helpful for the government of ASEAN countries through analyzing that what effect business friendliness can have over the energy consumption. The government can then develop different policies or regulations as required.

The structure of the given dissertation is Introduction, Literature Review, Methodology, Discussion, Analysis and then Conclusion.

2. Literature Review

2.1. Practice Theory

Practice theory is basically a theory that how social being having diverse intentions and motivates transform and make the world where the ones live in. In accordance with Karatayev and Clarke (2016), it is identified as the dialectic in between human agency and social structure that work back and forth. Practice theory basically shows the connection in between human action and on the other hand, it shows the connection with some other global entity, for instance some system. As this research basically aims to identify the link in between business friendliness with energy consumption (Shittu, Hassan, & Nawaz, 2018). The business friendliness basically involves various factors like cost of starting a business, ease of doing business and competitiveness. All of these are human actions (Hussain, Musa, & Omran, 2018). On the other side, a system is provided, the system is energy consumption. Therefore, in order to check the connection in between this dependent variable, energy consumption and independent variables, ease of doing business, cost of starting a business and competitiveness, practice theory can be used. This approach basically tries resolving the antinomy in between the approaches of traditional methods like methodological individualism that tried to define all of the social processes in terms of actions of individuals. In accordance with Kardooni, Yusoff, and Kari (2016), practice theory has become an important approach in interpreting the altering energy patterns.

2.2. Ease of Doing Business and Energy Consumption

The services of infrastructure, specifically electricity is considered as the major concern for businesses present around the world. The Surveys of World Bank Enterprise have identified that for doing business with ease, more of the resources are required, which results into the consumption of energy. For instance, for doing business effectively or to run any business, organizations are set up. The major requirements at the organizations can be fuel. The businesses mainly require more of the electricity as these organizations are required to remain open and lighted up. Therefore, it results into consuming more of the electricity. The services of infrastructure, specifically electricity is the major concern for the businesses working around the world. In accordance with Khan, Yaseen, and Ali (2017), Surveys of World Bank Enterprise identify that managers present within 109 economies, 71 of the economies of middle-income identify electricity as the major constraint for the business. However, in accordance with Longo et al. (2016), through the elimination of outages of electricity within ASEAN countries would make an increment in GDP by around 0.5 percent. Therefore, it is important for organization to have good quality and
reliable supply of electricity. In addition to this, if the business is of transport, then in order to do this business with ease, different heavy vehicles are used that consume more fuel and oil. Based on this, it can be proposed that for doing business with ease, more of the energy is consumed. In such cases when businesses are not done with ease, instead of using electricity, sunlight is used. Moreover, the use of heavy automobiles is not preferred. On the other hand, when referring to the comfort and ease of business, the consumption of energy gets increased. This trend of doing business with ease is more noticeable within the ASEAN countries.

Based on the given analysis, the following hypothesis can be generated.

**H1:** There is a significant impact of ease of doing business on energy consumption in ASEAN countries.

### 2.3. Cost of Starting Business and Energy Consumption

Starting a business can involve more of the cost. Moreover, while doing the startup of the business, more of the resources are required, particularly in ASEAN countries. For instance, while in initiating a new business, more of the energy resources such as oil, fuel, coal, electricity and different other products can be used in order to construct the workplace. It can be stated that more cost is seen involved at the start of business, as compared to the settled-up business’ cost. In the start, more energy is consumed as to build up the workplace (Mofijur, Masjuki, Kalam, Rahman, & Mahmudul, 2015). This kind of energy consumption is done just in the start. However, the consumption of energy gets reduced with the passage of time. It is also ensured within ASEAN countries through following different practices. For instance, if simpler things are taken care of, then it actually helps in reducing consumption of energy. For example, turning off the lights and then making the monitor or computer turned off after using it. Turning these off at working day’s end can make a decrement in the consumption of energy. However, these are the measures that can be taken after the establishment of the business (Nezhnikova, Papelniuk, & Gorokhova, 2018). For instance, in the start, the business owner is required to make more investment in getting resources into the company. At the time of the starting of a business, the energy consumption gets increased and it can observe a decline with the development of business. Based on the given findings, following hypothesis can be proposed.

**H2:** There is a significant impact of cost of starting a business on energy consumption in ASEAN countries.

### 2.4. Competitiveness and Energy Consumption

When the costs of energy are expected to get increased over the twenty years, it is important to note that the innovation efforts of industry and offerings of services and goods will get directed towards such technologies that are more efficient in terms of energy. However, an increment in energy consumption in Western countries would be considered as detrimental to rise competitiveness for short-term in the ASEAN business market (Mirzabaev et al., 2015). The research of Rafindadi (2016) has identified that the trade-off terms of ASEAN countries has to confront to preserve the competitiveness for short-time period, and the required transformation of the comparative advantages of mid-long term. Dependent on the research of Shahbaz, Van Hoang, Mahalik, and Roubaud (2017), it has been analyzed that the export activities of ASEAN countries will result into a 10 percent increment in the consumption of electricity, as ASEAN countries would make a decrement in exports value by around 1.9 percent. Simultaneously, it will also make an increment in the cost of gas will decrease it by around 1.1 percent (Tang & Tan, 2015). The competitiveness loss is more noticeable for other larger exporters, specifically in such sectors that are based over energy. This short-term competitiveness has a negative influence with energy prices. The competitiveness can basically make the prices of energy products to get reduced (Zarsky & Tay, 2017). The decrement in the prices of energy products can let the individuals or organizations to consume more energy. Within ASEAN countries, increased competitiveness results into making the organizations to make a decrement in their costs, in order to make the customers to get attracted towards them (Zhang & Zhou, 2016). This basically outcomes into more consumption of energy because of competitiveness. Based on the given analysis, this hypothesis has been generated.
H3: There is a significant impact of competitiveness on energy consumption in ASEAN countries

3. Methodology

3.1. Data
Being the first and most important step of a research process, data collection has been conducted in order to be used in the research. The data which has been collected is panel data and has been collected from ASEAN region. This data covers the period of 30 years. The data bases used for data collection purpose include World Bank and Global Economy which are considered to be the most authentic and accurate sources for data collection purpose. The factors about which data has been collected include ease of doing business, cost of starting business, competitiveness and energy consumption. Next, the author has discussed the measurement units in the next portion.

3.2. Model Specification
The measurement units of all the variables involved in the current study have been discussed in this portion. The measurement unit of the dependent variable, energy consumption EC is billion kilowatt hours. In the same way, the independent variable, ease of doing business EDB is measured in terms of an index that ranges from the country where doing business is very easy to the country where doing business becomes difficult. In addition, the cost of starting business CSB is measured as the percentage of per capita income. The last independent variable, competitiveness COM has been measured in terms of World Economic Forum Index that ranges from 1 to 7. Apart from these variables, the control variable population growth PG is measured in terms of the number of people living in a country while the measurement unit of the other control variable per capita income PCI is taken as US dollars. Based on all the above mentioned variables, the author has generated the following equation or regression or model:

\[ EC_{it} = \alpha + \beta_1 EDB_{it} + \beta_2 CSB_{it} + \beta_3 COM_{it} + \beta_4 PG_{it} + \beta_5 PCI_{it} + \epsilon_{it} \]

In this equation, EC represents energy consumption, EDB represents ease of doing business, CSB represents cost of starting business, COM represents competitiveness, PG represents population growth, PCI represents per capita income while \( \epsilon_{it} \) shows the error term.

3.3. Estimation Procedure
Panel Unit Root Test
Unit root tests are used for the purpose of investigating and finding out the order of integration as well the stationarity of the variables before applying other tests and approaches on the collected data. The two tests i.e. LLC and IPS (Levin Lin Chu and Im Pesaran Shin) are most basic and important tests that are used for this purpose. However, based on the type of data collected, the author has employed LLC unit root test in this particular study. Among these tests, LLC unit root test provides homogeneous autoregressive process while IPS unit root test provides heterogeneous autoregressive process (Pesaran, 2004). As the traditional and conventional unit root tests resulted in some issues relate to size and power, these issues have been effectively resolved by IPS and LLC that are actually derived from augmented Dickey Fuller unit root tests. Both these tests involve the use of null and alternate hypothesis where null hypothesis indicates the presence of unit root and non-stationary state of the data while alternate hypothesis indicates the absence of unit root and stationary state of the collected data. The results of unit root tests are evaluated on the basis of these null and alternate hypotheses. As the author has used LLC unit root test, its equation is presented as:

\[ \Delta y_{it} = a_t + \rho y_{it-1} + \sum_{j=1}^{p_i} \alpha_j \Delta y_{it-j} + \epsilon_{it} \]

Here \( \Delta y_{it} \) is the difference that \( \Delta y_{it} \) shows for \( i^{th} \) country for the specific time period of \( t \).
GMM and PSCE Approaches

The following general equation for the estimation of the variables can be used:

\[ QE_{it} = \alpha + \sum_{j=1}^{7} B_j X_{jt} + \sum_{j=1}^{4} \delta_j CEF_{aumj} + \sum_{j=1}^{30} \theta_j Y_j + \varepsilon_{it} \]

In this equation, \( \alpha \) is the constant value, \( I \) represents the country, \( t \) represents the time or year, \( X_{jt} \) shows the explanatory variable, \( B_j \) is its coefficient, \( CEF_{aumj} \) shows the country fixed effect dummy and \( \delta_j \) is its coefficient.

As it has been clear from the equation that time fixed effect dummy has been used in the study. It has various benefits, the most important of which is that it will reduce the cross country regression because of time series and aggregate trends. This time fixed effect dummy also finds out any structural break if present in the data collected by the author. As the current study involves panel data, some basic diagnostic checks such as heteroscedasticity test, autocorrelation test, cross dependence test and multicollinearity test etc. These tests are used for various purposes such as to find out the heteroscedasticity of the variables, autocorrelation among variables, dependency of the variables etc. These tests are really necessary in order to obtain accurate and authentic results from the research (Blundell & Bond, 1998). The application of further tests is also depending on the results of these diagnostic tests. These points show the importance of basic diagnostic tests’ application on the collected data. The results of these tests have been given in the table 1. The results present in table 1 indicate that there is certain heteroscedasticity and autocorrelation among the variables. The cross-sectional dependence has also been found as significant. However, there is no multicollinearity found as significant in the collected data. The detailed results can be viewed in the table 1 below:

<table>
<thead>
<tr>
<th>Heteroskedasticity</th>
<th>Autocorrelation</th>
<th>Cross-section dependence</th>
<th>Multicollinearity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modified wald</td>
<td>Wooldridge</td>
<td>Pesaran</td>
<td>VIF</td>
</tr>
<tr>
<td>Breusch-Pagan/Cook-Weisberg</td>
<td>F-statistic: 6.49*</td>
<td>Test statistic: 2.959**</td>
<td>Mean VIF: 0.89</td>
</tr>
<tr>
<td>( \chi^2 )-value: 10.85**</td>
<td>( \chi^2 )-value: 4.85**</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

After getting the results of diagnostic tests, the next step taken by the author is the application of correlation test, the results of which are present in the table 2. According to the results present in the table, no correlation bias has been found among the variables and the collected data. The relationships present among various variables in the study are also evident in the results.

<table>
<thead>
<tr>
<th>Variables</th>
<th>EDB</th>
<th>CSB</th>
<th>COM</th>
<th>PG</th>
<th>PCI</th>
<th>EC</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDB</td>
<td>1</td>
<td>.648</td>
<td>.482</td>
<td>.492</td>
<td>.598</td>
<td>.294</td>
</tr>
<tr>
<td>CSB</td>
<td></td>
<td>1</td>
<td>.537</td>
<td>.395</td>
<td>.482</td>
<td>.593</td>
</tr>
<tr>
<td>COM</td>
<td></td>
<td></td>
<td>1</td>
<td>.593</td>
<td>.531</td>
<td>.483</td>
</tr>
<tr>
<td>PG</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>.384</td>
<td>.584</td>
</tr>
<tr>
<td>PCI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>.580</td>
</tr>
<tr>
<td>EC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

As heteroscedasticity and cross-sectional dependence have been found in the collected data, to resolve these issues the author has applied two important tests i.e. GMM and PCSE estimation techniques. These techniques can be used in order to resolve the issues of heteroscedasticity and cross-sectional dependence. Moreover, very accurate and realistic results are obtained from the use of the above-mentioned tests or approaches. Before moving forward, it must be noted that both country fixed effect and time fixed effect have been used in this study. The basic assumption of PCSE test is that the results of this test involve the fluctuations which are actually the results of heteroscedasticity
and correlations between the variables (Arellano & Bover, 1995). On the other hand, the use of GMM estimation approach has many benefits. The first point in this regard is that the endogeneity related issues can be resolved by using the lagged values of variables. In the same way, another benefit is that it joins together the regression in level series and regression in first difference series where the lagged values of dependent and explanatory variables are used as instruments of regression while the lagged values of explanatory variables are used as instruments of regression. Studies have shown that two types of GMM approaches are found i.e. system and first difference GMM approach. However, the author has preferred system GMM over the other one because the system GMM provides more accurate results as compared to the first difference GMM. GGM estimation technique may be used in accordance with the following equation:

$$\vartheta_{it} = \alpha_t + \sum_{p=1}^{P} \beta_p \vartheta_{it}^p + \sum_{q=1}^{Q} \beta_q \vartheta_{it}^q + \sum_{r=1}^{R} \beta_r \vartheta_{it}^r + \epsilon_{it}$$

4. Empirical Analysis

4.1. Results of Panel Unit Root Test

As the author had applied LLC unit root test in order to investigate and explore the order of integration and stochastic properties of the collected data, the results of this test have been presented in the table 3. The values for both the level series and first difference series have been given separately in the table. It can be observed that in the level series, all the variables have accepted the null hypothesis, but population growth has rejected the null hypothesis by one percent significance level. As most of the variables have accepted the null hypothesis, therefore it can be indicated that there is unit root present in the collected data while it is non-stationary. On the other hand, when the first difference is applied on the collected data, all the variables collectively reject the null hypothesis by either five or ten percent significance level indicating that there is no unit root and the collected data is completely stationary. These results can be summarized by stating that the data is non-stationary in the level series while it becomes stationary in the first difference series. Now that the order of integration as well as stationary properties of the collected data have been confirmed, the data is ready to be applied other tests and approaches in the research process.

<table>
<thead>
<tr>
<th>Table 3. LLC unit root</th>
</tr>
</thead>
<tbody>
<tr>
<td>constructs</td>
</tr>
<tr>
<td>Level</td>
</tr>
<tr>
<td>1st difference</td>
</tr>
</tbody>
</table>

In the table, ‘*’ represents the rejection of null hypothesis by one percent significance, ‘**’ represents the rejection of null hypothesis by five percent significance and ‘***’ represents the rejection of null hypothesis by ten percent significance

4.2. Results of GMM and PSCE Approaches

The author has used GMM and PCSE approach of estimation after the application of unit root test and other basic diagnostic checks. The detailed results of GMM and PCSE both have been given in the table 4 of the study. In the results given in the table, it can be seen that ease of doing business has significant and positive impact on energy consumption according to both GMM and PCSE approaches. This means that with one percent increase in ease of doing business, energy consumption will increase by 19.4%. In the same way, the impact of cost of starting business has also been found as significant on energy consumption i.e. with one percent increase in cost of starting business, the energy consumption will increase by 23.8%. The last independent variable, competitiveness has been found as significant too and with its one percent increase, energy consumption is supposed to increase by 14.5%. Apart from these independent variables, the impact of one control variable, per capita income has been found as significant while the impact of the other control variable, population growth is found as insignificant in context of energy consumption. In other words, with one percent increase in per capita income, there will be 17.4% increase in energy
consumption. Based on all these results it can be evaluated that ease of doing business, cost of starting business, competitiveness and per capita income have significant impact on energy consumption i.e. with the increase in these aspects, energy consumption will also increase and vice versa.

Table 4. Results from PCSE estimation

<table>
<thead>
<tr>
<th>Dependent Variable = QE</th>
<th>PCSE estimation</th>
<th>Sys-GMM estimation</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDB</td>
<td>0.203** (0.659)</td>
<td>0.194** (0.678)</td>
</tr>
<tr>
<td>CSB</td>
<td>0.248* (0.385)</td>
<td>0.238** (0.496)</td>
</tr>
<tr>
<td>COM</td>
<td>0.159** (0.295)</td>
<td>0.145*** (0.689)</td>
</tr>
<tr>
<td>PG</td>
<td>0.053 (0.899)</td>
<td>0.051 (0.899)</td>
</tr>
<tr>
<td>PCI</td>
<td>0.180** (0.496)</td>
<td>0.174** (0.485)</td>
</tr>
<tr>
<td>Constant</td>
<td>5.375** (0.395)</td>
<td>2.474** (1.849)</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.694** (0.875)</td>
<td>-</td>
</tr>
</tbody>
</table>

No. of observations       250
No. of instruments        -
No. of observations       248
Arellano-Bond test for AR (1) (Pr W z) - 0.048
Arellano-Bond test for AR (2) (Pr W z) - 0.978
Hansen test of overid restrictions - 1.163

In the table, ‘*’ represents one percent significance, ‘**’ represents five percent significance and ‘***’ represents ten percent significance

5. Discussion and conclusion

5.1. Discussion
The main purpose of this research study is to understand the impact of the business friendliness and its nature on energy consumption in the ASEAN countries. In this research, the focus is on the ease of doing business, the cost of starting business and competitiveness and its impact on energy consumption. The ASEAN countries are known as the main regulators of energy and trying to develop regional approaches for sustainable energy (Maulidia, Dargusch, Ashworth, & Ardiansyah, 2019). The ASEAN member states are now successfully implementing their regional strategy for sustainable energy supply. The business environment of the ASEAN countries focuses on the production of renewable and non-renewable energy such as oil, coal, and gas (Rasoulinezhad & Saboori, 2018). There is a large number of gas industries in the ASEAN countries combined with a positive environment that mainly supports expansion in private investment. The results and estimations have shown that population growth has an insignificant impact on the EC variable. Moreover, population growth has an insignificant impact on the other variables such as PCSE, SYS, and GM, whereas the other remaining variables have a significant impact on population growth. Through these results, it can be indicated that the friendliness of business can help in improving energy consumption. For example, Malaysia is well endowed with conventional energy sources such as coal, gas, and oil including renewable energy such as hydro (Williams, Raimi, Yarwamara, & Modupe, 2019). It has become a net energy exporter and conducting a strong business due to it which is enhancing energy consumption. Furthermore, the population growth and per capita income act as control variables in the research study whereas the results have been analyzed with the help of the GMM model and PCSE estimation.
5.2. Conclusion
To summaries the information, it has indicated that population growth has an insignificant impact on the consumption of energy. The main purpose of this research was to examine the impact of business friendliness on energy consumption in ASEAN countries. ASEAN countries are known as the main source of renewable and non-renewable energy; therefore, a large frequency of energy is being consumed due to business friendliness. The results and findings have been analyzed with the help of the GMM model and PCSE estimation. Moreover, the LLC unit root test has also been applied in the research study to indicate the results and findings. In this research, the control variables such as population growth and per capita income act have an insignificant impact on the variables in the study, such as SYS, CSB, etc.

5.3. Implications
The main implications of this research are related to the ASEAN countries, as they should know how the business is increasing energy consumption. This research has raised implications for energy supply and global environmental stability. This research can be used to diversify the energy mix to reduce the overdependence on certain energy sources and decrease the exportation of energy and finding different means of businesses. The high rates of oil and coal in the region are also increasing their needs. Being a net importer of natural gas, the consumption can increase in the coming years (Feijoo et al., 2018). If the production level of the ASEAN region did not increase, then the region will have to source out the additional demand from outside the region.

5.4. Limitations
Every study has its limitations. The following research study was based on the examination of business friendliness and its impact on energy consumption. The data was mainly collected from only a few states of the ASEAN region; therefore, it is recommended to the future researchers to select a large number of states in order to collect the information. Moreover, we only focused on the GMM model to analyze the results which are another limitation. However, future researchers can focus on a different one and choose another model for the estimation of results. Furthermore, the assumptions were made because of population growth for the reference scenario, and the growth rate was predicted through the UN department. The researchers in the future can use other means to collect data regarding population growth and income per capita.

References


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LABOR RESOURCE MANAGEMENT AT THE MACRO LEVEL AS SOCIAL SECURITY IN THE CONTEXT OF EUROPEAN INTEGRATION

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Abstract. Since different methods for determining poverty and social inequality produce different results, they should be used in a comprehensive manner. Only in this case it becomes possible to obtain a reliable evaluation of poverty in the country and justify the main directions of social policy to overcome it. Poverty profiles differ depending on monetary and non-monetary approaches: high risks of monetary poverty are inherent in children, and non-monetary poverty is higher among older age periods. When using monetary approaches, the highest risks of poverty are typical for large families and for families that simultaneously include children and the unemployed. Households with three or more children have also increased risks. When using non-monetary criteria, the group with the highest risks of poverty is households that consist only of people in the older age periods (60 years and older). Conditions of life of more than a quarter of Ukrainians do not meet even the minimum standards of the European Union for food, consumption of non-food goods and services, proper living conditions, etc. It is proved that the high level of poverty in Ukraine has increased the market for commercial surrogacy. Particular attention is paid to the rules of current Ukrainian legislation governing surrogacy. Based on results of the study of characteristics of surrogacy institution in Ukraine, the authors identified the main mechanisms of legal regulation of surrogacy.

Keywords: social security; poverty level; sustainable development; social standard; surrogacy arrangement


JEL Classifications: F35; F42

1. Introduction

Social security is a universal scientific, political, legal, educational, legal, social, managerial and methodological-psychological category. No matter how you look at it, it is vital-like water, air, warm, food, etc. Person in danger loses health and satisfaction with life, needs protection from dangers, from violation of human rights and freedoms.

Dangers in a person’s life change the outlook, primary needs become priorities and everything related to development is postponed for a certain period or not implemented at all. There is a deformation of consciousness and arise circumstances when a person through the lack of social security conditions, faces a choice - to continue living in these conditions, change these conditions, or leave the homes, move to safer and more favorable conditions for themselves and the families. It is useless to expect significant progresses in human and social development from people living in conditions of constant dangers.
There is an accelerated degradation of society under such conditions, which does not contribute to human social security. Here, the moral and spiritual decline increases, civil society does not become a subject of social relations, but performs the role of an object that is satisfied with any improvement of the situation, and does not become the creator of the future.

The low level of society social security is determined by the weak legal and contractual protection of the members, pessimistic prospects for social, labor, and innovation activity of citizens, high level of poverty, unemployment, crime and inequality, as well as the growth of corruption and shadow relations. These negative phenomena undermine the national unity and consolidation of the Ukrainian Nation, undermine the prospects for a successful future for both the state and person.

In accordance with the sustainable development Goals (2015-2030) approved at the UN summit in September 2015, solving the problems of overcoming poverty and reducing inequality, improving living standards and ensuring access to basic services for all segments of the population, the development of social infrastructure are priorities of the world community. Ensuring the right to protection from poverty and social exclusion is also one of the main directions of the European social Charter (revised), which was ratified by the Verkhovna Rada of Ukraine in 2006.

In our opinion, the main reason why Ukraine is becoming a Mecca for those who want to use surrogacy services is economic, namely the impoverishment of Ukrainians. Poverty is one of the most painful problems of our time, which affects a significant part of the world’s population. The fight against poverty has always been a priority of the European Union.

2. Literature Survey

Studying the peculiarities of legal regulation of surrogacy, while respecting human rights, dignity and safety, it requires definition of the essence of this concept. It should be noted that first and foremost appeared the concept of "surrogate mother". Thus, in the 1989 Council of Europe Report on Human Artificial Procreation, a surrogate mother meant a woman who bears a child for another person and, prior to fertilization, had agreed to put the child in the hands of that person (Report on Human Artificial Procreation, 1989).

Surrogacy research issues have repeatedly been and remain an object of scientific interest by both foreign and Ukrainian scientists.

Anu et al. (2013) define surrogacy as the arrangement by which a surrogate mother bears and hands over the child to another couple or person. The authors distinguish between traditional (genetic) and gestational surrogacy. In traditional (genetic) surrogacy, he surrogate's egg is fertilized by the intended father's sperm. In this case, the surrogate mother is the genetic mother of the child. In gestational surrogacy, the embryos that are genetically unrelated to the surrogate mother are implanted in the uterus of the surrogate mother, the parents are the persons to whom the embryos belong.

According to Simopoulou et al. (2018), surrogacy is a reproduction-based approach in which intended parents entrust pregnancy and birth of a child to another woman – a surrogate mother. People may seek a surrogacy arrangement mostly due to infertility, health risks, parenthood of same-sex couples and also in cases of diverse sexual identity and orientation.

The position of Beier (2015) is based on the fact that in surrogacy there is a relationship that creates a complex and extended reproductive unit - a "triad of surrogacy" consisting of a surrogate mother, a child and parents who
intend to cooperate with mutual trust.

In his study Laufer-Ukeles (2018) pays special attention to international surrogates. The scientist notes that they are most sensitive to scrutiny by intended parents because of greater authority, economic and educational differences. And since international surrogates are particularly alienated and distant from the intended parents, their well-being is likely to fall under the interests of the fetus.

Patel et al. (2018) identify surrogacy as an important method of assisted reproductive technology when a woman bears a baby for another couple. A large number of couples worldwide needs surrogate services for various reasons. While such arrangement seems beneficial to all interested parties, it has complex social, ethical, moral and legal issues. Specifically, due to these complexities, the practice grew unpopular in many countries around the world. Surrogacy is an important medical service for all couples who cannot otherwise have children.

In the context of surrogacy, the study by Walker & van Zyl (2016) on the issue of altruistic motivation, which is usually required of surrogate mothers, living organ donors, clinical trial subjects, and health care providers, is interesting. Altruism, understood as engaging in the desire to help others, often creates various conceptual and ethical difficulties. The authors argue that promoting the virtue of generosity is better than seeking altruistic motivation, since generosity is reciprocated, as well as legitimate concern for oneself.

Boldizhar (2019), by surrogacy, understands one of the most commonly used methods resorted by married couples who are unable to have children on their own. The scientist draws attention to the need for proper legal regulation of this sphere of legal relations, since the lack of proper legislative regulation gives rise to certain threats and risks, which can lead to insecurity of the rights and legitimate interests of the participants entering into the relationship of surrogacy.

As Kaminska & Bondar (2018) point out, that at first glance, surrogacy seems like a simple agreement whereby a couple finds a woman to be fertilized by embryos created from the gametes of that couple for the birth of a baby. However, in practice, these arrangements are complicated by various factors and, as a result, legal obstacles to surrogacy at national level may cause individuals to seek surrogacy services in other countries.

3. Methods

During the analysis, the following methods were used: analysis of regulatory acts, aimed at implementing the Strategy to overcome poverty (hereinafter-Strategy); effectiveness evaluation of the Ministry of social policy, other central executive authorities, regional and Kyiv city state administrations in implementing measures to implement the Strategy; analysis of the implementation of action plans for the implementation of the Strategy; analysis of information, plans, reports, and other documents that characterize the implementation of the Strategy measures; analysis of financial support for the implementation of the Strategy; analysis of statistical data, researches, indicators of poverty and social development of the country and regions; requests for analysis, processing of mass media materials, internet-publications; receiving explanations from officials of the analysis objects.

The basis of the surrogacy study, in particular, the essence of the concept, types, legal aspects of legislative regulation, were presented by dialectical, comparative-legal, formal-legal and system-structural methods.

The dialectical method was used to reveal the essence of the concepts of "surrogate mother" and "surrogacy" by examining the approaches of both foreign and Ukrainian scientists for whom the problem of surrogacy was and remains an object of scientific interest.
The comparative legal method was used to determine specifics of legal regulation of surrogacy in different European countries, including Ukraine. This enabled us to determine in which countries application of assisted reproductive technologies in the form of surrogacy is prohibited and entails liability; in which countries it is allowed, but with certain restrictions, especially with respect to the commercialization of this phenomenon; in which countries it is allowed, including cash rewards.

Interpretation of the current Ukrainian legislation governing issues related to surrogacy is made using the formal-legal method. In particular, conditions for surrogate (substitute) motherhood are outlined; indications for surrogacy; who may be the surrogate mother of a child; the algorithm of implementation of additional reproductive technologies by the method of surrogacy; a list of documents required for the surrogacy of a surrogate mother and the couple in whose interests it is exercised; peculiarities of application of the rules of civil law for conclusion of a surrogacy agreement, etc.

According to the results of the study of surrogacy institution features in some European countries, including Ukraine, using the system-structural method, the authors identified the main mechanisms of legal regulation of surrogacy.

4. Results

Countries that have traditionally provided these services such as India, Nepal and Thailand are now closed to requests for surrogates. This happened because of reports of exploitation of women. This has led to the emergence of new surrogacy centers in recent years.

Many Europeans prefer to go to Ukraine, where the services of surrogate mothers cost about 38 thousand – 50 thousand dollars, and not in the United States, where this procedure costs twice as much (Surrogacy in Ukraine).

For many years, the living wage has not served as a basic social standard for determining an adequate standard of living for citizens, but used as a calculated indicator for balancing the State budget of Ukraine, which violates the constitutional rights of millions of Ukrainian citizens to an adequate standard of living and adequate social protection. The sizes of the legally established and actual subsistence minimum per month on average per person in 2017-July 2018 is shown in Figure 1.

![Figure 1](image-url)

**Figure 1.** The amount of the legally established minimum standard of living and actual cost of living per month on average per person in Ukraine
The function of minimum standard of living as a fundamental instrument of social policy is offset by the presence of a number of problems related to both systematic non-compliance with legislation requirements for the formation, and the need to review methodological approaches to the definition.

Data on monitoring the effectiveness of the implementation of the poverty reduction Strategy in Ukraine for 2016-2017 and I quarter/half of 2018 in the main areas are shown in Table 1.

Table 1. Data on monitoring the effectiveness of the implementation of the poverty reduction Strategy in Ukraine by the main areas

<table>
<thead>
<tr>
<th>Main areas of the Strategy</th>
<th>Monitoring indicators</th>
<th>2016</th>
<th>2017</th>
<th>I half 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expanding access to productive employment, promoting the growth of the population incomes from employment and payments in the state social insurance system to ensure decent work conditions</td>
<td>Employment rate of the population aged 15-70 years percents</td>
<td>56,3</td>
<td>56,1</td>
<td>55,9 (I qr.)</td>
</tr>
<tr>
<td></td>
<td>Share in the income structure of the population of wages, percents</td>
<td>42,1</td>
<td>44,3</td>
<td>49,8 (I qr.)</td>
</tr>
<tr>
<td></td>
<td>Share of incomes from business and individual activities in household income, percents</td>
<td>5,2</td>
<td>4,4</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Poverty rate among people of retirement age</td>
<td>22,6</td>
<td>24,6</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>The growth of available incomes per one person, UAH (as % of the corresponding period of the previous year)</td>
<td>35776,9 (+4732,6)</td>
<td>43592,8 (+7815,9)</td>
<td>(I qr.) 11370,2 (+2761,6)</td>
</tr>
<tr>
<td></td>
<td>Growth of the average monthly salary of full-time employees by types of economic activity, UAH</td>
<td>5183 (+23,6 pr.)</td>
<td>7104 (+37,1 pr.)</td>
<td>8377 (+26,2 pr.)</td>
</tr>
<tr>
<td></td>
<td>Growth in real salary per employee, percents</td>
<td>109,0</td>
<td>119,1</td>
<td>(January - June) 112 pr.</td>
</tr>
<tr>
<td></td>
<td>Growth of the average amount of the assigned monthly pension to pensioners who are registered in The Pension Fund officials, percents in January to January of the base year (average pension amount, UAH)</td>
<td>107,5 (1700,2 UAH)</td>
<td>107,5 (1828,3 UAH)</td>
<td>135,7 (2480,5 UAH)</td>
</tr>
<tr>
<td></td>
<td>Growth of the minimum salary, percents (minimum salary amount, UAH)</td>
<td>116,1 (1600 UAH)</td>
<td>in 2 (3200 UAH)</td>
<td>116,3 (3723 UAH)</td>
</tr>
<tr>
<td></td>
<td>Growth of the minimum pension, percents (average amount of the minimum pension, UAH )</td>
<td>113,2 (1121 UAH)</td>
<td>118,2 (1325 UAH)</td>
<td>109,8 (1456 UAH)</td>
</tr>
<tr>
<td>Ensuring public access to social services regardless of residence place, minimizing the risks of social exclusion of rural population</td>
<td>Level of employed population aged 15-70 years, living in rural area, percents</td>
<td>54,9</td>
<td>54,4</td>
<td>(I qr.) 52,8</td>
</tr>
<tr>
<td></td>
<td>Share of rural households that suffer from the lack of regular daily transport links to 3 localities with more developed infrastructure, percents</td>
<td>-</td>
<td>23,0</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Share of full-time general educational institutions students, who continue to study in 10 class, percents</td>
<td>60,3</td>
<td>58,9</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Share of households in which there are persons who during the last 12 months were unable to receive medical care or purchase medicines, percents</td>
<td>23,1</td>
<td>29,7</td>
<td>X</td>
</tr>
</tbody>
</table>
Minimizing the risks of poverty and social exclusion of the most vulnerable categories of the population

<table>
<thead>
<tr>
<th>Indicator</th>
<th>2015</th>
<th>2016</th>
<th>X</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of children with disabilities covered by rehabilitation services, thousands people</td>
<td>15,5</td>
<td>18,1</td>
<td>X</td>
</tr>
<tr>
<td>Under-one-year-old mortality rate per 1,000 live births, percents</td>
<td>7,4</td>
<td>7,6</td>
<td>X</td>
</tr>
<tr>
<td>Number of children in pre-school educational institutions with special purpose groups</td>
<td>65606</td>
<td>65044</td>
<td>X</td>
</tr>
<tr>
<td>Number of children who have received the status of orphans and children deprived of parental care</td>
<td>10132</td>
<td>10386</td>
<td>X</td>
</tr>
<tr>
<td>Share of children covered by family forms of upbringing (adoption, guardianship, orphanages, foster families), out of the total number of orphans and children deprived of parental care, percents</td>
<td>91,5</td>
<td>91,3</td>
<td>X</td>
</tr>
<tr>
<td>Share of poor families with many children, percents</td>
<td>49,0</td>
<td>63,3</td>
<td>X</td>
</tr>
<tr>
<td>Share of employed persons with disabilities, percents</td>
<td>25,6</td>
<td>25,8</td>
<td>X</td>
</tr>
<tr>
<td>Share of working-age employees among persons with disabilities, percents</td>
<td>20,5</td>
<td>20,4</td>
<td>X</td>
</tr>
</tbody>
</table>


Some indicators that characterize the situation in the labor market have slightly decreased: the employment level of the population – from 56.3 percents in 2016 to 56,1 percent in 2016; the employment level of the population aged 15-70 years, living in rural areas from 54.9 percents in 2016 to 54.4 percents in 2017.

The share of employed persons has increased in the total number of internally displaced persons who applied to the state employment service, and in 2017 it was 33.9% against 28% in 2016, as well as the share of employees with disabilities – 25.8% in 2017 against 25.6% in 2016.

No less acute than the problem of poverty in Ukraine is the problem of social exclusion – limited access of certain categories, especially the socially vulnerable, to vital goods and services and a low level of access to social services for the general population.

The main reasons for the formation of social exclusion were for many years the lack of paid, stable work; instability or insufficient level of payment of social transfers; living in rural areas (due to poor employment opportunities and poor infrastructure to meet material and spiritual needs); lack of family ties, communication with friends and mates; inadequate living conditions; belonging to a certain social group (discrimination based on gender, age, religion, nationality, etc); poor health.

The situation in Ukraine with full access to health services is very unfavorable. In 2017, 13.4% the population suffered due to the lack of a health facility or pharmacy near the homes (this indicator increased by 1.1% of point compared to 2015). Infrastructure restrictions also include the inability to receive emergency medical services in a timely manner (in 2017, as in the previous survey period, 14.8% the population could not get such services). Almost the third part of the population in 2017 (29.7%), despite the need, could not receive medical care or purchase medicines. Significant decrease in this indicator in 2016 (to 23.1%) was completely leveled and even exceeded the level of 2015 (see Table 2).
Table 2. Indicators for the implementation of the poverty reduction Strategy for 2015-2017 and the target for 2018

<table>
<thead>
<tr>
<th>Indicators</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018 target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poverty level by absolute criterion for comparison with international indicators (according to the World Bank methodology), percents</td>
<td>2.4</td>
<td>2</td>
<td>1.9</td>
<td>0.8</td>
</tr>
<tr>
<td>Relative poverty level (60% the median level of average weekly equivalent incomes using the European Union equivalence scale: 1.0;0.5;0.3 percents)</td>
<td>8.1</td>
<td>7.7</td>
<td>8.3</td>
<td>6.6</td>
</tr>
<tr>
<td>The poverty level according to the absolute criterion (the costs are below the actual minimum standard of living), percents</td>
<td>58.3</td>
<td>58.6</td>
<td>47.3</td>
<td>23</td>
</tr>
<tr>
<td>Including among working persons, percents</td>
<td>42.6</td>
<td>42</td>
<td>23.7</td>
<td>17</td>
</tr>
<tr>
<td>The unemployment rate of the population aged 15-70 years according to the methodology of the International labor organization, percents, economically active population of appropriate age</td>
<td>9.1</td>
<td>9.3</td>
<td>9.5</td>
<td>9.2</td>
</tr>
<tr>
<td>The share of funds (excluding rent subsidy) that reach up to 30% the poorest population as a result of state social assistance programs performance, percents</td>
<td>41.3</td>
<td>37.6</td>
<td>43.6</td>
<td>43</td>
</tr>
<tr>
<td>The share of the poor population (expenditures below the actual minimum standard of living) covered by social support programs (social benefits, rent subsidies, child allowances, assistance to low-income families, and other types of social assistance), percents</td>
<td>63</td>
<td>70.3</td>
<td>73.6</td>
<td>61</td>
</tr>
</tbody>
</table>


So, the analysis of Strategy implementation indicators shows that the 2018 targets for certain indicators will not be reached. However, there are positive developments, in particular, the general improvement in the situation with poverty and in the system of support for the poor. These positive changes were primarily due to the increase in the minimum salary and the reform of social support programs.

In the period that was studied, three stages of the development of the situation with poverty in Ukraine can be clearly traced (Figure 2):
1) The stagnation period in 2010-2013: indicators for all criteria were relatively stable, with no noticeable fluctuations.
2) 2014-2016: sharp increase in the poverty level by absolute criteria;
3) 2017: reversal of negative trends, sharp decrease in the poverty level by absolute criteria against the background of an increase in the relative poverty level.
The most vulnerable socio-demographic group of the population, according to 2017 data, are children (0-17 years old) almost a third of whom fall into the category of poor according to the relative criterion (the relative poverty level is 32.5%). The second group at risk of poverty is teenagers (aged 16-19 years old) among whom the relative poverty level is 27.8%). Another vulnerable group is those aged 75 and over, 25.5% of whom are poor by relative criteria, although the overall relative poverty level for pensioners is not much lower – 24.6%.

In 2017, the gap in poverty indicators between city and village is increasing, both by absolute and relative criteria. Small cities are increasingly gravitating towards rural localities and moving away from the indicators of large cities. According to the absolute criterion, the poverty level in small cities significantly exceeded the value not only of the average Ukrainian, but also in rural areas. So, the situation in small cities is getting worse against the all-Ukrainian background and further.

Almost one in three households with children does not “reach” the relative poverty line, and in 42.5% total equivalent incomes are lower than the actual cost of living per person.

The worst situation among all types of households are traditionally found in large families (with three or more children), households with two children, and households with at least one unemployed person. So, the high risks of poverty, as before, are mainly households with children, which form the main set of poor families.

The main factors that influence a woman’s decision to become a surrogate mother are poverty, unemployment, and the need to provide education for children. In many cases, women are pressed by
men to get the opportunity to buy a hose, garage, or family business organizations, with the money they earn in this way. Many foreign experts claim that in 2019, the demand for the Ukrainian market increased by 1000% (Known results of the study "Child trafficking in Ukraine: Sale of children and surrogacy").

Independent experts point out that in Ukraine there is no control and regulation of this sphere, and the biggest lacuna- a certificate of genetic relationship instead of a DNA –test is issued by the clinic, which makes it possible to numerous speculations and actually trafficking in children, if the child is not genetically related to the parents.


Part 2 of Art. 123 established that in case of transferring a human embryo conceived by a married couple (a man and a woman) in the result of using an assisted reproductive technology into the body of another woman, the parents of the child are the married couple (Family Code of Ukraine, 2002). Thus, in the legal sense, the child's parents in a surrogacy relationship are the married couple, not the surrogate mother.

According to Art. 48 of the Law of Ukraine "Fundamentals of the Legislation of Ukraine on Health Care" embryo implantation is carried out in accordance with the conditions and procedure established by the central body of executive power, which ensures formation of state health policy, according to the medical indications of an adult woman with whom such action is conducted, subject to the written consent of the married couple, ensuring the anonymity of the donor and maintaining medical secrecy (Law of Ukraine № 2801-XII, 1992)

More specific issues of surrogate (substitute) motherhood in the Order of the Ministry of Health of Ukraine "On approval of the Procedure for the use of assisted reproductive technologies in Ukraine". Accordingly, the necessary conditions for surrogacy are the following:

1. medical indications for surrogacy;
2. documents required to carry out surrogacy procedures;
3. the married couple (or one of the intended parents) in whose interests the surrogacy procedure is performed must be genetically related to the child;
4. the surrogate mother should not be directly genetically related to the child. Gestation is permitted to close relatives of the intended parents (mother, sister, cousin, etc.) (Order of the Ministry of Health of Ukraine № 787, 2013).

Medical indications for surrogacy include:

1. absence of the uterus (congenital or acquired);
2. deformation of the uterine cavity or the cervix in congenital malformations or as a result of surgical interventions, benign tumors, which make pregnancy impossible;
3. structural-morphological or anatomical changes of the endometrium leading to loss of receptivity, intrauterine adhesions, which are not treatable;
4. severe somatic conditions which threaten pregnancy and further health or life of the recipient but which do not affect the health of the unborn child;
5. unsuccessful repeated attempts at assisted reproductive technologies (4 or more times) upon repeated implantations of high quality embryos, the transfer of which did not lead to pregnancy (Order of the Ministry of Health of Ukraine № 787, 2013).
A surrogate mother may be an adult legally capable woman, provided she has a healthy child of her own, a voluntary written surrogate statement completed in the prescribed form, and in the absence of medical contraindications. The algorithm of implementation of additional reproductive technologies by the method of surrogacy: selection of surrogate mother; synchronization of the menstrual cycles of the recipient and the surrogate mother, preparation of embryos / cryo-embryos; the procedure for transferring the embryo to the uterus of a surrogate mother; cryopreservation of unused embryos; diagnostics of pregnancy; monitoring the surrogate pregnancy; determination together with the physician observing the pregnant woman, the method of delivery, place of delivery, method of feeding the newborn child; childbirth can be arranged with the presence of the recipient and the surrogate mother (Order of the Ministry of Health of Ukraine № 787, 2013).

The following documents are required from the surrogate mother for the surrogacy procedure: (1) application of the surrogate mother; a copy of the surrogate mother's passport; (2) a copy of the marriage certificate or the divorce certificate of the surrogate mother (except for single women); (3) a copy of the birth certificate of children (a child); (4) consent of the surrogate mother's husband to participate in the surrogacy program in a standard form. The list of documents required for the surrogacy procedure from the couple – intended parents: (1) application of the patient / patients regarding the use of assisted reproductive technologies; (2) copies of passports; (3) a copy of the marriage certificate; (4) a notarized copy of the written mutual agreement between the surrogate mother and the woman (the man) or the married couple (Order of the Ministry of Health of Ukraine № 787, 2013).

Surrogacy involves a respective agreement between the married couple (the child's intended parents) and the surrogate mother. Like any other agreement, it should be concluded on the terms and meet the requirements of the Civil Code of Ukraine. According to Art. 901 of the Civil Code of Ukraine under the service agreement, one party (contractor) undertakes to provide a service in accordance with the statement of works of the other party (customer), consumed in the course of committing a certain act or carrying out a certain activity, and the customer undertakes to pay the contractor for the requested service, except as otherwise provided in the agreement. The provisions of this Chapter may apply to all service contracts, so long as this is not contrary to the essence of the obligation. Thus, under a service it can be considered an obligation of a surrogate mother to bear and deliver a child for intended parents who are obliged to pay her compensation. Therefore, proceeding from this position, the provisions of Chapter 63 of the Civil Code of Ukraine “Services. General Provisions” (Civil Code of Ukraine, 2003) are applied to the surrogacy agreement. Based on the above, the surrogacy agreement is a specific type of service agreement.

The issue of regulation of responsibility for violation of the requirements of the legislation, the norms of which govern surrogacy, needs particular attention. It should be noted that there is no clear regulation at the legislative level on this issue. Usually, the parties resort to defining liability in the agreement itself. Whereby, infringement can be both from the side of the surrogate mother (for example, intentional termination of pregnancy), and from the side of the intended parents.

In the context of the issue under study, Mishchuk & Slabiak (2017) propose liability in the following cases: (1) violation of the agreement concluded between the biological parents and the surrogate mother (properly executed agreement is mandatory); (2) illicit medical activity (such activities may only be performed by certified medical institutions).
5. Discussion

The issue of responsibility regulation for violation of the requirements of legislation dealing with the issues of surrogacy, needs significant attention. Usually, the parties resort to defining liability in the agreement itself. Whereby, infringement can be both from the side of the surrogate mother (for example, intentional termination of pregnancy), and from the side of the intended parents. Unfortunately, there is no clear regulation at the legislative level.

Thus, the urgent need today is to create an appropriate level of responsibility for violating requirements of the surrogacy legislation in Ukraine. The resolution of such an issue seems possible by legislatively securing guarantees for rights protection of both the surrogate mother and the child's (intended) genetic parents. In this context, one of the possible ways might be regulation of specific features of a surrogacy agreement. After all, as it has been noted earlier, conclusion of such agreements is guided by the rules of the Civil Code applicable to service contracts.

Other issues in the legal relationship of surrogacy remain to be legally resolved, including the following: lack of the definition of the concept of surrogacy and the list of persons who may be the subjects of such legal relationships; peculiarities of consuming surrogacy services by foreign nationals; determining the list of cases in which clients are allowed to decline the services of a surrogate mother and refuse the expected child, etc. All the identified problems need to be solved by fixing the relevant rules in the Family Code.

Conclusions

The events that are taking place in Ukraine and the world today are characterized by the need to provide worthy responses to national and global challenges. The emergence of risks, dangers and threats to national security can be traced in all spheres (economic, social, foreign-political, national-political, state security, military, scientific-technological, environmental, information). The system of public management in the context of a systemic crisis and limited opportunities to ensure national security is constantly faced with the choice of strategic priorities and directions for the country development at the present stage and in the future.

Among the areas of national security the least developed and poorly implemented is social security. It is very limited in national security legislation. But the events that are taking place in Ukraine today require clear and balanced decisions to ensure social security of person, society and state, as well as improving the system of public management, which prevents and minimizes threats to national security in the social sphere and creates opportunities for integration into the world best social systems. Social security involves protecting the social interests of the person, society and state from internal and external threats.

Despite the lack of the law on surrogacy and the term in Ukrainian legislation, after the ban on commercial surrogacy in India, Ukraine has become extremely attractive for commercial surrogacy for foreigners for a number of significant reasons: the low cost compared to the US, for example, (approximately 30-50 thousand dollars compared to 150 thousand in the US); simple legal procedure is legally allowed (Contract for the provision of reproductive services); the minimum documents required for the procedure; the lack of legal restrictions for foreigners as in other countries; the actual lack of state control over compliance with all legal aspects; fairly high level of medicine development and reproductive technologies.

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METHODS FOR CONDUCTING AN AUDIT OF THE EFFECTIVENESS OF INTERNAL CONTROL

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Abstract. The socio-economic orientation of the insurance companies’ activity has identified this industry as one of the most strictly regulated by the state, which led to the obligatory implementation of internal control. The article discusses the methods of assessing the ICS and based on the studied researches; own methodology for conducting an audit of the effectiveness of internal control in an insurance company is proposed. This theme is especially relevant for insurance companies, where mechanisms of assessing the effectiveness of the internal control system are still being developed. The author proposes a new approach to assessing the effectiveness of the internal control system in an insurance organization based on quantitative and qualitative criteria of the use of an integrated indicator for assessing the effectiveness of ICS. An audit plan for the effectiveness of ICS in an insurance organization has been drawn up. The conditions for recognizing an effective system of internal control in an insurance organization are identified. The author proposed such components of the analytical procedure for assessing the effectiveness of internal control as testing and calculating an indicator characterizing the level of coverage of the internal control system.

Keywords: audit, internal control, insurance company, efficiency, assessment, integrated indicator, assessment methods.


JEL Classifications: M 41, M 42, G22.
1. Introduction

The internal control system is a process of activity of certain employees of the organization, aimed at minimizing risks by conducting internal control of organization's activities in accordance with the adopted internal documents (methods, regulations, procedures) to ensure the achievement of its goals. In modern economic conditions, the demand for developments in the field of internal control and audit, mainly in organizations with a specific activity, is becoming most urgent (Valentim et al., 2019). The reason for the need to improve the effectiveness of the internal control and audit system is due to the insufficient stability and high speed of changes in economic relations (Avvakumova et al., 2020).

In order to conduct internal control, there are various methodological approaches, which include a set of methods, modes and strategies for researching the activities of insurance organizations. Internal control tools are measures and processes used in the methods, such as: customer identification and study programs, tools for the prevention of economic crimes, methods for detecting and assessing business risks (Bykanova and Akhmadeev, 2019), internal control procedures for managing risks and processes, checking the reliability of information and protecting communications and elements of monitoring the internal control of an insurance organization (Zeibote et al., 2019).

Taking into account the specifics of building internal control and audit systems contributes to the achievement of static stability within the framework of global trends, as well as stimulating scientific and technological progress. Therefore, the effectiveness of the internal control and audit system should directly depend on the construction of the most acceptable methodology and tools for assessing the effectiveness, taking into account the specifics of the organization (Korableva et al., 2019).

2. Methods

The regulatory document “Organization and implementation by an economic entity of internal control of the facts of economic life, maintaining accounting records and the making of accounting (financial) statements” presents the general elements of internal control.

The essence of assessing the effectiveness of the internal control system is defined in identifying the degree of achievement of results in accordance with the costs incurred.

In the writings of many authors who studied the issue of assessing the effectiveness of the internal control system, a hypothesis was proposed in accordance with which the criteria of effectiveness can be divided into qualitative and quantitative (Table 1).
The problem of the effectiveness of the internal control system lies not only in determining the most suitable assessment criterion, but its comparability with organizations of a certain type of activity. In relation to an insurance organization, both quantitative and qualitative criteria can be applied. Consequently, it can be argued that a quantitative assessment of the effectiveness of the internal control system in an insurance organization can reveal how effective internal control is, i.e. making calculations, you can find out how much internal control fulfills its responsibilities (Akhmadeev et al., 2018). Qualitative assessment of the effectiveness of the internal control system in an insurance organization, in its turn, seems to be an analytical summary of the results, which is able to identify and also offer measures to minimize various risks. But in practice, most insurance organizations resort to a qualitative assessment, i.e. testing inside it.

3. Results

Assessing the effectiveness of the internal control system in insurance organizations is a many-sided aspect, including, according to E.A. Kasyuk criteria, which are presented in Figure 1.
Thus, the effectiveness of the internal control system can be assessed using the methodological foundations proposed above. As a result, they can be used in quantitative definitions to assess the functioning of the internal control system in dynamics. The organization must assess the internal control system and conduct an internal audit in order to identify and work out measures of develop and improve the internal control system.

Talking about the assessment of the effectiveness of internal control systems, the assessment of effectiveness can be divided into qualitative and quantitative assessment.

The quantitative assessment is based on economic and mathematical calculations, since one of them is the number of control procedures performed per specialist for a period, and a qualitative assessment is the level of qualification of inspectors; the presence of specialists with professional skills. These methods are presented in table 2.
Table 2. Description of methods for assessing the effectiveness of internal control systems in an insurance organization

<table>
<thead>
<tr>
<th>№</th>
<th>Method</th>
<th>Characteristics</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Testing</td>
<td>The indicators are calculated on the basis of point and weight functions, put out in response to questions related to these indicators</td>
<td>Simple use of this method, the ability to touch upon the narrow and specific aspects of the internal control system</td>
<td>There are no clear objective assessment criteria; subjectivity of assessment</td>
</tr>
<tr>
<td>2.</td>
<td>Analytical review</td>
<td>Comparison and collation of own ICS in the company with the proposed practices of Russian and foreign experience</td>
<td>Simply to use. Helps you to compare your own ICS with the relevant standard and regulation. As a result, the minimum cost in assessing the effectiveness of ICS</td>
<td>There are no clear standards for the organization of ICS. Lack of information in the public domain about the organization of ICS in insurance companies</td>
</tr>
<tr>
<td>3.</td>
<td>COSO model</td>
<td>Contains recommendations for management on the assessment and improvement of control systems</td>
<td>Allows you to improve the ability to identify risks, as well as implement measures to neutralize them</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Statistical calculations</td>
<td>Designing an object, allowing to reflect the properties of the ICS in a mathematical form</td>
<td>Within the functioning of the internal control system, loss saving is determined</td>
<td>The penibility and complexity, does not take into account the influence of the human factor, and the difficulty to quantify indicators for assessing the effectiveness of internal control systems</td>
</tr>
<tr>
<td>5.</td>
<td>Expert assessment</td>
<td>Assessment by expressing the opinions of specialists or experts (auditors)</td>
<td>Comprehensive analysis of indicators, analysis based on expert knowledge and experience</td>
<td>The questionable reliability of the assessment, the assessment criteria are quite formal and subjective</td>
</tr>
<tr>
<td>6.</td>
<td>Calculation and analytical methods</td>
<td>Measurement of the effectiveness of ICS and a quantitative indicator</td>
<td>Gives a visual assessment of the result from the implementation of the internal control system in value terms</td>
<td>The lack of a real opportunity to calculate the economic effect of introducing an internal control system</td>
</tr>
</tbody>
</table>


Thus, based on the above characteristics of the methods, we can conclude that the head of the company can use any of these methods that he considers to be the most suitable for business efficiency.

Of course, that there can be no unique method for assessing the effectiveness of ICS. Each method has its advantages and disadvantages. The proposed model by the author, who is T. Varkulevich combines some methods that are inter-connected and allow us to assess the effectiveness of the ICS, focused on various subsystems of internal control and their content (Figure 2).
This model is able to combine all the advantages of various methods for assessing the effectiveness of internal control and adapt them to the insurance company's management system, provide an assessment of the ability of internal control to perform its functions effectively. In addition to the analysis of calculated indicators of the effectiveness of internal control and the survey of employees of the internal control service, it is necessary to take into account the indicator “level of coverage of the internal control system”.

This indicator or the so-called maturity indicator of the internal control system defines the boundaries of the control coverage of a particular business process: process characteristics, control environment, risk assessment, control procedures, information and communication, monitoring.

The risk of not covering ICS is determined at intervals:
- ICS level from 0 to 0.4 - low;
- ICS level from 0.4 to 0.8 - average;
- ICS level from 0.8 to 1 - high.

To assess the level of risk, the following formula 1 is used:
\[
R_{nics} = (0,2 \times (C_{nlr} \times Cs) + 0,6 \times (C_{nmr} \times Cs) + 0,9 \times (C_{nhr} \times Cs)) \times 100\%
\]
where:
- \(R_{nics}\) - risk of non-coverage of ICS;
- \(Cs\) - coefficient of significance determined by the test results (1 divided by the number of tests performed);
- \(C_{nlr}\) - number of objects with low risk;
- \(C_{nmr}\) - number of objects with medium risk;
- \(C_{nhr}\) - number of objects with high risk.

The result of the calculations will be the overall risk of non-coverage or the risk will not be detected, or the detected risk will not be so significant for the company, or maybe the probability of the occurrence of risk is simply assumed. In this case, the ICS level indicator is determined by the formula 2:
\[
L_{ics} = 100\% - R_{nics}
\]

The obtained value of the indicator of the level of coverage of the internal control system reflects the percentage of areas covered by the ICS, and can be determined both by the business process and by the insurance company as a whole.

In table 3, we will assess the quality of the internal control system, which will allow us to form an idea of the effectiveness of control of the insurance company.
### Testing the assessment of the internal control system

<table>
<thead>
<tr>
<th>Checklist items</th>
<th>Assessment before implementation of ICS</th>
<th>Assessment after implementation of ICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Control environment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Availability of special documents or local acts on internal control</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Availability of an internal control department in the company</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Assessment of the level of competence of employees in comparison with the necessary level for high-quality accounting. Availability of activities aimed at staff development</td>
<td>0.5</td>
<td>1</td>
</tr>
<tr>
<td>Assessment of management competency in comparison with the necessary level for organization management</td>
<td>0.5</td>
<td>1</td>
</tr>
<tr>
<td>Correspondence of the organizational structure of the company to the volume of the insurance company</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Responsibility in the field of internal control</td>
<td>0.5</td>
<td>1</td>
</tr>
<tr>
<td>2. Risk assessment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Availability of risk assessment</td>
<td>0.5</td>
<td>1</td>
</tr>
<tr>
<td>Availability of analytical reports of financial and economic activities to increase the profitability of the organization</td>
<td>0.5</td>
<td>1</td>
</tr>
<tr>
<td>3. Control procedures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessment of the list of control procedures for business processes</td>
<td>0.5</td>
<td>1</td>
</tr>
<tr>
<td>Availability of an approved program and schedule of inspections</td>
<td>0.5</td>
<td>1</td>
</tr>
<tr>
<td>Assessment of the availability of technology in ICS</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Assessment of control over legality of transactions</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Availability and description of a clear delineation of duties and powers</td>
<td>0.5</td>
<td>1</td>
</tr>
<tr>
<td>Assessment of control procedures for access to software products and databases of an insurance company</td>
<td>0.5</td>
<td>1</td>
</tr>
<tr>
<td>Maintaining the necessary documents based on the results of the control</td>
<td>0.5</td>
<td>1</td>
</tr>
<tr>
<td>4. Information Systems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The organization has an automated accounting system</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>The organization has automated warehouse accounting</td>
<td>0.5</td>
<td>1</td>
</tr>
<tr>
<td>5. Monitoring controls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assessment of the formalization of measures for monitoring controls</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Assessment of the availability of procedures that are aimed at changing the ICS</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Availability of regular control activities</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Assessment of staff responsibility. Availability of independent assessments of the reliability of control tools</td>
<td>0</td>
<td>0.5</td>
</tr>
<tr>
<td>Total score:</td>
<td>6.5</td>
<td>20.5</td>
</tr>
</tbody>
</table>

*Source: own research*

We define the significance level of the internal control system, which is defined as $1/21 = 0.047$.

Further, we calculate the risk level of CRS:
- implementation: 
  \[
  R_{ncICS} = (0.2 \times (1 \times 0.047) + 0.6 \times (11 \times 0.047) + 0.9 \times (9 \times 0.047)) \times 100\% = 70.03\%
  \]
- after implementation:
  \[
  R_{ncICS} = (0.2 \times (20 \times 0.047) + 0.6 \times (1 \times 0.047) + 0.9 \times (0 \times 0.047)) \times 100\% = 21.62\%.
  \]

The risk level of JSC “Insurance” before implementation of the developed measures is 70.03% (high level), after which it decreased to 21.62% (low level).

We calculate the level of coverage of the internal control system in the insurance company in question. We get the following calculation results:
- before implementation:
  \[
  L_{iICS} = 100\% - 70.03\% = 29.97\%
  \]
- after implementation:
  \[
  L_{iICS} = 100\% - 21.62\% = 78.38\%.
  \]
Thus, the level of ICS coverage after events will increase from 29.97% to 78.38%, which suggests that the introduced improvements will help the effectiveness of the internal control system. According to the results, the formation of the internal control service will improve the quality of the internal control system of the insurance company. The test results confirmed the need to create an internal control service will increase the quality assessment of ICS.

The formation of the internal control department is important both from the economic side and from the position of the company's security:

- costs in human potential - training and attracting new employees will improve the quality of the internal control system. This condition will occur due to professional control over the actions of employees, their compliance with the established legal regulations and internal acts;
- conducting preliminary control of insurance transactions will identify weaknesses and take certain measures to prevent adverse consequences;
- the risks of theft and fraud, losses will be reduced, the safety of the insurance company’s assets will increase, and the costs of recovering losses will decrease. This condition can be ensured on the basis of the interaction of the internal control department with the security department and the legal department.

When auditing the effectiveness of ICS, it is necessary to take into account the types of business process. A business process can be divided into stages of internal control: process planning, process support and management. In this case, it is necessary to determine the goals of the business process, the regulatory framework and the participants in the process, as well as establish a list of questions and information for conducting the monitoring of the business process. All this can be summarized in a pivot table. (table 4).

### Table 4. Description of the business process

<table>
<thead>
<tr>
<th>№</th>
<th>The name of the stage of the business process</th>
<th>Introduction</th>
<th>Transformation</th>
<th>Withdrawal</th>
<th>The document defining the regulation of the business process stage</th>
<th>Benchmarks for the business process stage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The name of the resource</td>
<td>The supplier</td>
<td>Procedure</td>
<td>Term</td>
<td>Responsible person</td>
<td>Result</td>
</tr>
<tr>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>

*Source:* (Daudov and Kovaleva, 2017)

A qualitative description of the business process contributes to the effective analysis of its conducting. Testing is also used as a method of assessing the effectiveness of internal control. The advantage of testing for auditors is to identify the level of effectiveness of controls. The Ministry of Finance of Russia suggests assessing ICS by testing (Protocol N 25 of 04/22/2004, April 23, 2004). When conducting an internal audit assessment of the organization’s internal control system, the results of the organization’s actually executed and documented control procedures should be taken into account. Assessment of the level of organization of the internal control system in the company should include criteria with the assignment of certain points. Table 5 shows the components and criteria of the internal control system defined by the Federal Tax Service of Russia ([http://www.pravo.gov.ru](http://www.pravo.gov.ru), 2017).
Table 5. Components and criteria of the internal control system in the insurance organization

<table>
<thead>
<tr>
<th>№</th>
<th>Component</th>
<th>Criteria of the internal control system in the insurance organization</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Organization Control environment</td>
<td>Compliance with professional, ethical and behavioral standards</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The participation of the head of the organization</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Organizational structure, distribution (differentiation) of duties and responsibilities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Competence and staff development</td>
</tr>
<tr>
<td>2.</td>
<td>Identification and assessment of risks by the organization</td>
<td>Identification by the organization of risks associated with the distortion of the accounting (financial), tax and other statements of the organization for tax monitoring purposes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>An organization’s assessment of the risks associated with the distortion of the accounting (financial), tax and other statements of an organization for tax monitoring purposes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Documentation by the organization of the risks associated with the distortion of the accounting (financial), tax and other statements of the organization for tax monitoring</td>
</tr>
<tr>
<td>3.</td>
<td>Organization Control Procedures</td>
<td>Description of organization control procedures</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Documentation of control procedures documentation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Assessment of the effectiveness of control procedures of the organization</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Availability of automated organization management procedures</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Correlation of automated and manual organization management procedures</td>
</tr>
</tbody>
</table>

Source: own research

After assessing the components and criteria of the internal control system, it is necessary to argue and give the actual values of the points, which will reflect the organization and effectiveness of internal control (Table 6) (http://www.pravo.gov.ru, 2017).

Table 6. Assessment of the level of organization of the internal control system in the insurance organization
<table>
<thead>
<tr>
<th>№</th>
<th>ICS elements</th>
<th>Criteria by which an organization is assessed</th>
<th>Maximum points per element</th>
<th>Actual scores per element</th>
<th>The level of organization of the internal control system</th>
<th>Link to organizational and administrative document</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Organization control environment</td>
<td>Compliance with professional, ethical and behavioral standards</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Compliance with professional, ethical and behavioral standards</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The participation of the head of the organization</td>
<td>...</td>
<td>...</td>
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<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Organizational structure, distribution (differentiation) of duties and responsibilities</td>
<td>...</td>
<td>...</td>
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<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Competencies and staff development</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>2</td>
<td>Identification and assessment of risks by the organization</td>
<td>Identification by the organization of risks associated with the distortion of the accounting (financial)</td>
<td>...</td>
<td>...</td>
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<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td>tax and other statements of the organization for tax monitoring purposes</td>
<td>...</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>An organization's assessment of the risks associated with the distortion of the accounting (financial)</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>tax and other statements of an organization for tax monitoring purposes</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Documentation of risks associated with the distortion of the accounting (financial), tax and other</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>statements of an organization for tax monitoring purposes</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>3</td>
<td>Organization Control Procedures</td>
<td>Description of organization control procedures</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Documentation of organization control procedures</td>
<td>...</td>
<td>...</td>
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<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Assessment of the effectiveness of control procedures of the organization</td>
<td>...</td>
<td>...</td>
<td>...</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Organization automated control procedures</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Correlation of automated and manual organization management procedures</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>4</td>
<td>Organization Information System</td>
<td>Internal and external audit of organization information systems</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Availability of protection against unauthorized access to source data</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Organization information systems for the organization of accounting and tax accounting</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Organization information systems used to control the correctness of the calculation (withholding) of</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td>taxes, fees, insurance premiums and for the preparation of accounting (financial), tax and other</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td>statements</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Availability of real-time controls</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>5</td>
<td>Monitoring by the organization of control tools</td>
<td>Monitoring and assessment by the organization’s internal control system</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Measures to improve the organization’s internal control system</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Internal and external audit</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
</tr>
</tbody>
</table>
Thus, nowadays, due to market volatility, the demand for economic goods is very variable. On the basis of the studied methods for conducting an audit of the effectiveness of the internal control system in an insurance organization, it is advisable to present the author’s development in the form of a plan in accordance with which it will be possible to conduct an assessment (Table 7).

Table 7. The audit plan of the effectiveness of the internal control system in the insurance organization

<table>
<thead>
<tr>
<th>№</th>
<th>Name of control action</th>
<th>Assessment method</th>
<th>Duration of effectiveness audit</th>
<th>Responsible persons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Analysis of accounting policies of the insurance organization, including on ensuring the functioning of the internal control system</td>
<td>Analytical review</td>
<td>Annually</td>
<td>Position, full name</td>
</tr>
<tr>
<td>2.</td>
<td>Analysis of the internal environment of the insurance organization, including:</td>
<td>Analytical review</td>
<td>Annually</td>
<td>Position, full name</td>
</tr>
<tr>
<td>2.1</td>
<td>Analysis of the organizational structure of management</td>
<td>Analytical review</td>
<td>Annually</td>
<td>Position, full name</td>
</tr>
<tr>
<td>2.2</td>
<td>Management style analysis</td>
<td>Testing</td>
<td>Annually</td>
<td>Position, full name</td>
</tr>
<tr>
<td>2.3</td>
<td>Staff management analysis</td>
<td>Testing</td>
<td>Annually</td>
<td>Position, full name</td>
</tr>
<tr>
<td>2.4</td>
<td>Analysis of management and financial reporting of the insurance organization</td>
<td>Testing</td>
<td>Annually</td>
<td>Position, full name</td>
</tr>
<tr>
<td>2.5</td>
<td>Analysis of compliance with applicable law by an insurance company</td>
<td>Testing</td>
<td>Annually</td>
<td>Position, full name</td>
</tr>
<tr>
<td>3.</td>
<td>Assessment of the effectiveness of the internal control system in the insurance organization, including:</td>
<td>Calculation and mathematical</td>
<td>Monthly</td>
<td>Position, full name</td>
</tr>
<tr>
<td>3.1</td>
<td>Assessment of the effectiveness of the insurance organization</td>
<td>Calculation and mathematical</td>
<td>Monthly</td>
<td>Position, full name</td>
</tr>
<tr>
<td>3.2</td>
<td>Assessment of the effectiveness of the internal control system in an insurance organization</td>
<td>Calculation and mathematical</td>
<td>Monthly</td>
<td>Position, full name</td>
</tr>
<tr>
<td>3.3</td>
<td>Assessment of the effectiveness of the organization of labor by employees of the internal control service in an insurance organization</td>
<td>Calculation and mathematical</td>
<td>Monthly</td>
<td>Position, full name</td>
</tr>
<tr>
<td>3.4</td>
<td>Determination of the integral indicator for assessing the effectiveness level of the internal control system</td>
<td>Expert</td>
<td>Monthly</td>
<td>Position, full name</td>
</tr>
<tr>
<td>4.</td>
<td>Assessment of the effectiveness of elements of the internal control system in an insurance organization based on testing, including:</td>
<td>Testing</td>
<td>Monthly</td>
<td>Position, full name</td>
</tr>
<tr>
<td>4.1</td>
<td>Assessment of the control environment of the insurance organization</td>
<td>Testing</td>
<td>Monthly</td>
<td>Position, full name</td>
</tr>
<tr>
<td>4.2</td>
<td>Risk assessment of an insurance company</td>
<td>Testing</td>
<td>Monthly</td>
<td>Position, full name</td>
</tr>
<tr>
<td>4.3</td>
<td>Assessment of control procedures in an insurance company</td>
<td>Testing</td>
<td>Monthly</td>
<td>Position, full name</td>
</tr>
<tr>
<td>4.4</td>
<td>Assessment of the information system in an insurance organization</td>
<td>Testing</td>
<td>Monthly</td>
<td>Position, full name</td>
</tr>
<tr>
<td>4.5</td>
<td>Assessment of monitoring the functioning of the internal control system in an insurance organization</td>
<td>Testing</td>
<td>Monthly</td>
<td>Position, full name</td>
</tr>
<tr>
<td>4.6</td>
<td>Determining the final score for assessing the level of effectiveness of the internal control system</td>
<td>Expert</td>
<td>Monthly</td>
<td>Position, full name</td>
</tr>
<tr>
<td>5.</td>
<td>Identification of the position of the insurance organization in the insurance market according to the criteria of the effectiveness of the internal control system</td>
<td>Expert</td>
<td>Annually</td>
<td>Position, full name</td>
</tr>
<tr>
<td>6.</td>
<td>Summarizing the results of evaluating the effectiveness of the internal control system in an insurance organization, incl.</td>
<td>Expert</td>
<td>Annually</td>
<td>Position, full name</td>
</tr>
<tr>
<td>6.1</td>
<td>Identification of risks of the insurance company as a result of the assessment of the effectiveness of the internal control system</td>
<td>COSO model</td>
<td>Monthly</td>
<td>Position, full name</td>
</tr>
<tr>
<td>6.2</td>
<td>Identification of errors, violations and weak zones that reduce the effectiveness of the internal control system in the insurance organization</td>
<td>COSO model</td>
<td>Monthly</td>
<td>Position, full name</td>
</tr>
<tr>
<td>6.3</td>
<td>Development of measures to neutralize identified risks</td>
<td>COSO model</td>
<td>Annually</td>
<td>Position, full name</td>
</tr>
</tbody>
</table>

Source: own research

The plan for assessing the effectiveness of the internal control system in the insurance organization is at the head of the internal audit service. During the audit, responsible persons can be both the head of this service and his
specialists. These methods described in the plan may vary and change depending on the choice of the verified person.

The integration of insurance organizations in the banking system can be called a modern trend in the development of the insurance market. So the internal control system of the insurance organization is approaching the current model in the credit organization. But despite the shared goal of creating an insurance and credit organization, which is to redistribute the risks of its customers, their functioning proceeds differently due to the specifics. So, the assessment of the effectiveness of the internal control system in an insurance organization does not have to be completely identical with a credit organization due to different approaches to carrying out activities (Kolupaev et al., 2018; Morozova et al., 2020).

Within the framework of this work, one can propose an author's approach to assessing the effectiveness of the internal control system in an insurance organization based on quantitative and qualitative criteria.

With the help of selected indicators, which are presented in table 8, it is possible to conduct a qualitative assessment of the effectiveness of the internal control system in the insurance organization based on the costs incurred.

**Table 8. Indicators of quantitative assessment of the effectiveness of the internal control system**

<table>
<thead>
<tr>
<th>№</th>
<th>Indicator</th>
<th>Characteristics</th>
<th>Threshold value</th>
<th>Formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td>Profitability of insurance operations</td>
<td>reflects the effectiveness of an insurance organization in relation to its turnover for the study period</td>
<td>MAX</td>
<td>( Pio = \frac{Prio}{TA} \times 100 ), where ( Pio ) is the profitability of insurance operations; ( Prio ) is the profit from insurance operations; ( TA ) is the total amount of insurance premiums (1)</td>
</tr>
<tr>
<td></td>
<td>The coefficient of the level of insurance payments</td>
<td>reflects the break-even of insurance activities</td>
<td>MIN</td>
<td>( Cip = \frac{TP}{TA} ), where ( Cip ) is the coefficient of the level of insurance payments; ( TP ) is the total amount of insurance payments (2)</td>
</tr>
<tr>
<td></td>
<td>The coefficient of financial stability of the insurance organization</td>
<td>reflects the state of financial resources in accordance with the requirements imposed on the insurance organization</td>
<td>MIN</td>
<td>( Cfs = \sqrt{\frac{(1 - (Tr / 100))}{(Cc \times (St / 100))}} ), where ( Cfs ) is the coefficient of financial stability of the insurance organization; ( Tr ) is the tariff rate; ( Cc ) - this is the number of contracts concluded (3)</td>
</tr>
<tr>
<td></td>
<td>The coefficient of financial stability of the insurance fund</td>
<td>reflects the ratio of the income of the insurance organization to its expenses in order to identify the level of solvency</td>
<td>MAX</td>
<td>( Csf = \frac{(I + Rf)}{(TP + Eic)} ), where ( Csf ) is the coefficient of financial stability of the insurance fund; ( I ) is the amount of income of the insurance organization; ( Rf ) - this is the amount of funds in reserve funds; ( Eic ) is the total amount of expenses for the introduction of insurance activities (4)</td>
</tr>
<tr>
<td></td>
<td>The efficiency coefficient of the insurance organization</td>
<td>reflects the effectiveness of insurance activities</td>
<td>MAX</td>
<td>( Ceio = \frac{Cip \times Cfs \times Csf}{100} ), where ( Ceio ) is the coefficient of efficiency of the insurance organization (5)</td>
</tr>
<tr>
<td></td>
<td></td>
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<tr>
<td>---</td>
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<td></td>
</tr>
<tr>
<td>6.</td>
<td>Cost-effectiveness of the internal control system</td>
<td>reflects the efficiency of management of the internal control system in the insurance organization</td>
<td>MIN↓</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CEics = (Cics / AAics) * 100, where CEics is the cost-effectiveness of the internal control system; Cics - this is the cost of maintaining an internal control system; AAics is the average annual number of employees employed in the internal control system</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Profitability of the Internal Control Service</td>
<td>reflects the degree of effectiveness of funds spent on the maintenance of the internal control service</td>
<td>MAX↑</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Pics = ((Ptp - Ppp) / Cics) * 100, where Pics is the profitability of the internal control service; Ptp - this is the profit of the insurance organization of the current period; Ppp is the profit of an insurance company of the previous period</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Coefficient of possible lost profits</td>
<td>reflects discovered, but not mobilized sources of improving the efficiency of the insurance organization, attributable to 1 RUB, costs of maintaining the internal control system</td>
<td>MIN↓</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cplp = Spe / Cics, where Cplp is the coefficient of possible lost profits; Spe - these are the sources of performance improvement in monetary terms identified during the audit</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Coefficient of acquired benefits</td>
<td>reflects the translated sources of improving the efficiency of the insurance organization, attributable to 1 RUB, costs of maintaining the internal control system</td>
<td>MAX↑</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cab = Mr / Cics, where Cab is the coefficient of acquired benefits; Mr - this is the mobilized internal reserves detected by the internal control system in monetary terms</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Utilization coefficient of identified reserves</td>
<td>reflects the validity of the functioning of the internal control system due to mobilized internal reserves in the activities of the insurance organization</td>
<td>MAX↑</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cuir = Mr / Spe, where Cuir is the utilization coefficient of identified reserves</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Detected violations coefficient</td>
<td>reflects detected errors and violations per 1 RUB, costs of maintaining the internal control system</td>
<td>MIN↓</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cd = No / Cics, where Cd is the coefficient of violations detected; Dv - this is the sum of detected violations by the internal control system in monetary terms</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>The coefficient of possible losses due to violations of settlement operations</td>
<td>reflects the saving of resources of the insurance organization due to the timely detection of violations and errors in the settlement operations per 1 RUB, costs of maintaining the internal control system</td>
<td>MAX↑</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cpl = Af / Cics, where Cpl is the coefficient of possible losses due to violations of settlement operations; Af is the amount of possible financial sanctions in cash</td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>The coefficient of effectiveness of the internal control system</td>
<td>reflects the effectiveness of the functioning of the internal control system per 1 RUB, costs of maintaining the internal control system</td>
<td>MAX↑</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ceics = Cuir * Cd / Cpl where Ceics is the coefficient of effectiveness of the internal control system</td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>The effect of the functioning of the internal control system</td>
<td>reflects the absolute value of the savings obtained by the internal control system of the insurance organization</td>
<td>MAX↑</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Rfics = Mr + Dv + Af where Rfics is the result of the functioning of the internal control system</td>
<td></td>
</tr>
</tbody>
</table>

III. The effectiveness of the organization of labor of the internal control service

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>15.</td>
<td>The stability coefficient of</td>
<td>reflects the level of constancy and</td>
<td>MIN↓</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Css = Nq / Namn,</td>
</tr>
</tbody>
</table>

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According to the developed author’s methodology, the assessment of effectiveness is directed in three blocks, namely, the effectiveness of the insurance organization, the effectiveness of the internal control system and the effectiveness of the organization of labor of the internal control service. By determining the effectiveness of the internal control system through the proposed indicators, it is supposed to establish the place of the insurance organization in the insurance market.

This ranking should be done in order to determine the position of the insurance organization in the field of competitiveness and improve activities in the long term.
The integral indicator for assessing the effectiveness level of the internal control system is calculated using weight coefficient, where the coefficient of effectiveness of the internal control system made the largest contribution to the efficiency level of the internal control system. Therefore, the determination of the effectiveness of the internal control system is determined in accordance with Figure 3.

![Does the efficiency coefficient of the internal control system exceed 1?](image)

**Fig. 3.** Conditions for recognizing an effective internal control system in an insurance organization

*Source: own research*

If the condition under which the costs of operating the internal control system do not exceed the absolute value of the savings due to errors, violations and shortcomings discovered by it remains, then the internal control system in the insurance organization is considered to be effective. Otherwise, if the costs of operating the internal control system exceed the amount of the savings due to it, then the internal control system in the insurance organization cannot be recognized as effective (Frolova, I. and all, 2019).

Having studied the essence of testing in the insurance organization of the internal control system, table 9 will present the author's work on the proposal of testing to assess the effectiveness of internal control in the insurance organization.

**Table 9.** Testing in the insurance company to assess the organization of the internal control system

<table>
<thead>
<tr>
<th>№</th>
<th>Question</th>
<th>Scores</th>
<th>Actual scores</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I Control organization environment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>The regulation on the internal control system is approved in the insurance company</td>
<td>5</td>
<td>...</td>
</tr>
<tr>
<td>2.</td>
<td>Professional and ethical standards approved or not</td>
<td>3</td>
<td>...</td>
</tr>
<tr>
<td>3.</td>
<td>The insurance company adheres to the hiring standard</td>
<td>5</td>
<td>...</td>
</tr>
<tr>
<td>4.</td>
<td>The authorities are defined according to service instructions providing control over the internal control system</td>
<td>3</td>
<td>...</td>
</tr>
<tr>
<td>5.</td>
<td>The head of the insurance organization participates in the assessment of the internal control system</td>
<td>4</td>
<td>...</td>
</tr>
<tr>
<td>6.</td>
<td>Total scores</td>
<td>20</td>
<td>...</td>
</tr>
<tr>
<td></td>
<td>II Identification and assessment of organizational risks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Organizational and legal documents for monitoring risks in an insurance organization are approved</td>
<td>5</td>
<td>...</td>
</tr>
<tr>
<td>8.</td>
<td>Risk identification and assessment are carried out in a timely manner</td>
<td>5</td>
<td>...</td>
</tr>
<tr>
<td>9.</td>
<td>Risk management strategy in an insurance organization is approved</td>
<td>3</td>
<td>...</td>
</tr>
<tr>
<td>10.</td>
<td>Risk identification system is automated</td>
<td>4</td>
<td>...</td>
</tr>
<tr>
<td>11.</td>
<td>Identified risks are reflected in the documents</td>
<td>3</td>
<td>...</td>
</tr>
<tr>
<td>12.</td>
<td>Total scores</td>
<td>20</td>
<td>...</td>
</tr>
<tr>
<td></td>
<td>III Control organization procedures</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>The procedure for performing control procedures is fixed in organizational and administrative documents</td>
<td>5</td>
<td>...</td>
</tr>
<tr>
<td>14.</td>
<td>The structural unit that checks the correctness of the control procedures is organized in an insurance organization</td>
<td>3</td>
<td>...</td>
</tr>
<tr>
<td>15.</td>
<td>Employees performing control procedures are fixed in organizational and administrative documents</td>
<td>3</td>
<td>...</td>
</tr>
<tr>
<td>16.</td>
<td>Frequency of conducting the control procedures is approved</td>
<td>5</td>
<td>...</td>
</tr>
<tr>
<td>17.</td>
<td>Risk matrix and control procedures in an insurance company approved</td>
<td>4</td>
<td>...</td>
</tr>
<tr>
<td>18.</td>
<td>Total scores</td>
<td>20</td>
<td>...</td>
</tr>
</tbody>
</table>
The procedure for conducting an internal audit of information systems is determined in an insurance organization. Audit frequency is approved. Access restriction in the information systems of insurance organizations is organized depending on the position and job duties. An information security policy has been created in the insurance organization. Electronic storage system is automated. Tax returns are carried out automatically in a common system for accounting and tax accounting. Access restriction in the information systems of insurance organizations is organized depending on the position and job duties. An information security policy has been created in the insurance organization. Electronic storage system is automated. Tax returns are carried out automatically in a common system for accounting and tax accounting. Access restriction in the information systems of insurance organizations is organized depending on the position and job duties. An information security policy has been created in the insurance organization. Electronic storage system is automated. Tax returns are carried out automatically in a common system for accounting and tax accounting.

21. Access restriction in the information systems of insurance organizations is organized depending on the position and job duties.

22. An information security policy has been created in the insurance organization.

23. Electronic storage system is automated.

24. Tax returns are carried out automatically in a common system for accounting and tax accounting.

25. Total scores

<table>
<thead>
<tr>
<th>IV Organization Information System</th>
</tr>
</thead>
<tbody>
<tr>
<td>19. The procedure for conducting an internal audit of information systems is determined in an insurance organization</td>
</tr>
<tr>
<td>20. Audit frequency is approved</td>
</tr>
<tr>
<td>21. Access restriction in the information systems of insurance organizations is organized depending on the position and job duties</td>
</tr>
<tr>
<td>22. An information security policy has been created in the insurance organization</td>
</tr>
<tr>
<td>23. Electronic storage system is automated</td>
</tr>
<tr>
<td>24. Tax returns are carried out automatically in a common system for accounting and tax accounting</td>
</tr>
<tr>
<td>25. Total scores</td>
</tr>
</tbody>
</table>

V Monitoring by the organization of the internal control system

| 26. Standards (rules) for assessing the internal control system in the insurance company are approved | 5 |
| 27. Frequency of conducting the assessment of internal control system is established | 3 |
| 28. The insurance company provides the result of the assessment of the internal control system to third parties | 2 |
| 29. Strategy on improving the internal control system in the insurance company is approved | 2 |
| 30. The insurance company has established the procedure for conducting an internal audit, which is carried out by the structural unit | 5 |
| 31. Total scores | 20 |
| 32. Integral total scores | ... |

Source: own research

The insurance organization must conduct testing, that allows assessing the ICS and identification of the weaknesses in the system, leading to the development of measures to improve ICS and effective development.

4. Discussion

As a result, organizations must assess the effectiveness of internal control systems through internal auditing, where strengths and weaknesses can be identified. Such an assessment of such an element as the control environment is very important because in an organization where there is no support for the principle of honesty, there is a lack of qualifications for the staff. And the internal control system will simply be a system without the ability to fulfill the responsibilities that confront it.

Conclusions

The methods for assessing the effectiveness of the internal control and audit system in an insurance organization are diverse. Such methods can be testing in an insurance organization, the COSO model, thanks to which it is possible to find measures of minimization for identified risks and further to neutralize these risks. A commonly used method is the expert method, where the expert, having examined all the data on the assessment, gives his opinion on the effectiveness of the internal control and audit system. “By its nature, internal control should always undergo reformation, addition in accordance with the changing conditions of the development of the economic life of the state” (Turgaeva, 2019).

So, the assessment of the effectiveness of the internal control system for insurance organizations implies methods, proposed for assessing the effectiveness of the internal control system of credit organizations, since insurance organizations are getting closer to the banking system, and it will be incompetent to assess the internal control and audit system using the methods proposed for credit organizations. In this regard, the author proposed the development of methods for assessing the effectiveness of internal control and audit systems for insurance companies.
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Guidelines for the collection of audit evidence when checking the correctness of the formation of insurance reserves: approved by the Audit Council under the Ministry of Finance of the Russian Federation April 23, 2004, approved by the Audit Council under the Ministry of Finance of the Russian Federation, protocol N 25 of 04/22/2004

On approval of the requirements for the organization of an internal control system: Order of the Federal Tax Service of Russia dated 06.16.2017 N MMV-7-15 / 509 @. Official Internet portal of legal information http://www.pravo.gov.ru , 10/05/2017


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DEVELOPING GREEN OPERATIONS TO MINIMIZE ENERGY CONSUMPTION BY PDCA CYCLE OF ISO 50001. A CASE STUDY WITH DELPHI METHOD APPROACH

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Abstract. The purpose of this research is to explore the green operations activities, especially in energy consumption, and to develop a PDCA cycle framework that can be used to minimize energy consumption, by using Delphi Method approach. Research design and methodology: The PDCA cycle ISO 50001 framework is developed through (1) Identifying risks using Delphi method and mean score ranking from the activities found in existing empirical case study in beauty clinic. (2) Analyse the most crucial risks founded in the field. (3) Developing the the PDCA cycle to minimize the energy consumption. Finding: The research found eleven (12) risks, and find the crucial risk. PDCA cycle ISO 5001 developed, and found that the most crucial risk is in the act of PDCA cycle, which indicate that there was no follow through in order to solve the problem of energy usage in the business process. Practical implication: This research provide a simple practical guideline PDCA cycle ISO 5001 template as a critical thinking to make a continuous improvement process.

Keywords: PDCA cycle; ISO 50001; Delphi Method; Mean score ranking; Green operations


JEL Codes: Q5

1. Introduction

Environmental management is a topic of mutual concern for the business community, government and consumers, in line with the increasing industrialization (New, Green & Morton, 2002; Azzone & Manzini, 1994; Azzone & Bertele, 1994; Azzone & Noci, 1996; Rezk, Radwan, Salem, Sakr, & Tvronavičienė, 2019). Growing concerns in global markets over "green" issues and the scarcity of natural resources are forcing executives to look at business strategies from an environmental perspective. Increased energy use in general has a broad impact on all sectors of life, therefore it needs to build awareness of the importance of an energy management system. The International Organization for Standardization (ISO) cares about the importance of energy for life, thus issuing standards for energy management systems contained in the ISO 50001: 2011 standard - Energy Management System (ENMs). This study aims to build a PDCA template based on ISO 50001 to solve the energy management problems of a company. The research object is a clinic of health and beauty, which is facing the problem of waste in the use of electric energy. Electricity consumption is increasing from time to time that is not in line with business growth.

An important part attached to this research that might involve substantial biases that must be recognized and must be minimized, this can use the Delphi Technique. The Delphi technique was originally developed by Rand Corporation which functions to study Rand Corporation to study the impact of technology on warfare. The Delphi method is a systematic and interactive research technique for obtaining judgments from independent panels on a particular topic. So there are individual elections according to predetermined guidelines and asked to participate in

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two or more structured survey rounds. Each round, the facilitator provides an anonymous conclusion from expert
input from a survey that was previously conducted as part of the next survey. At each subsequent stage,
participants are encouraged to review the opinions of other anonymous panelists and make considerations to
revise their previous responses. This goal is to reduce the presence of scale variability and to get group
concessions. This research method differs from the traditional simple survey method where respondents are
certified as experts according to the guidelines that have been determined before the survey process begins. The
Delphi method is very useful when objective data cannot be reached, there is a lack of empirical evidence,
experimental research is unrealistic or unethical, or when heterogeneity.

Not all studies can use the Delphi method, some previous research suggestions suggest that researchers are always
couraged to explore all reasonable and objective options for data collection before deciding to use qualitative
research methods such as Delphi.

The existence of ISO 50001 energy management system is an opportunity for companies in creating energy
efficiency to increase their income. Based on the above reasons it is necessary to conduct research on
Improvement of energy management through the PDCA cycle in accordance with ISO 50001 which aims to
improve the operation process so as to improve clinical performance to improve efficiency in the use of electrical
energy.

ISO 50001 is designed to help an organization or company to better manage its assets, especially its energy assets,
as an evaluation material and prioritize the use of energy efficient, and to encourage more efficiency in the supply
chain. The success of the implementation of ISO 50001 lies in the agreement of all that is in an organization or
levels of the organization, which is more dominant, namely top management. Top management must give orders
to existing management representatives, who can ensure the management system has complied with the
requirements of ISO 50001. Some of the benefits of ISO 50001 include a significant increase in energy
performance, the approach used is PDCA which is more directed at increasing energy efficiency, sustainable.
Thus ISO 50001 allows organizations to develop policies for more efficient use of energy, meet the conditions
that have been made, decisions on energy consumption, measure the results of improvements in energy efficiency,
energy policy effectiveness, energy management, support energy contributions to the structure of energy plans in
achieving targets, as a facilitation of engagement (agreement) from management, strengthening the
competitiveness of the organization, enabling the benchmarking process to occur.

2. Conceptual background

The energy management system (ENMs) ISO 50001 is a tool that can help create energy efficiency improvements
in the organization, in the operations process of the business. ISO 50001 is intended to avoid wasteful use of
energy and provide precise instructions for building more efficient and economical operations and organizational
processes. Energy Management System ISO 50001: 2001 is an international standard energy management system
issued by the International Standardization Agency. In Indonesia the standard is adopted to SNI ISO 50001:
2011. The management model of EnMS ISO 50001 is P-D-C-A-Continual Improvement with emphasis on
significant Energy Uses and how its management to keep energy performance always increase continuously. The
following figures illustrate the PDCA ISO 50001 process.
Given the issue of energy costs, it is important for companies to implement energy management systems. With the implementation of such systems, energy efficiency efforts can produce optimal results. Implementing this system means that all elements of the organization must be concerned and play a role in energy management.

The cycle of PDCA starts from several steps. The cycle of the PDCA is also known as the Deming cycle or the Shewhart cycle. Having an identification goal or objective or problem, formulating a theory, defining the success of the metric and implementing the plan, this process is included in the steps of the DO, where the components of the plan are implemented, such as making a product. The next step is examination (study), where the results of that are monitored to further check the validity of the plan for progress and success that is there, it can be said there is a problem or not, so it needs to be improved.

**PDCA cycle steps**

**Plan:** which in this case combines the definition of the problem. A thorough analysis of the existing problem will be carried out to identify the origin of the problem. So we get a solution that is able to answer the problem which is then formulated and evaluated to get identification of the most profitable solution. In this case, the research team found several problems, or opportunities for quality improvement will be seen when the program or process is discovered. Existing data can discuss such as time, people, movement, space, costs, events, customer satisfaction. Many tools are available for gathering and interpreting data in the process for example pareto charts, histograms, run charts, plots and control charts. Existing data collected must be harmonized with the steps listed in the statement of purpose, identification of possible causes.

This brainstorming is done which means to identify possible causes and cause and effect diagrams of fish bones and 3 (three) useful ways to determine the root of the problem that actually occurs.

1. Identify probable improvement: Overcoming the main causes, agreeing which ones will be tested, after the improvement has been done
2. Develop an improvement theory: The theory of improvement is a declaration that articulates the expected influence
3. Develop an action plan: Indicates what needs to be done, who is responsible and when it must be completed.
Do: where after this situation is fully understood and improvements have been made, the "do" phase is the plan to be implemented for the first time. This phase is not a trial phase. This phase is a reality that can be implemented from what the research team believes is a substantial improvement over the current situation.

Check: is something significant that can occur in this phase which is by observing the newly implemented process. From this, the research partners can understand what happened well, new learning what has happened so that adjustments can be found what needs to be done, plans that are better than what could previously be imagined can be developed. This phase is a comprehensive face to increase the level to a higher level or above. This phase is not just a phase that only fixes what is not right but rather leads to what must be done to get the best out of this process.

Existing circumstances after implementation is then carried out an analysis to obtain verification of a solution. In this phase if negative conditions are found, it is necessary to carry out repairs starting from zero or beginning at the planning stage. If the researcher does not need any improvement, then the researcher can carry out the next process to the action phase.

Actually: this phase is a cycle after improvement, so it is necessary to prepare a solution for the final implementation with standardization and may spread to other parts of an organization. So to maintain this, it is necessary to repeat the cycle better to get a higher level of money. Some choices occur including consisting of:

1. Adoption: which is an increase standardization if the measurable goals in the statement of objectives were previously met. This involves establishing mechanisms for researchers who will undertake new processes to measure and monitor benchmarks regularly to get certainty that improvements need to be maintained. In this case the need for a control chart or run chart tool is used to monitor this performance.

2. Abandon: If changes made to the process do not result in improvements, then consider the lessons learned previously and then return to the "plan" phase. The cycle of the PDCA (deming diagram) is a tool that has good quality, the PDCA cycle is a concept of continuous improvement that is embedded in the culture within the organization, because it is easily understood by many people in a company.

1.2. Delphi Method and Mean Score Ranking

The Delphi method is a "systematic, intuitive" forecasting procedure (Rayens and Hahn, 2000), based on expert judgment, derived from a series of questionnaires, and interspersed with feedback. This method requires the knowledge and contributions of individual experts to respond to questions and send the results to the coordinating center. Delphi method also has the characteristics of anonymity and iteration. Experts are given freedom of association and freedom of participation (Kher et al., 2010). To achieve this goal requires experienced practitioners and experts who are experienced in energy management and have a good understanding of the company's operational managerial concepts. In addition, to ensure reliable quality and information, the tools used to collect data openly to obtain diverse opinions from experts and to seek topic-based feedback are most appropriate (Schmidt et al., 2001).

The Delphi technique, designed in such a way that unbiased results from experts through statistics are repeated and controlled feedback (Kher et al., 2010; Roespinoedji, Faritzal, Sudrajat, Ahmed, & Oktari, 2019), adopted as a primary data collection tool. The feedback gathered from the delphi survey was analyzed using the mean score ranking methods. Average score is used because it is a measure of central tendency and is widely used in construction management studies (Ke et al., 2010; Cheung and Chan, 2001) to determine the significance of the variable list. Using such an analysis allows to determine the relative significance of each risk factor.
The process of implementing the Delphi method commonly done now consists of two methods / versions (Linstone and Turoff, 2002): "Paper and Pencil Version", where on this method a team is formed for designing a questionnaire that will be later will be submitted to experts (respondents group). After all the answers from the questionnaire obtained, each respondent was given opportunity to re-evaluate their answer. After that, the team summarize the results of the answers obtained the. Based on these conclusions, the team re-designed the stage questionnaire then to be submitted again group of respondents. Delphi method like this is also known as "Conventional Delphi".

Delphi technique is a way or method to organize an idea or ideas among researchers that aims to improve the condition of the institution in the future (Weaver, 1971: 267). Meanwhile, according to Lewis 1984: 89, the Delphi technique is a process that is useful for gathering the results of one's thoughts or opinions among researchers related to social phenomena that will ultimately affect the situation of the institution. The Delphi technique itself according to Witkins (1984) as a way to determine the consensus opinion (deliberation roundness) among researchers about the goals and things that need from an organization. From some understanding of the Delphi technique it can be said that the Delphi Technique is a systematic way to obtain an agreement of opinion among researchers who have an interest and are relevant to what is desired by the researcher ie a decision, clear objectives of the organization, priorities of program activities and determine what the plans for an upcoming program are. According to Stufflebeam, et al 1985 to get good criteria in the development of the future needs to meet several conditions as an example of suitability, usefulness, feasibility, and prospects for improvement in the future.

There are 3 (three) assumptions in the Delphi technique to get a joint agreement, namely first according to Weaver, 1971 opinions of some people obtained by consensus are better and more comprehensive than the opinions of one person. Secondly according to Witkin, 1984 which states that accurate data is obtained from the right choice of people who have a broad view of the future and know the problems associated with the goals to be achieved while the third according to Weaver, 1971 which mentions to get Good data is not biased, responses are anonymous with no communication. There are 6 (six) stages in the systematic development of the Delphi technique according to Witkin, 1984 which includes: Identification of researchers who will be involved in the process, asking researchers about future trends related to the objectives, developing questionnaires existing, sending questionnaires to panel groups to provide existing responses, administering responses from researchers and confirming existing and final responses using information on consensus among them.

According to Stufflebeam 1985 in several agreements that can be achieved using the Delphi technique: determining the objectives to be achieved, the direction and types of questions in identifying needs by using analysis, basic requirements that must be met to achieve the goal. In contrast to Lewis 1983: 106 suggesting the use of the Delphi technique in the educational process, namely to carry out critical analysis, select indicators through environmental analysis that is expected to have an influence, form a panel group, apply the Delphi technique to review past events and study trends in the future. evaluating the effect of trends on institutions, predicting success in the future, preparing scenarios.

The Delphi process occurs or is modified from 2 rounds which use 34 pharmacisation panelists, where it involves professionals and the activities that inhibit it along with the characteristics of its activities (Aronso et al, 2012 (22)). and other findings state that the implications of the creation of learning experiences involving pharmacy students and suggest that the activity contains certain professional characteristics that have an important meaning than other activities, according to Bryne et al 2010 in his research stated that the Delphi method is modified 4 rounds to get consensus about statements for natural health products (NHP) in pharmacy students in Canada The results of this study are in the form of consensus on competency statements.

The Delphi technique is indeed widely used by previous researchers, but the Delphi Technique has strengths and weaknesses.
The advantage of the Delphi technique according to Helmer (1983), Linstone and Turoff (1975) and Dalkey (1972), that the Delphi method in groups is that the agreement will converge to reach an assessment agreement from the panelists. Here are 7 (seven) advantages of the Delphi method, namely:
1. The existing problems are solved subjectively collectively
2. It takes several people to contribute in assessing complex problems that represent differences in background
3. It takes a lot of people to be able to interact face to face
4. Do not allow time and money for regular meetings
5. Efficient is obtained because of group communication
6. There is a strong difference of opinion between individuals that is needed by the communication process
7. The heterogeneity of the participants must be ensured to guarantee the validity of the results, this is to avoid the dominance of certain parties in the panel.

The weakness of the Delphi Technique which is that the agreement that was obtained may not necessarily be the actual agreement, this could happen because it was a pseudo agreement. Pseudo-agreement is not a solid choice, because it is more of a compromise (Mitroff and Turoff, 1975). According to Linstone and Turoff (1976) there are five things that become weaknesses of the Delphi technique, namely 1. Delphi becomes the helper of all human communication 2. Mistakes in concluding and presenting the results of group responses and in interpreting evaluation evaluations given by respondents. 3. Forcing the views and views of an issue to the respondent from the structure created 4. Ignoring and not studying more in the presence of differences of opinion 5. Demand total participation should the respondent should be placed as a consultant where compensation should be given for the time for the commitment made.

2. Methodology

This research use case study approach, conducted in a health care and beauty clinic which have an energy usage problem. A case study is a research strategy, which is done through empirical review by investigating the symptoms of problems that occur in the object of research. This strategy can find qualitative evidence obtained from various sources and previous developments of theoretical propositions. The purpose of this case study is to understand the object under investigation. Nevertheless, case study research has a specific purpose for explaining and understanding the object it examines specifically as a ‘case’. (Yin 2009) states that the purpose of using case study research is not just to explain what the object is being studied, but to explain how it exists and why it can occur. This research uses two tools in identifying risk and designing operational process (PDCA) for research object that is by Delphi method and mean score ranking.

2.1. Delphi

The identification of risk and design of the PDCA is based on the opinions of experts and referred to ISO 50001, conducted by interviewing and distributing questionnaires to 3 delphi from internal clinics as well as external clinics (operations management experts and business practitioners). The identification of risk and design of the PDCA is based on the opinions of experts and referred to ISO 50001, conducted by interviewing and distributing questionnaires to 3 delphi from internal clinics as well as external clinics (operations management experts and business practitioners). The stages of the cycle of PDCA according are as follows:
1. Develop a plan in this case detailing and setting the best process standards
2. Implement the existing plan which is the plans that have been proposed at the plan stage and implemente gradually, by making the best possible improvements to get the desired results
3. Checking the results that have been achieved which are the results of improvements with targets that have been set. If this target has been reached, the process stage can be continued at the next stage in the form of action.
4. Perform actions that are adjustments to the process if necessary which is based on the results of the analysis that has been done in the previous stages. This adjustment was made because to prevent the recurrence of the
problem that was solved as well as to raise the issue especially what would be done after fixing the problem on the previous problem.

2.2. Mean Score Ranking
After obtaining the risk list we have weighted by using a scale of 1-4 to calculate the mean score score ranking in order to find the crucial risk correlated with electrical energy cost issues. Furthermore, should be sought the solution to the problem. The solution will be given is the PDCA design that is contained in the form of PDCA templates.

2.3. Validation
The information generated from the Delphi method is very dependent on the expert panelists being seen in the panel. Thus, the composition of the panelists is related to the validity of the results research. Because in this method, the opinions and judgments of panelists taken and analyzed, then this is determined by how the selection of panel members the. The Delphi method identifies the reasons why there are differences in judgment between panelists and whether the difference is real or just a semantic problem. So convergence here will not adequately describe the validation of this method, because it should convergence uses real values. Even so, Dalkey and Helmer (1962) proved that statistically, the Delphi method was likely to be not only achieved convergence, but also convergence in the right direction.

3. Analysis and Result
The research process conducted interviews for risk identification through the Delphi method, in some beauty clinic experts and operations management experts. Implementation of identification is done through two stages. The first stage is by conducting interviews with experts and clinic practitioners to classify activities into the PDCA process. The second phase identifies the risk for each identified risk. The results of risk identification and analysis in PDCA ISO 50001 process obtained 12 risks spread over PDCA ISO 50001 process. There are four risks in the PLAN phase: Risk-1, the company's goal has not been fixed. Risk-2, no energy policy standard is used. Risk-3, error indicator in the energy assessment. Risk-4, the level of awareness to green operation has not been high. There are three risks in the_DO stage, namely: Risk-5, standard Operating procedure is not yet complete, especially to handle energy problem. Risk-6, has no expertise. Risk-7, the implementation of staff training is minimal. There are three risks in the CHECK stage: Risk-8, the reference standard for monitoring is incomplete and less valid. Risk-9, monitoring to employees is less stringent. Risk-10, there is an error causing the bias (Haseeb et al., 2020). There are two risks in the ACT phase, namely: Risk-11, evaluation is too general. Risk-12, the feed back is not immediately followed up by the top leader.

The next step is weighted risk and mean score ranking to determine the most crucial risks that are the main cause of waste in the use of electrical energy. Each expert participant in delphi is asked to provide a score to determine the weight of each potential risk. Then calculate the mean score for each risk, to determine the highest weight, which is the most crucial risk. The following is the result of the mean score ranking for 12 identified risks and determines the mean score for each identified risk. Risk identification is done by involving beauty clinic experts and also operations management experts. The data was collected by semi structured interview and determination of mean score was done by distributing questionnaire to the experts in order to to determine the score (table 1).

<table>
<thead>
<tr>
<th>Risk.no</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.Score</td>
<td>2.67</td>
<td>3.33</td>
<td>2.67</td>
<td>3.33</td>
<td>2.67</td>
<td>3</td>
</tr>
<tr>
<td>Risk.no</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>M.Score</td>
<td>2.33</td>
<td>2.67</td>
<td>3</td>
<td>2.67</td>
<td>2.67</td>
<td>4</td>
</tr>
</tbody>
</table>
Based on the result of weight calculation and the mean score ranking obtained one of the most crucial risk with the highest mean score score (4), that is risk-12, ie no immediate follow-up by top management on feedback. Two other risks considered crucial are risk-2 and risk-4. Further steps are taken to mitigate risks and their solutions in the form of PDCA templates. The process of preparing PDCA templates is done by involving four expert delphi participants. Delphi-1 focuses on the analysis of strategies on energy management. Delphi-2 Focus on increasing revenue with consideration of electricity utilization cost fix. Delphi-3 focuses on communication with top management. The design of operational processes presented in the form of PDCA templates is used to formulate the critical thinking process for the clinic related problems encountered by answering questions that are intended to facilitate the clinic in doing continuous improvement. Based on the successful set of PDCA templates, it is known that the clinic should start doing new things, such as starting a strategy analysis related to energy management to tackle the existing electrical energy cost issues. The analysis of the strategy includes new policies that must be made and taken either by the head of operations or by top management in terms of human resources, controlling, and clinical tactical strategies to increase revenue.

4. Conclusion

Based on the result of risk identification and weighting of mean score ranking, it is found risk in act stage, that is, there is no follow up of top management for the given feedback. This risk is considered very important by the delphi, because in fact top management has a great influence on the success or failure of the clinic. In the future, clinics need to communicate and change in managerial and clinical operations by applying critical thinking process through the application and use of PDCA templates. The first step to do is to immediately draft a strategy of energy management and controlling more tightly to the entire range of clinic employees either by giving rewards and controlling on the existing operational process.

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REGRESSING NATURAL GAS, NUCLEAR ENERGY AND OIL CONSUMPTION ON REAL GDP: EVIDENCE FROM ASEAN COUNTRIES

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Abstract. Energy performances as the essence in the modern economy globally, where the natural gas, the nuclear energy and the oil apprehend the most if its area. These factors are the crucial element on the real GDP of the states. This study investigates the impact of degenerating the natural gas, oil consumption, and the nuclear energy as the depletion in the use of these factors will help the nation to achieve a better real GDP. For this purpose, we taken 10 ASEAN countries in the analysis that includes Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam. The independent variables are nuclear energy, oil consumption, and natural gas and their effect is seen on the real GDP. The total electricity consumption is taken as a control variable. The data is collected over a period of 28 years as it is a time series analysis and for this, we have used panel Autoregressive distributed time lag (ARDL) model and Augmented Dickey Fuller (ADF) technique along with unit root tests and the co-integration tests among the variables. The results indicate that oil consumption, nuclear energy, significantly impact the fuel prices and the energy consumption in these countries. The research gives useful directions for the policymakers and the government as how to cope up with the prices of these non-renewable resources.

Keywords: nuclear energy, oil consumption, natural gas, real GDP, ASEAN.


JEL Codes: Q01, Q4, Q05

1. Introduction

In year 2018, the estimated GDP of states of ASEAN amounted to around 2.92 trillion U.S. dollars, a significant increment from past years (Alper & Oguz, 2016). Basically the GDP of different ASEAN countries has been skyrocketing for some of the years that show the thriving economy of the given region (Al‐Mulali, Solarin, & Ozturk, 2016). In figure 1, the real GDP Growth rate of ASEAN countries have been provided. All of the figures have been provided in detail.

Natural gases act as a significant base of energy supply within ASEAN countries. In year 2016, natural gas accounted for around 24 percent of the energy mix of ASEAN countries (Utama, Ishihara, & Tezuka, 2012). It was attributable as energy’s second largest soil. In addition to this, the suppression of coal is done by natural gas within ASEAN countries. Natural gas also plays an important role in power sector and other procedures of industry (BeNhet & Harun). Within industry, natural gas is not just used as a fuel to make electricity but is also used as feedstock of various items like pharmaceutical items and fertilizers. Natural gas is mainly used for the production of methanol, which has different applications in industry (Boontome, Therdyothin, & Chontanawat, 2017). In the power sector of ASEAN countries, natural gas has the highest capacity with over one-third of the capacity coming through natural gas (Chinedu, Daniel, & Ezekwe, 2019). Therefore, there are more proofs of natural gas, playing an important in energy mix of ASEAN countries. The ASEAN center for Energy (ACE) published a research on Development of Nuclear Power Plant within ASEAN countries. ACE prepared the given report with governmental
support under the program of Nuclear and Radiological Program Administrative Support (NPRAS). The research of Dogan and Ozturk (2017) has identified some important developments. For example, 10 ASEAN countries like Philippines, Thailand, Vietnam, Malaysia and Indonesia have been considered as frontrunners to make programs of civilian nuclear power in the area (Dibenedetto, 2011). These five states are identified as frontrunners because of the regulatory and legal frameworks, infrastructures of nuclear energy, and developed human resources and organizations. In accordance with Ikegami and Wang (2016), ASEAN countries have small amount of oil and gas of world (around 2 percent of the total reserves of oil) (Tongsopit, Kittner, Chang, Aksornkij, & Wangjiraniran, 2016). However, it has played a significant role in the growth of industry. Oil developed through hand-dug wells within Sarawak was provided in the official documents of China (Mengistu, Simane, Eshete, & Workneh, 2015). (See figure 1).

More of the researches have been done on analysis of real GDP of ASEAN countries. The researchers have focused on analyzing the Real GDP and GDP. However, the factors that impact Real GDP of ASEAN countries have been explored in detail. With the aim to fill (Karyono, 2017) this gap in the literature, the researcher has targeted to analyze the regression of natural gas, oil consumption and nuclear energy on Real GDP (Mirzabaev et al., 2015). This research has been conducted in the context of ASEAN countries, because of the reason that ASEAN countries have not got studied in detail. This research will be beneficial in filling the literature gap. Given are the research objectives of this study.

1. To analyze the impact of natural gas on real GDP in ASEAN countries
2. To check the role of nuclear energy on Real GDP in ASEAN countries
3. To determine the impact of oil consumption on Real GDP in ASEAN countries

There are different benefits of the researches that have been done in past. The researches done on GDP are mainly helping the government of countries to analyze the factors affecting GDP. These researches are still providing limited benefits, as these researches do not encounter ASEAN countries. Moreover, the impact of natural gas, nuclear energy and oil consumption on Real GDP have not been analyzed in detail. This research will be helpful mainly for ASEAN countries (Shi, 2016). The government can take control on its real GDP through considering the given factors.

The division of this dissertation has been done into Introduction, Literature Review, Methodology, Discussion and Conclusion.
2. Literature Review

2.1. Natural Gas and Real GDP

Increasing the prices of natural gas are the major concern within macro-economy, because of the reason that there are different utility and industrial sectors that have intensive natural gas’ users (Moriarty & Honnery, 2019). Most of the households within ASEAN countries are seen dependent over gas for heating homes in the months of winter. In 2005, the research of Mbarek, Nasreen, and Feki (2017) identified that higher cost of energy had increase the input prices and precipitated the surcharges of cost among some of the industries (Patel, Patel, & Upadhyay, 2016). Instances of this nature were cited in the research of (Naser, 2015). Petroleum items remain the major energy source for ASEAN countries. 40 percent of the energy consumption within ASEAN countries was derived through the petroleum items like consumption of gasoline, fuel and oil. Energy consumption acquired through natural gas was basically the second highest resource. A decrement is seen in the total amount of energy that is derived through the consumption of natural gas, getting decrementing since year 1971, which it went up to around 32.4 percent of total BTU (Naser, 2017). By year 1986, within ASEAN countries, the amount of total energy through natural gas got decremented to around 22 percent (Sovacool & Drupady, 2016; Hussain et al., 2020). However, since then it got stabilized. There is lesser consumption of nuclear energy and hydroelectric power resources within ASEAN countries. The consumption of natural gas within ASEAN countries results into increasing the real GDP of countries. Traditionally, the industrial region is the major customer of natural gas. For example, in year 1950, it accounted for around 60 percent of total consumption of natural gas (Zhang, Qi, & Karplus, 2013). Since 1980s, an increment has been seen in the consumption of natural gases and it has acted as the major factor to make an increment in real GDP of ASEAN countries (Shadman, Sadeghipour, Moghavvemi, & Saidur, 2016). Therefore, from the given analysis, the given hypothesis has been developed.

H1: There is a significant impact of natural gas on real GDP of ASEAN countries.

2.2. Nuclear Energy and Real GDP

On contrast to aggregating the consumption of energy, there are some of the researches that address the link in between consumption of nuclear energy and Real GDP. Some of the researches involve models of panel data, while others implement the analysis of time-series data. For example, Ozcan and Ari (2017) has identified the link in between nuclear energy consumption and Real GDP in different ASEAN countries. The outcomes have identified that nuclear energy does the stimulation of economic development within ASEAN countries (Ang & Goh, 2016). While doing the analysis of panel data, Pao, Chen, and Li (2015) did research on if consumption of nuclear energy encourages growth in real GDP. The outcomes have identified that consumption of nuclear energy results into an increment in real GDP. Nuclear consumption and real GDP had no such link in some of the ASEAN countries though. Through integrating the test of panel causality, which permits both heterogeneity and cross-sectional dependency, Qiao, Tong, Zhan, and Chen (2015) identified that there is an important link in between consumption of nuclear energy and real GDP in ASEAN countries. However, the results of have identified that there is no causal link in between real GDP and nuclear energy consumption in few ASEAN countries, that support the hypothesis of neutrality (Chang & Li, 2013). Targeting on some of the developing countries and developed countries for time period 1984 to time period 2007, Qiao et al. (2015) made use of model of panel error correction and their outcomes facilitate the causality to be unidirectional running towards real GDP in short run from consumption of nuclear energy in short race, while in long-race bidirectional causality is observed (Hong, 2013). Solarin, Al-Mulali, and Ozturk (2017) has identified that there is a bidirectional causality in between real GDP and consumption of nuclear energy in short-race. Unidirectional causality is seen running through the consumption of nuclear energy towards real GDP in long race. In another research, Valadkhani and Nguyen (2019) identified the long-run equilibrium and short-run dynamics for different developed ASEAN countries (Kanchana & Unesaki, 2014). The panel causality outcomes into finding evidence of unidirectional causality to run from the cost of oil and Real GDP to consumption of nuclear energy in long race. However, in short-run, there is no such causality in
between the consumption of nuclear energy and real GDP. From this analysis, the given hypothesis can be generated.

**H2:** There is a significant impact of nuclear energy on real GDP of ASEAN countries.

### 2.3. Oil Consumption and Real GDP

While costs of oil have been stressed more as the major predictor of economic growth. In accordance with Al-Mulali, Solarin, Sheau-Ting, and Ozturk (2016), less research has been done on interpretation and quantification of the risk sources and return linked with oil costs. The models of derivatives of oil feature the costs of spot, exogenous procedures of demand and that is why silence on role of oil in macro-economy. The rapidly increasing literature on macro-finance has had success defining the conduct of asset costs and macroeconomic aggregates within economies having complete markets of finance. However, there should be more literature for considering the costs and consumption of oil. In the research of Ozcan and Ari (2017), a model was built for considering oil costs and oil consumption. Moreover, the impact of consumption of oil has also been analyzed over real GDP of ASEAN countries. The model provided by Pao et al. (2015) matched the dynamics of macroeconomic aggregates with costs of oil and it yields more implications for pricing oil in future (Mishra & Smyth, 2014). The lower consumption of oil results into lower rate of Real GDP as provided in the research of Dogan and Ozturk (2017). Based on this, it can be stated that higher consumption of oil can result into higher rate of Real GDP. It can be stated that oil consumption and Real GDP are directly proportional to each other. In accordance with the research of Ozcan and Ari (2017), the prices of oil can be linked to the consumption of oil and thereby the increment or decrement in real GDP. Higher prices of oil cause an externality which decreases the productivity growth. When the supply of oil gets constrained and is unable to make response to the alterations in cost of oil, then oil cost exhibit lesser shocks and reversions, then the costs of oil become persistent (Nian & Chou, 2014). These shocks that are highly persistent tend to affect the wealth, and also the utility of agent. The oil price act like a function of aggregate output and aggregated consumption of oil. When oil gets entrance into the consumption baskets of household, the cost of oil act as the function of levels of consumption of products and oil. The decrement in price of oil increases its consumption. The increment in its consumption then outcomes into an increment in real GDP. From the given analysis, the following hypothesis has been generated.

**H3:** There is a significant impact of oil consumption on real GDP of ASEAN countries.

### 3. Research Methodology

The panel ARDL approach, also known as pooled mean group (PMG) is used in the current study to fulfill the aim of the study. The main concept is taken from the work of “Osabohien et al. (2017), Ahmed and Hasan (2016)”. The study has focused on Real GDP (RGDP), natural gas (NG), nuclear energy (NE), oil consumption (OC) and TEC. All of these variables will be tested for their impacts on each other. The impacts that all of these variables cast on each other is focused in this study. The panel ARDL and co-integration approach shows that there exists a long-term relationship between all of these variables and all of the variables are seen to be affecting each other in a significant way. The data is acquired from 8 ASEAN countries which include Brunei, Laos, Myanmar (Burma), Cambodia, Vietnam, Indonesia, Malaysia and Singapore, data was collected from the World Bank website extending from 1995 to 2019 which was enough for the implementation of panel ARDL.

#### 3.1. Model specification and method of estimation

The panel ARDL and the co-integration approach is applied on this study in order to achieve the aims set by this study as this approach has its own advantages over the other approaches used for co-integration. Panel ARDL approach has its advantages because it is applicable irrelevant of the stationarity present in the variables. The different natures of stationarity involve the level of [I (0)], level of [I (1)] and level of [I (2)]. The error correction mechanism takes in the different aspects of the long and the short-term equilibrium. The problems arising from the
non-stationary data of time series can be nullified using the panel ARDL approach, both of the forms of the model are given below:

\[ \text{RGDP} = f (\text{NG}, \text{NE}, \text{OC}, \text{TEC}) \]  
\[ \text{RGDP} = \beta_0 + \beta_1 \text{NG} + \beta_2 \text{NE} + \beta_3 \text{OC} + \beta_4 \text{TEC} + e_t \]  
\[ \text{RGDP} = \beta_0 + \beta_1 \text{NG} + \beta_2 \text{NE} + \beta_3 \text{OC} + \beta_4 \text{TEC} + e_t \]  
\[ \Delta \text{RGDP}_t = \beta_0 + \Delta \text{NG}_t + \Delta \text{NE}_t + \Delta \text{OC}_t + \Delta \text{TEC}_t + \Delta \text{ECM}_t + e_t \]  

In the equation above, RGDP refers to the real GDP, in here, NG stands for natural gas, NE here stands for nuclear energy, OC is showing oil consumption and TEC. \( \beta_0 \) is a constant term whereas, \( \beta_1, \beta_2, \beta_3 \) and \( \beta_4 \) are showing the explanatory variables and \( e \) is showing to be the error term.

\( \Delta \) is showing the operator changes and ECM is showing the error correction term. \( \gamma \) is the sign to denote the distance from short to long run. The model is given below:

\[ \Delta \text{RGDP}_t = \beta_0 + \sum_{t=1}^{n} \beta_1 \Delta \text{NG}_{t-1} + \sum_{t=0}^{n} \beta_2 \Delta \text{NE}_{t-1} + \sum_{t=0}^{n} \beta_3 \Delta \text{OC}_{t-1} + \sum_{t=0}^{n} \beta_4 \Delta \text{TEC}_{t-1} + \gamma \Delta \text{ECM}_{t-1} + e_{t-1} \]  

Where \( \Delta \) is showing the operator changes and ECM is showing the error correction term. \( \gamma \) is the sign to denote the distance from short to long run. The model is given below:

\[ \Delta \text{RGDP}_t = \beta_0 + \sum_{t=1}^{n} \beta_1 \Delta \text{NG}_{t-1} + \sum_{t=0}^{n} \beta_2 \Delta \text{NE}_{t-1} + \sum_{t=0}^{n} \beta_3 \Delta \text{OC}_{t-1} + \sum_{t=0}^{n} \beta_4 \Delta \text{TEC}_{t-1} + e_{t-1} \]  

Thus, it can be said that there is an expectation that, \( \beta_1, \beta_2 \) and \( \beta_4 \) < 0; \( \beta_3 \) > 0. It is expected that the variables will be significantly impacting each other.

\( H_0: \beta_0 = \beta_1 = \beta_2 = \beta_3 = \beta_4 \) (There is no long-term relationship)  
\( H_1: \beta_0 \neq \beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \) (There is long-term relationship)

In panel ARDL approach there are three steps involved, first is devising and testing hypothesis and the null hypothesis is stated as well. ECM is supposed to be equal to 0, panel ARDL co-integration involves advantages, it has all of the variables that are stationary at their nature, the variables need to be of the order \( I(0) \), \( I(0) \) because it will be the only way that panel ARDL will be applicable. It can also be seen that panel ARDL gives a closer and clearer view of the long-term model. The first assumption taken into account is that, the variables will be at a stationary condition at the first phase that is \( I(1) \), the second assumption that is made is that the variables will become stationary at \( I(1) \) at level 2. The data was acquired from 8 ASEAN countries which include Brunei, Laos, Myanmar (Burma), Cambodia, Vietnam, Indonesia, Malaysia and Singapore, data was collected from the World Bank website extending from 1995 to 2019 which was enough for the implementation of panel ARDL.

### 3.2. Presentation and Discussion of the Results

The second section of this study will be providing the summary of the results and analytics, results will be stated regarding the impacts of RGDP, NE, NG, OC and TEC. The section will provide, mean, standard deviation, minimum and maximum points for all of the variables. The test of stationarity will be provided. Moreover, the results and details of ADF, augmented dickey fuller unit root test will be provided in this section of the study.

### 3.3. Unit Root Test for Stationarity

It has been witnessed that the variables in the time series study will be having unit root, and unit root is only present when the variables are not stationary and the unit root can be witnessed and seen after the stationarity test performance. The ground rule set for the being stationary is that the absolute critical value of the ADF should be greater than the critical value of the variables so that they can be called as stationary. To check on the integrating order of the involved variables, the unit root test for the stationarity was conducted. This step is important because it validates that all of the variables at least are differenced. So, the importance of carrying out unit root test is that it
will make clear that none of the variable is integrated of order 2. Then the panel ADRL is presented both for long and short term, it can be clearly seen that whether long run relation exists or not.

4. Empirical discussion

4.1. Unit root test results

When a time series analysis is utilized in any investigation, it turns out to be significant for the predictor to check whether the variables persist to be stationary over the time period chosen or not. And this test states the analysis of integration of the time series used for this research. The Augmented Dickey Fuller (ADF) tests explains the stationary levels of the variables over the years that how much have they changed or have remained stationary throughout the analysis. The results include both the analysis at level and at the first differences. (See table 1)

<table>
<thead>
<tr>
<th>Constructs</th>
<th>ADF Test</th>
<th>LLC Test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Level</td>
<td>1st diff.</td>
</tr>
<tr>
<td>NG</td>
<td>1.985*</td>
<td>6.294**</td>
</tr>
<tr>
<td>NE</td>
<td>3.758</td>
<td>4.376**</td>
</tr>
<tr>
<td>OC</td>
<td>0.598</td>
<td>8.499**</td>
</tr>
<tr>
<td>RGDP</td>
<td>5.483*</td>
<td>10.398***</td>
</tr>
</tbody>
</table>

Here with the ADF results at level, natural gas, total electricity consumption and the real GDP have been significant, hence rejecting the null hypothesis of non-stationarity. So, we conclude that natural gas, real GDP, and total electricity consumption have been stationary here. However, oil consumption, nuclear energy has been insignificant in the level intercept of ADF, thus, it can be determined that these have been non-stationary at the level intercept. Yet, all the constructs have been practical to be substantial at the 1st difference in the ADF test and revealed significance at 5% level, in that way rejecting the null hypothesis of non-stationarity.

Similarly, the LLC unit test is taken both at level and first differences. At level, natural gas, real GDP, and total electricity consumption have been significant hence rejecting the null hypothesis of non-stationarity. So, we conclude that natural gas, real GDP, and total electricity consumption have been stationary here. However, oil consumption, nuclear energy has been insignificant in the level intercept of the LLC unit root test, thus, it can be determined that these have been non-stationary at the level intercept and have a unit root at the level. Hitherto, all the constructs have been practical to be substantial at the 1st difference in the LLC unit root test and exposed significance at 10% level, thereby rejecting the null hypothesis of non-stationarity.

4.2. Co-integration Test Results

The variables should have a stronger relation in the optimum time lag length used for this study. If the variables have no integration with each other, there cannot be the positive dependence of the variables on each other. For this test, we look at the F-statistic value which should lie above the lower bound critical value and the upper bound critical value thereby we can reject the null hypothesis of no co-integration among the variables. The results are shown as follows (see table 2):
Table 2. Co-integration Test

<table>
<thead>
<tr>
<th>O.P.L. length (A.I.C)</th>
<th>(2,0,0,0,0,0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-Stat. (Bound Test)</td>
<td>27.954***</td>
</tr>
<tr>
<td>V.C</td>
<td>1% 5% 10%</td>
</tr>
<tr>
<td>L.B.C.V.</td>
<td>2.76 2.05 1.78</td>
</tr>
<tr>
<td>U.B.C.V.</td>
<td>5.82 4.27 3.95</td>
</tr>
</tbody>
</table>

The F-statistic value is 27.954 which is significant at 10% level and designates that it lies above the lower and upper bound critical values of the test, henceforth we reject the null hypothesis and state that there is co-integration amongst the variables. That total electricity consumption, real GDP, natural gas, oil consumption, and nuclear energy have a stronger co-integration among each other.

4.3. Panel ARDL Estimation Results

The panel ARDL technique is used to test the effect in short run and long run of the variables on the real GDP of these countries. The results as shown below state that nuclear energy, oil consumption, natural gas have been significantly impacting the real GDP in the long run and short run. The results are shown in the table below (table 3):

Table 3. Panel ARDL Estimation Results

<table>
<thead>
<tr>
<th>Run Long Results</th>
<th>$B$</th>
<th>$t$-value</th>
<th>Summary &amp; Diagnostic Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>RGDP</td>
<td>2.395***</td>
<td>-</td>
<td>$R^2$ 0.689</td>
</tr>
<tr>
<td>RGDP (-1)</td>
<td>0.794**</td>
<td>-</td>
<td>Adj. $R^2$ 0.662</td>
</tr>
<tr>
<td>RGDP (-2)</td>
<td>1.402***</td>
<td>-</td>
<td>D.W. 2.04</td>
</tr>
<tr>
<td>NG</td>
<td>0.310</td>
<td>4.532***</td>
<td>$X^2SC$ 1.867 (0.465)</td>
</tr>
<tr>
<td>NE</td>
<td>0.229</td>
<td>3.395**</td>
<td>$X^2W$ 3.976 (0.496)</td>
</tr>
<tr>
<td>OC</td>
<td>0.274</td>
<td>2.247***</td>
<td>$X^2AR$ 1.086 (0.369)</td>
</tr>
<tr>
<td>TEC</td>
<td>0.136</td>
<td>4.246**</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>4.876</td>
<td>5.395**</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Short Run Results</th>
<th>$t$-value</th>
<th>Summary &amp; Diagnostic Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>NG</td>
<td>0.274</td>
<td>3.053*** $R^2$ 0.564</td>
</tr>
<tr>
<td>NE</td>
<td>0.103</td>
<td>3.299** Adj. $R^2$ 0.553</td>
</tr>
<tr>
<td>OC</td>
<td>0.168</td>
<td>2.573*** $X^2SC$ 1.395 (0.533)</td>
</tr>
<tr>
<td>TEC</td>
<td>0.038</td>
<td>0.377 $X^2W$ 3.743 (0.754)</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>$X^2AR$ 2.764 (0.205)</td>
</tr>
</tbody>
</table>

The results of the long run analysis state that nuclear energy, oil consumption, natural gas, and total electricity consumption have all significantly impacted the real GDP of the countries. Natural gas has the highest impact on the real GDP as an increase in natural gas accounts for 45% increase in real GDP. Nuclear energy also impacts
about 33% increase in the real GDP of the states. Total electricity consumption effects an increase of 42 % on the real GDP and similarly, oil consumption causes an effect of 22% on the real GDP. The value for adjusted R² here is 66% which means that all these variables have a combined effect of 66% on the real GDP. In the short run results, natural gas, oil consumption, and nuclear energy have been significantly affecting the real GDP with an effect of 30%, 32% and 25 % increase. However, total electricity consumption has not been significant in the short run to cause an effect on the real GDP of the nations over the years. The value for adjusted R² here is 66% which means that all these variables have a combined effect of 56% on the real GDP.

5. Discussion and conclusion

5.1. Discussion

This is obvious that natural resources have significant importance in any country’s economy (Yang, Wang, Wang, & Yeh, 2018). The primary objective of the given study is to analyze the impact of nuclear energy, oil consumption as well as natural gas on real GDP growth of ASEAN countries. The table and findings illustrate the consumption of natural gas impact the real GDP growth in ASEAN countries significantly. The results show that there is a significant relationship between real GDP growth and natural gas regression. The more people consume natural gas, the more it affects the GDP growth and overall economy (Fadiran, Adebisuji, & Fadiran, 2019). Moreover, the ADF and unit root test illustrates that nuclear energy has also a significant impact on the real GDP growth of the ASEAN countries. A study also indicates that the consumption of natural gas and nuclear energy positively affect the economy of the country because of Consumption of nuclear energy and conventional hydroelectric power sources are significantly smaller, both less than 10 percent of the total (Ben-Salha, Hkiri, & Aloui, 2018). Moreover, according to results and findings, the consumption of oil has a significant impact on energy consumption as well. The higher is the natural resources consumption, the higher will be the GDP growth in that country and vice versa (Balsalobre-Lorente, Shahbaz, Roubaud, & Farhani, 2018). Thus, the panel ARDL estimation results table indicates that all hypotheses accepted and there is a significant relationship between energy consumption and real GDP. In the following study, the total energy consumption is a control variable. The results show that in the short run, the total energy consumption has an insignificant impact.

5.2. Conclusion

The purpose of the following study is to illustrate the role of regression natural gas, oil consumption and nuclear energy on real GDP growth of the ASEAN countries. The various statistical tests have been applied to get reliable results and outcomes. Moreover, the panel ARDL estimation results technique is being used to analyze hypotheses acceptance and rejection. The panel ARDL estimation result table shows that nuclear energy, oil consumption, and regression natural gas has a significant impact on real GDP growth of the ASEAN countries. All hypotheses accepted in the long run. Similarly, the total energy consumption as a control variable has an insignificant impact in the short run and significant impact in the long run.

5.3. Implications

The results and discussions indicate that the consumption of natural resources such as natural gas, crude oil, nuclear energy, and oil consumption has a significant impact on real GDP growth in ASEAN countries. The results and discussion significantly prove that the consumption of natural resources or their prices affects an economy. Oil price increases are generally thought to increase inflation and reduce economic growth. In terms of inflation, oil prices directly affect the prices of goods made with petroleum products. Increases in oil prices can depress the supply of other goods because they increase the costs of producing them. Thus, in ASEAN countries context, the growth in natural resources and its consumption affect the real GDP growth.
5.4. Limitations/Recommendations

The overall study focuses on the consumption of natural resources and gas on gross domestic growth of the ASEAN countries which is consider as one of the primary limitations. There are various other aspects that may highlight or may consider while conducting research. For instance, the study may focus on natural resources prices and their impact on real GDP growth. This is an interesting aspect that may come to highlight. It is recommended that future studies should focus on this aspect to get reliable results.

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