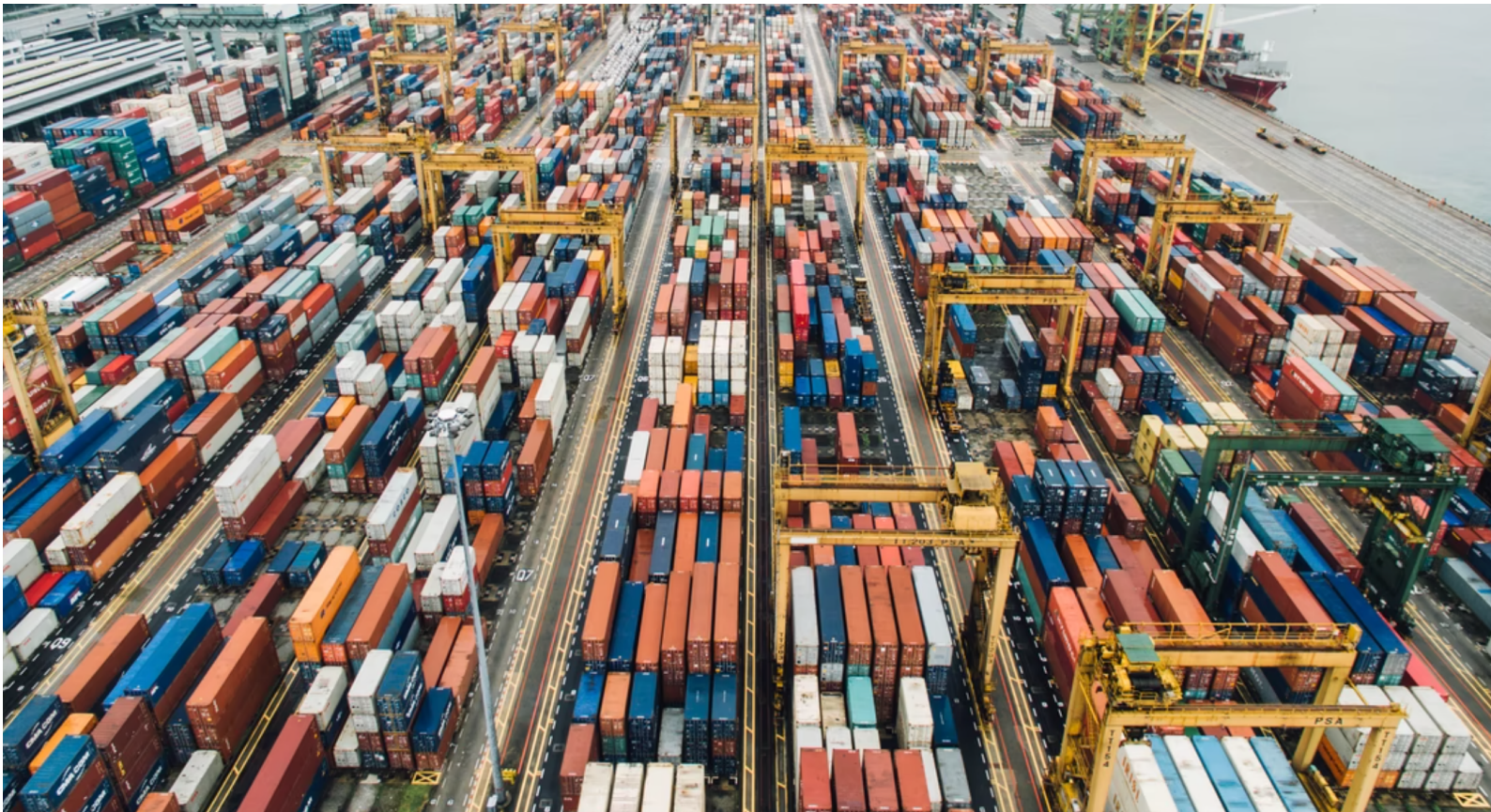


ISSN 2775-9237 (Online)

Asian Institute of Research
Economics and Business Quarterly Reviews
Vol. 4, No.4 December 2021



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Impact of Macroeconomic Variables, American Stock Market Index and Covid-19 Pandemic on Indonesia Capital Market Development (Time Series Study 1990-2020)

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Abstract

The purpose of this study is 1.) To analyze the influence of foreign investment on the development of the Indonesian capital market. 2.) To analyze the influence of the Exchange Rate on the Development of the Indonesian Capital Market. 3.) To analyze the influence of the Interest Rate on the Development of the Indonesian Capital Market. 4.) To analyze the influence of the Dow Jones Stock Market Index on the Development of the Indonesian Capital Market. 5.) To analyze the influence of the Covid-19 Pandemic (dummy variable) on the Development of the Indonesian Capital Market. 6.) In this study, secondary data and library research were used as a technique for collecting data, using semi-annual data for the period 1990-2020. The research was processed using the EViews 11 program with the multiple linear regression method. The results of the research are known if 1.) Foreign Direct Investment has a significant and positive effect on Capital Market Development. 2.) Exchange Rates have a significant and positive influence on the Development of the Indonesian Capital Market. 3.) Interest Rates have a significant and negative effect on the Development of the Indonesian Capital Market. 4.) The Dow Jones Stock Market Index has a significant and positive effect on the Development of the Indonesian Capital Market. 5.) The Covid-19 pandemic had a significant and negative effect on the Development of the Indonesian Capital Market in the period 1990 to 2020. The results of this study are expected to contribute to policy holders regarding the role of macroeconomic variables on the development of the capital market, so that in the future it can be one of the references in conducting the policy mix so as to improve the development of the Indonesian capital market.

Keywords: FDI, Exchange Rates, Interest Rates, Stock Market Indices, Capital Markets, Covid-19

1. Introduction

Lately, the development of the capital market in Indonesia has been so fast, making capital market players aware that this trade can provide good returns and contribute greatly to economic development in Indonesia. The

number of companies that go public and register their shares in the capital market is evidence of this condition. This, either directly or indirectly, can support the growth of the national capital market industry to an encouraging level. Based on Article No. UUPM. 8 of 1995, it is explained that the capital market is activities related to public offerings and securities trading, public companies related to issued securities, as well as institutions and professions related to securities and securities or securities, which include debt acknowledgments, commercial securities, stocks, bonds, proof of debt, participation units in collective investment contracts, futures contracts on securities, and each derivative of securities.

The capital market for companies does not only offer benefits. The capital market is also an investment venue for investors, those who have excess funds, to be able to invest capital hoping to get a return. Investors can determine which company to invest in in order to get optimal profit. The development of the capital market as an investment tool institution has economic and financial functions that are increasingly needed by the community as the preferred medium and fundraiser. Investors who carry out transactions on the stock exchange to decide in determining a portfolio that can reap profits, investors need information. Announcement of stock split or stock split is part of the information provided. A Go Public company that carries out activities with the aim of increasing the total outstanding shares is called a stock split.

Based on the Capital Market Law no. 8 of 1995 concerning the Capital Market, namely that the capital market is "Activities related to Public Offering and trading of Securities, Public Companies relating to issued Securities, as well as institutions and professions related to Securities." According to this definition, the capital market is a place to facilitate funding for companies with parties who want to invest, therefore the capital market requires investors both from within and outside the country. The following is a graph of the share of ownership of local investors and foreign investors listed at the Indonesian Central Securities Depository.

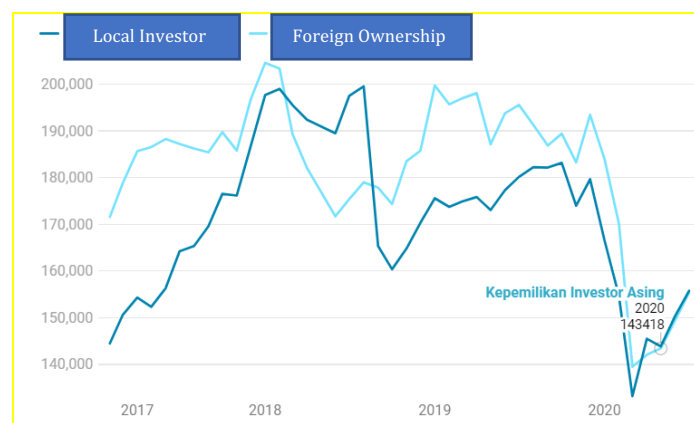


Figure 1: Share Ownership Portion of Local and Foreign Investors 2017-2020

Source: Indonesian Central Securities Depository (KSEI), processed

Based on the graph, as of the end of July 2020 the total asset value of foreign investors' shares was IDR 3,111 trillion or 51.9% of the total market capitalization of the IDX at the end of July 2020. Where, local investors only contributed 45% of share ownership, and especially if withdrawn up to 13 years ago, the ownership ratio of domestic investors was only 31%. In addition, foreign investors are more focused on large market cap stocks or blue chips, which in terms of their movements are not so aggressive.

According to research from (Ratnaningtyas, 2020) it was found that foreign capital directly affected significantly the composite stock price index (JCI), in line with this research from (Almfraji & Almsafir, 2014) found that foreign investment had a significant positive influence on the capital market. and the money market in Malaysia which in turn has an influence on economic growth in Malaysia. Including supporting the research above, research from (Hailemariam & Guotai, 2014) results in that Foreign Direct Investment (FDI) has a positive and significant impact on economic growth and capital markets in China. However, not in line with previous research, research from (Idenyi et al., 2016) regarding the impact of foreign investment in the Nigerian stock

market, the results show that foreign investment does not significantly affect the growth of the stock market in Nigeria.

Indications for the developing capital market use the Indonesia Composite Index (JCI) indicator, while the JCI is strongly influenced by national and global economic conditions, including the COVID-19 pandemic which raises positive sentiments such as the vaccination program or negative sentiment or uncertainty due to the emergence of the covid variant. The following is a graph of the JCI for the last few years in Indonesia:

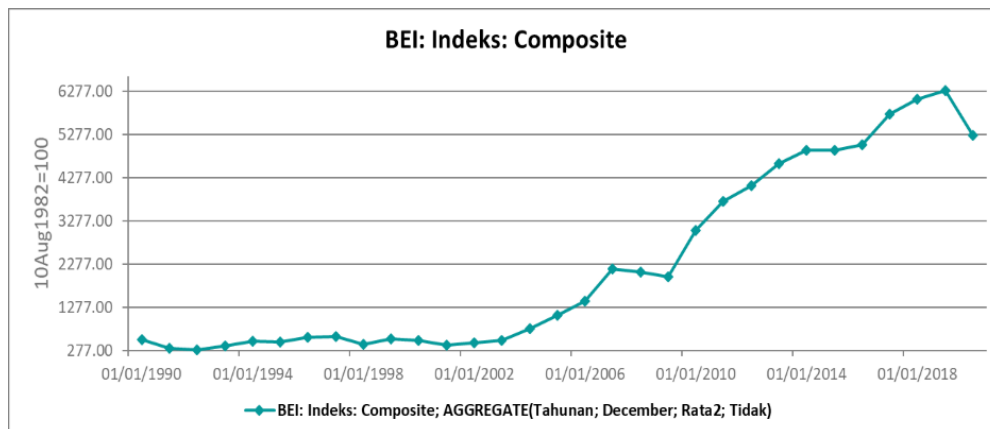


Figure 2: Graph of Composite Stock Price Index (JCI) 1990-2018

Source: Indonesia Stock Exchange, processed

The Indonesian Composite Index chart from year to year shows a trend of development with the highest number reaching 6296, this is certainly encouraging because it means that the capital market in Indonesia is showing a positive direction of progress. This research will examine the effect of stock indexes from other countries, in this case the Dow Jones Stock Index (USA) on the Indonesian Composite Stock Price Index (CSPI). The Dow Jones (USA) Stock Index was chosen because of the longstanding cooperative relationship between Indonesia and the United States in terms of economy, education, culture, health and others. So it does not rule out the possibility of a relationship between the two stock markets, both in America and in Indonesia.

The research of (Lee et al., 2012) examines how closely the relationship between the Taiwan capital market and other international capital markets in Asia is, and it is found that there is a relationship between the Taiwan capital market and the Hong Kong capital market. The resilience of the capital market itself can be shown by various indicators such as the stock index of the corporation concerned, transaction volume, transaction frequency, transaction value, investment amount and various other indicators. Several previous studies have shown that there is an influence of several macroeconomic indicators on capital market developments such as GDP, capital market liquidity, foreign direct capital, inflation rates, savings rates (Azeez & Obalade, 2018). The effect of foreign exchange rates on capital market developments (Mukupo, 2019), (Adebowale & Akosile, 2018) and (Obura & Anyango, 2016).

In line with foreign investment entering the Indonesian capital market, of course, fluctuations in the exchange rate greatly affect foreign investment entering the country. The most important thing about the rupiah exchange rate is the volatility of the rupiah exchange rate concerned. The volatility of the currency exchange rate will result in the financing of business activities, especially companies that focus on exports and imports. The movement of the rupiah exchange rate tends to be influenced by basic factors and the strengthening of the rupiah exchange rate as a reaction to global economic conditions.

The Covid-19 pandemic has caused economic uncertainty and has led to a global economic recession, as is the case for Indonesia. In 2020, during the first and second semesters, there was negative economic growth in various countries, such as the US, Japan, South Korea, the European Union, Hong Kong and Singapore. Indonesia's economic growth performance in 2020 slowed down due to the Covid-19 pandemic. Business actors who will really feel the impact of the domino effect because the pandemic has an impact on the health sector to social and

economic problems. Based on BPS data, the economic growth rate in 2020 from January to March (first quarter) reached 2.97%. When compared to 2019 in the fourth quarter, this figure slowed from 4.97%. Moreover, compared to 2019 in the first quarter, it was still much lower at 5.07%. Furthermore, in 2020, precisely in the second quarter, there was minus 5.32% in Indonesia's economic growth rate. This figure is the opposite of what happened in 2019 to be precise in the second quarter of 5.05%.

From the relevant background, the formulation of this research is:

1. Is there any influence of Foreign Investment on the Development of the Indonesian Capital Market.
2. Is there any influence of the Exchange Rate on the Development of the Indonesian Capital Market.
3. Is there any influence of Interest Rates on the Development of the Indonesian Capital Market.
4. Is there any influence of the Dow Jones Stock Market Index on the Development of the Indonesian Capital Market.
5. Is there any effect of Covid-19 on the Development of the Indonesian Capital Market.

2. Literature Review

2.1. Indonesian Capital Market Development

The financial market in transacting long-term funds as well as being a concrete market is the understanding of the capital market. A place used for marketing stocks and bonds whose sales proceeds can be used as additional funds or in strengthening the company's capital (Fahmi, 2012). While in Law no. 8 of 1995 there is also an explanation of the capital market which is explained as activities related to public offerings and securities trading, companies related to securities issuance, and agencies and professions related to issued securities, and agencies and professions related to securities.

2.2. Foreign Direct Investment

Is part of foreign investment which foreign investment is divided into Foreign Direct Investment and Foreign Portfolio Investment. Foreign Direct Investment is capital owned and managed by foreign parties while Foreign Portfolio Investment is investment funded with foreign money but managed by domestic parties (Mankiw, 2011). Meanwhile, according to Jhingan (Jhingan, 2012) foreign investment (PMA) means companies from the country of origin of capital with de facto or de jure supervision of assets invested in the recipient country; creation of a company using majority shareholding; the creation of a company funded by the investment company or placing fixed assets in the recipient country.

2.3. Currency Exchange Rates

According to (Adiningsih, 2011), the rupiah exchange rate is the price of the rupiah in other countries' currencies. so that the rupiah exchange rate is the value of one rupiah currency which is translated into another country's currency. For example, the exchange rate of the Rupiah to the US Dollar, the exchange rate of the Rupiah to the Yen, and so on. The exchange rate is one of the parameters that affect activities in the stock market or money market because investors usually become more careful in investing.

2.4. Interest Rate

Interest rates are divided into nominal and real interest rates. Interest rates that do not pay attention to the inflation rate (showing the amount of money that is increasing in savings) are the meaning of nominal interest rates. While the interest rate that has taken into account the inflation rate (reflecting the increase or decrease in the purchasing power of savings) is called the real interest rate. The real interest rate is the nominal interest rate minus the inflation rate (Mankiw, 2011). The risk free rate minus inflation is usually used as a reference for real interest rates.

2.5. Dow Jones Stock Market Index (USA)

The Dow Jones Industrial Average (DJIA) is an index of the 30 largest publicly traded companies in the United States. These companies include: AT&T, Boeing, Chevron, Coca-Cola, General Electric, Intel, IBM, JP Morgan Chase, McDonalds, Microsoft, Nike, Verizon, Visa, Wal-Mart and Disney. The composition of the index changes periodically to include the strongest companies and discard companies that have lost position and influence. (Bodie & Kane, 2018)

2.6. Hypothesis

Moving on from the background that has been described, the following hypotheses can be formulated:

Hypothesis 1: Foreign Direct Investment has a significant and positive influence on the Development of the Indonesian Capital Market

Hypothesis 2: Exchange Rates have a significant and positive influence on the Development of the Indonesian Capital Market

Hypothesis 3: Interest Rates have a significant and negative influence on the Development of the Indonesian Capital Market

Hypothesis 4: The Dow Jones (USA) Stock Market Index has a significant and positive influence on the Development of the Indonesian Capital Market

Hypothesis 5: The Covid-19 pandemic has a significant and positive impact on the development of the Indonesian capital market

3. Methods

The data used in this study is secondary data where the collection uses time series data for 30 years, namely from 1990-2020 with data divided per semester. The data collected by the researchers came from various sources related to the research theme, namely the Central Statistics Agency, Bank Indonesia, the World Bank and the Indonesia Stock Exchange.

Variable measurement method and operational definition used is a causal relationship model between the independent variable and the dependent variable. A statement explaining the Agreement method "When two or more cases of a given phenomenon have one and only one condition in common then that condition may be regarded as the cause of the phenomenon" is the opinion of John Stuart Mill in (Yuyun, 2013) The theorem of agreement in this study can be formulated by:

Capital Market Development = Y, the function of the dependent variable is an intermediate variable that gets simultaneous influence by the determining factors, then the model format becomes:

$$Y = f(X_1, X_2, X_3, X_4, X_5)$$

The regression analysis technique in this study uses an approach with an equation model, namely:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \epsilon_t$$

With :

β_0, \dots, β_n = Constant Equation 1 to n

$\epsilon_1, \dots, \epsilon_n$ = Standard Error equation 1 to n

Y = Capital Market Development

X₁ = Foreign Direct Investment (FDI)

X₂ = Rupiah to US Dollar Exchange Rate

X₃ = Interest rate

X₄ = Stock Index

X₅ = Covid-19

Multicollinearity test using matrix correlation test (Gujarati, 2013), Normality test using Jarques-Berra (Gujarati, 2013), Autocorrelation using Langrange Multiplier or Breusch Gordfrey test (Gujarati, 2013), detecting heteroscedasticity using White Heteroskedasticity Test (Gujarati, 2013). To find out whether the time series data

used is stationary or not, the stationary test (unit root test) is used. In research, basically time series data often experience non-stationary at the series level. So it is necessary to do differentiation once or twice to produce stationary data. The unit root test was carried out using the Augmented Dickey Fuller (ADF) method. Simultaneously test the hypothesis using the F statistical test with a 95% confidence level, so that the alpha precision level is 0.05. Partial hypothesis test using t-test with alpha 0.005. The coefficient of determination (R²) is used to measure the model's ability to explain the independent variables (Gujarati, 2013)

4. Result

4.1 Unit Root Test and Classical Assumptions

Testing the unit root group at the 1st difference level for all variables using the ADF (Augmented Dickey-Fuller) method produces the ADF value for the Foreign Direct Investment variable of 11.42427 with Prob. the value of 0.0000 \leq 0.05, the ADF value for the variable exchange rate of the rupiah against the US dollar is 5.142634 with Prob. The value is 0.0001 \leq 0.05, the ADF value for the interest rate variable is 5.417775 with Prob. The value is 0.0000 \leq 0.05, the ADF value for the Dow Jones stock index variable is 6.725290 with Prob. The value of 0.0000 \leq 0.05 and the ADF value for the capital market development variable is 8.224303 with Prob. value 0.0000 \leq 0.05 at that level. Thus, it is stated that all stationary variables at the resulting level and equations are cointegrated, or do not produce spurious regression for the three models. The results of the classical assumption test stated that the three models had met the criteria of normality, multicollinearity, autocorrelation, and heteroscedasticity or were declared to meet the criteria.

4.2 Descriptive Analysis

Based on data from the World Bank, foreign direct investment in Indonesia during the 30 (thirty) research period 1990-2020 with semester data contained 62 (sixty-two) research samples. Research data on Indonesian Foreign Direct Investment (FDI) during 1990-2020 has an average value of USD1980.146 million. The highest FDI value was recorded at USD7371,456 million in Semester I of 2019 and the lowest value of FDI was recorded at USD-9329.41 million in Semester II of 2016. Based on data from Bank Indonesia, the exchange rate of the rupiah against the US dollar during the 30 (three) study period twenty) years 1990-2020 with semester data there are 62 (sixty-two) research samples. Research data on the Rupiah Exchange Rate against the US Dollar during 1990-2020 has an average value of Rp. 8,550.66/1 USD . The highest Rupiah exchange rate against the dollar was recorded at Rp. 14,900/1 USD in the first semester of 1998 and the lowest rupiah exchange rate against the dollar was recorded at Rp. 1.832/1 USD in Semester I of 1990.

Based on data from Bank Indonesia, the interest rate during the 30 (thirty) research period 1990-2020 with semester data contained 62 (sixty two) research samples. Interest rate research data for 1990-2020 has an average value of 17.01%. The highest interest rate was recorded at 34.75% in the second semester of 1998 and the lowest interest rate was recorded at 9.15% in the second semester of 2020.

Dow Jones Stock Market Index research data for 1990-2020 has an average value of 11,174.90. The highest Dow Jones Stock Market Index was recorded at 24,719 in Semester II of 2017 and the lowest Dow Jones Stock Market Index was recorded at 2581.88 in Semester II of 1994. Research data on the Composite Stock Price Index for 1990-2020 has an average value of 2308, 98 . The highest Composite Stock Price Index was recorded at 6358.63 in Semester I of 2019 and the lowest Composite Stock Price Index was recorded at 247.39 in Semester II of 1991.

4.3 Inferential Analysis

The influence of Foreign Direct Investment, the Rupiah exchange rate against the US Dollar, interest rates, the Dow Jones stock market index and Covid-19 either simultaneously or partially on Capital Market Developments as proxied by the Composite Stock Price Index (JCI). Through multiple linear regression which shows the causal relationship between the independent variables and the dependent variable are as follows:

Model Equation :

$$Y = b_0 + b_1 \text{Ln}_X1 + b_2 \text{Ln}_X2 + b_3 \text{Ln}_X3 + b_4 \text{Ln}_X4 + b_5 X5 + \epsilon$$

Where :

Y = Capital Market Development (JIC)

bo = Constanta

X1 = Foreign Direct Investment

X2 = Rupiah Exchange Rate against US Dollar

X3 = Interest Rate

X4 = Dow Jones Stock Market Index (USA)

X5 = Covid 19 Pandemic (Dummy Variable)

€ = Epsilon (Other factors outside model 1)

Dari Model Regresi diperoleh Persamaan Regresi Terstandarisasi

Table 1: Multiple Linear Regression Model

Dependent Variable: LnY

Method: Least Squares

Date: 09/13/21 Time: 09:00

Sample: 1 62

Included observations: 62

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.901072	0.834526	2.278025	0.0266
LnX1	0.128257	0.043969	2.916972	0.0051
LnX2	0.426223	0.113756	3.746829	0.0004
LnX3	-1.455789	0.300724	-4.840942	0.0000
LnX4	0.269678	0.111508	2.418457	0.0189
X5	-0.176061	0.066150	-2.661528	0.0101
R-squared	0.811336	Mean dependent var		3.137561
Adjusted R-squared	0.794491	S.D. dependent var		0.482795
S.E. of regression	0.218866	Akaike info criterion		-0.108946
Sum squared resid	2.682537	Schwarz criterion		0.096906
Log likelihood	9.377325	Hannan-Quinn criter.		-0.028123
F-statistic	48.16469	Durbin-Watson stat		0.792584
Prob(F-statistic)	0.000000			

Source: Eviews11, processed

The results of the calculations in Table 1 above can be presented with the results of multiple linear regression as follows:

$$\text{LnY} = 1.901072 + 0.128257 \text{LnX1} + 0.426223 \text{LnX2} - 1.455789 \text{LnX3} + 0.269678 \text{LnX4} - 0.176061 X5$$

The interpretation of the regression equation is as follows:

The constant value = 1.901072 means that statistically if all ceteris paribus variables have a constant value, then the value of Capital Market Development (CSPI) is 1.901072.

The regression coefficient value $b_1 = 0.128257$, meaning that the elasticity value of the Foreign Direct Investment value to the Development of the Indonesian Capital Market (IHSG) is $E = 0.128257$. The value of $E < 1$ indicates that the increase in the value of Foreign Direct Investment is Inelastic to the Development of the Indonesian Capital Market (IHSG). Statistically, the significance of the value of Foreign Direct Investment (FDI) on the JCI is smaller than (0.0051 0.05), it can be concluded that the Foreign Direct Investment (FDI) variable on the Development of the Indonesian Capital Market (JCI) has a significant effect.

The value of the regression coefficient $b_2 = 0.426223$, meaning that the elasticity value of the Rupiah to US Dollar exchange rate against the Development of the Indonesian Capital Market (IHSG) is $E = 0.426223$. The value of $E < 1$ indicates that the increase in the exchange rate of the Rupiah to the US Dollar is Inelastic to the Development of the Indonesian Capital Market (IHSG). Statistically, the significance of the Rupiah exchange rate against the US dollar against the JCI is less than (0.0004 < 0.05), so it can be concluded that the rupiah exchange rate against the US dollar has a significant effect on the development of the Indonesian capital market (IHSG).

The regression coefficient value $b_3 = 1.455789$, meaning that the elasticity value of the Interest Rate value to the Development of the Indonesian Capital Market (IHSG) is $E = 1.455789$. The value of $E > 1$ indicates that the increase in the value of the Interest Rate is Elastic on the Development of the Indonesian Capital Market (IHSG). Statistically, the significance of the interest rate on the JCI is less than (0.0000 < 0.05), it can be concluded that the interest rate variable on the development of the Indonesian capital market (CSPI) has a significant effect.

The value of the regression coefficient $b_4 = 0.269678$, meaning that the elasticity of the value of the Dow Jones Stock Market Index (USA) to the Development of the Indonesian Capital Market (IHSG) is $E = 0.269678$. The value of $E < 1$ indicates that the increase in the value of the Dow Jones Stock Market Index (USA) is Inelastic to the Development of the Indonesian Capital Market (IHSG). Statistically, the significance of the Dow Jones Stock Market Index value on the JCI is smaller than (0.0189 < 0.05), it can be concluded that the Dow Jones Stock Market Index variable on the Indonesian Capital Market Development (CSPI) has a significant effect.

The regression coefficient value is $b_5 = 0.176061$, meaning that the elasticity value of the Covid-19 Pandemic on the Development of the Indonesian Capital Market (IHSG) is $E = 0.176061$. The value of $E < 1$ indicates that the value of the Covid-19 Pandemic is Inelastic to the Development of the Indonesian Capital Market (IHSG). Statistically, the significance of the Dow Jones Stock Market Index value on the JCI is less than (0.0101 < 0.05), so it can be concluded that the Covid-19 Pandemic Influence on the Development of the Indonesian Capital Market (JCI) has a significant effect.

F-statistical test is used to determine the relationship between the independent variables jointly affect the dependent variable. The calculation results obtained in table 1 are a significance value of 0.0000 < 0.05 which means a significant effect, indicating that the Foreign Direct Investment (FDI) variable, the Rupiah exchange rate against the US Dollar, interest rates, the Dow Jones (USA) stock market index) and the Covid-19 pandemic simultaneously had a significant effect on the Development of the Indonesian Capital Market. Interpretation in the language of economics means significant meaning that the Foreign Direct Investment (FDI) hypothesis, the Rupiah exchange rate against the US Dollar, interest rates, the Dow Jones (USA) stock market index and the Covid-19 pandemic have convincingly and proven to influence capital market developments. Indonesia.

The magnitude of the influence of the value of Foreign Direct Investment (FDI), the exchange rate of the Rupiah against the US Dollar, interest rates, the Dow Jones stock market index and the Covid-19 pandemic simultaneously have a significant effect on the Development of the Indonesian Capital Market and is shown by the regression results of the five independent variables on the The development of the Indonesian Capital Market is Adjusted R Squared = 0.794491, meaning that the magnitude of the influence of Foreign Direct Investment (FDI), the Rupiah exchange rate against the US Dollar, interest rates, the Dow Jones (USA) stock market index and the Covid-19 pandemic simultaneously affect significantly to the Development of the Indonesian Capital Market as proxied by the JCI of 79.44 percent, the remaining 20.55 percent is influenced by other factors outside the model studied.

4.4 Discussion

As of the end of July 2020, the total asset value of foreign investors' shares was IDR 3,111 trillion or 51.9% of the total market capitalization of the IDX at the end of July 2020. Where, local investors only contributed 45% of share ownership, and especially if withdrawn until 13 years ago the ratio domestic investors' ownership is only 31%. In addition, foreign investors are more focused on large market cap stocks or blue chips, which in

terms of their movements are not so aggressive. Supporting foreign capital directly has a significant positive effect on capital market development, including (Ratnaningtyas, 2020), (Almfraji & Almsafir, 2014) and (Hailemariam & Guotai, 2014).

The exchange rate itself is able to affect the stock market through several channels, currency depreciation causes a decrease in stock prices, creating an opportunity for investors to buy shares so that by itself it will increase the stock price itself. In addition, currency depreciation can also cause a lot of foreign capital inflows into Indonesia and invest through the Capital Market which can eventually increase the composite stock price index in Indonesia. The results of this study are supported by previous research, including research by (Narayan, P. K., Devapura, N., & Wang, 2020), (Adebowale & Akosile, 2018), (Obura & Anyango, 2016)

The effect of interest rates and investment is evident from the situation when interest rates are low, the total investment will increase. On the other hand, if the interest rate is high, the total investment will fall. In line with this, it can be seen in the graph of the Indonesian JCI which has increased every year, meaning that there is an increase in investment in line with the decline in Bank Indonesia interest rates. The results of the study are supported by (Hwa et al., 2016), (Poudel et al., 2020) and (Gao et al., 2021)

The Dow Jones Index (DJIA) is one of the 3 major indices in the United States. The other indexes are the Nasdaq Composite and the Standard & Poor's 500. These indexes represent the economic activity in the United States. This index can describe how the American economy is performing. According to (Sunariyah, 2013), with the increase in the Dow Jones Index, this means that the United States' economic performance has also improved. The movement of the Dow Jones index will also affect the movement of the JCI. Because as one of Indonesia's export destinations, the United States' economic growth can encourage Indonesia's economic growth through export activities and capital inflows, both direct investment and through the capital market. Previous studies that support the relationship between the stock market index and other stock indices include research by (Lee et al., 2012) and (Josphat & Kipkirong, 2012).

The performance of the JCI (Joint Stock Price Index) itself was affected by the Covid-19 pandemic, so that in 2020 it experienced negative returns of minus 5.09% and reached its lowest position in March 2020 at 3,911.72. Previous studies that support include ((He et al., 2020); (Junaedi & Salistia, 2020); (Zhao et al., 2020))

5. Conclusions and suggestions

5.1. Conclusions

Based on the results of statistical tests obtained the following results:

1. Foreign Direct Investment has a significant and positive influence on the Development of the Indonesian Capital Market.
2. Exchange Rates have a significant and positive influence on the Development of the Indonesian Capital Market.
3. Interest Rates have a significant and negative influence on the Development of the Indonesian Capital Market.
4. The Dow Jones Stock Market Index has a significant and positive influence on the Development of the Indonesian Capital Market.
5. The Covid-19 pandemic has a significant and negative impact on the Development of the Indonesian Capital Market.

5.2. Suggestions

The suggestions that can be submitted are:

1. Due to the importance of the flow of foreign investment into Indonesia in order to increase the development of the capital market which in the future can have implications for economic growth in the form of employment and income per capita, it is therefore recommended that the government is

expected to conduct a review and analysis of investment development domestic investors to foreign investors, unifying various policies that affect the investment climate, making increasing investment contributions to productivity growth and sustainable inclusiveness and presenting the efforts and results of investment in Indonesia so far to the international arena. All of that is in order to attract more foreign investment from foreign countries.

2. There are several things that can be considered by policy makers in dealing with the weakening of the rupiah exchange rate and economic instability due to the pandemic, namely the government must be aware of the increase in the prices of the basic needs of the community, among others by promoting the use of local or domestic production in meeting the basic needs of the community. Start limiting imports of consumer goods, importing oil and increasing exports so that there is a balance. However, there is a positive side to a weak exchange rate, among others, investment in Indonesia becomes cheaper in the eyes of foreign countries, which in turn can trigger foreign investment. In addition, the weakening rupiah made the prices of local products more competitive (cheaper) in the global market. When compared to other countries, Indonesia is not the only country whose currency exchange rate has weakened against the Dollar. Some developed countries such as Canada, Japan, Europe also experienced it.
3. The Covid-19 pandemic has had a significant impact on the Indonesian economy, the government is advised to take a mix of economic policies, both fiscal and monetary policies, to restore stability to the Indonesian economy, which can have implications for the development of the Indonesian capital market, which in turn can increase employment and increase income. per capita. Things that can be taken include firstly accelerating treatment and wider transmission, secondly maintaining people's purchasing power by reducing the burden of costs that are directly under the government's control, including reducing electricity, telecommunications, fuel, gas and clean water tariffs, third the need for supervision and equitable distribution of social assistance distribution for people in need.

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Towards Sustainable Consumption: Driving Forces behind Bangladeshi Consumers' Behavior

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Abstract

If stakeholders, service providers, and social systems adopt sustainable consumption behavior and regulate the production and consumption cycle, they may be facilitated to accomplish sustainable development with environmental and socioeconomic advantages. However, the purpose of this study was to look at the driving forces that influence consumer behavior in Bangladesh in terms of sustainable consumption. A quantitative survey was conducted among 384 participants aged ≥ 18 years and having minimum higher secondary educational qualifications. The data were collected from Khulna City Corporation of Bangladesh through a structured interview schedule using the convenience sampling technique. The results reported that environmental concern of the participants was found to be the top-ranked driving force and perceived environmental knowledge of the participants was the lowliest ranked driving force behind the consumers' behavior towards sustainable consumption. Alongside, attitude towards eco-friendly products, perceived consumer effectiveness and sustainable consumption intention were found to be the second, third and fourth ranked driving forces, respectively. The authors hope and anticipate that the findings of this paper will give critical information to relevant authorities and policymakers in order to develop market research and management policies and strategies.

Keywords: Sustainable Consumption, Driving Forces, Bangladeshi Consumers' Behavior

1. Introduction

The major obstacles to achieve sustainable development are unsustainable consumption patterns. The final goal of a society and the world cannot be accomplished towards the three fundamental directions of sustainable development without modifying our daily consumption patterns (Jaiswal & Singh, 2018; Joshi & Rahman, 2015; Peattie, 2010). Sustainable consumption possesses a modern approach to managing the economic demand side and not just focus on financial advantages, but also social and environmental welfare focus. These might thus make a significant contribution towards the ultimate objective of environmental sustainability. Consequently, the optimization of financial gain and generating commercial value for products that support the environment have

become the main sustainable marketing policy (Bonini & Oppenheim, 2008; Haron et al., 2005; Jaiswal & Singh, 2018).

It has already been estimated that consumers and interested parties have become more aware of environmental issues in this 21st century such as pollution, generation of waste and climate change. Therefore, they are now moving towards sustainable consumption practices for the well-being of future generations (Laroche et al., 2001; Ottman, 2011; Weber et al., 2015; Wei et al., 2017). The concept of sustainable or green consumption has therefore been initiated in the existing green consumerism context as a priority for academic researchers, practitioners and policymakers. Recognizing the driving forces that influence consumer behavior towards sustainable or green consumption helps government and authorities to create effective standards and regulations in an attempt to transform the production process of a firm or company. Evidence indicates that the user supports environmentally safe products like eco-labeling, environmental donations or recyclable packaging (Bartels & Hoogendam, 2011; Bougherara & Combris, 2009; Haron et al., 2005; Weber et al., 2015; Wei et al., 2017). Nevertheless, availability for environmentally friendly commodities did not correspond with the consumer environmental understanding and market support in the Asian countries (Chan, 2001; Jain & Kaur, 2006; Jaiswal & Singh, 2018; Lai & Cheng, 2016; Mostafa, 2007b; Wang et al., 2014).

Most of middle and higher-class communities' personnel are engaged in unnecessary consumption in Bangladesh. It has been documented that garbage of about 13,332 tons including 70% or more of organic waste, are produced per day in the capital city. Accordingly, residential sections consume about 53% of total electric energy, compared to 28% for industrial sections in this city. Moreover, the residential sections are consumed about 48% of the total electric energy that is generated in the country. The most efficacious choice for meeting global demand may be environmentally conscious use and energy conversion. Responsible, secure and efficient energy consumption may save about BDT 51 billion on aggregate per year. Furthermore, 30 gallons of water per head are wasted daily during homework, including washing dishes, brushing, showering, car washing, toilets etc. Unless we behave responsibly towards our pattern of consumption, we will surely experience catastrophic damage to the environment (Hossain, 2018; Programme, 2018).

This situation in Bangladesh emphasizes the requisite for studies on sustainable consumption. Moreover, according to our best knowledge, only a study has been conducted to determine influencing factors towards sustainable consumption (Hossain, 2018) and no studies have been conducted in Khulna city. Thus, the goal of this research was to investigate the driving forces that drive the consumers' behavior towards sustainable consumption in Bangladesh. This study will enable governments, policymakers and authorities to establish effective standards and regulations in the current world of globalization and sustainable development to evolve target markets.

2. Conceptual framework

A wide range of environmental difficulties confronted by the consumers could be the principal reason for changing from conventional and non-green consumption behaviors to greener or sustainable consumption patterns. The sustainable/environmental responsible consumption behavior is described as consuming sustainable/environmental responsible goods that are "protective/adaptable," "reusable/preserve able" and "compassionate/effective" (Mostafa, 2007a). Environmental and sustainable consumption behavior is not only a concern to buy green goods; but also consumers buy green goods because they will be benefited immediately from consumption (Vermillion & Peart, 2010). Consumers are aiming to change the environment through green or sustainable consumption, as reported by (Dagher & Itani, 2012). Consumers are adding a paradigm shift, namely the extent of corporate social responsibility towards environment and sustainability, while consuming products commercially available, added by (Kotler, 2011).

Therefore, the core philosophy of sustainable consumption incorporates a variety of principles that are consistent with the different processes of the determination of the motivating forces behind consumer behavior (Carrete et al., 2012; Chen & Chai, 2010; Ertz et al., 2016; Jaiswal & Singh, 2018; Kim, 2011; Kim & Choi, 2005; Lee, 2008; Mostafa, 2006; Newton & Meyer, 2013; Paul et al., 2016). Research has been shown that the environmental concerns of the consumer affect their positive attitude and behavior towards environmentally-friendly, green and

sustainable consumption behavior (Mostafa, 2007a; Paul et al., 2016; Yadav & Pathak, 2016). Several researchers in the field of sustainable consumption behavior have considerably emphasized on perceived consumer effectiveness following environmental concerns. They specifically expressed that the perceived consumer effectiveness is one of the largest measures of consumers' behavior towards sustainable consumption (Dagher & Itani, 2014; Jaiswal & Singh, 2018; Kim & Choi, 2005; Tan, 2011). Accordingly, various researchers have been suggested that the environmental knowledge of the consumers affects their positive attitude substantially and affects further their green or sustainable purchasing and consumption behavior directly and/or indirectly (Lai & Cheng, 2016; Mostafa, 2007a; Paul et al., 2016). With regard to attitude towards eco-friendly products interrelationship with sustainable consumption behavior, many scholars have reported that this attitude is a significant determinant of motivation in the environmental and sustainable behavior study and that the optimistic attitude towards eco-friendly products of the consumers will contribute to increased degree of green and sustainable consumption behavior (Chan, 2001; Lai & Cheng, 2016; Lee, 2008; Yadav & Pathak, 2016). Researchers have consistently reported that the green or sustainable consumption intention is a significant determinant of sustainable consumption behavior in the several literature of green or sustainable consumer psychology (Akehurst et al., 2012; Kanchanapibul et al., 2014; Kumar et al., 2017; Lai & Cheng, 2016; Mostafa, 2007b; Wei et al., 2017; Yadav & Pathak, 2016).

The assessment for the sustainable consumption behaviors may be summarized through five driving forces: (a) environmental concern (consumers' engagement and eagerness to deal with issues related to the environment reflects their good environmental conservation approach); (b) perceived consumer effectiveness (a person expectation or interpretation about one's activities may lead effectively to preserve the ecosystem); (c) perceived environmental knowledge (a person with a deep overview of environmental issues including pollution, recycling, the use and utilization of resources, renewable energies and other green technologies); (d) attitude towards eco-friendly products (consumer's convictions or thoughts about goods and services that are beneficial to the environment and their ecological consequences in consideration with favorable and unfavorable movements); (e) sustainable consumption intention (Eagerness and purchasing choices for products that are environmentally sound).

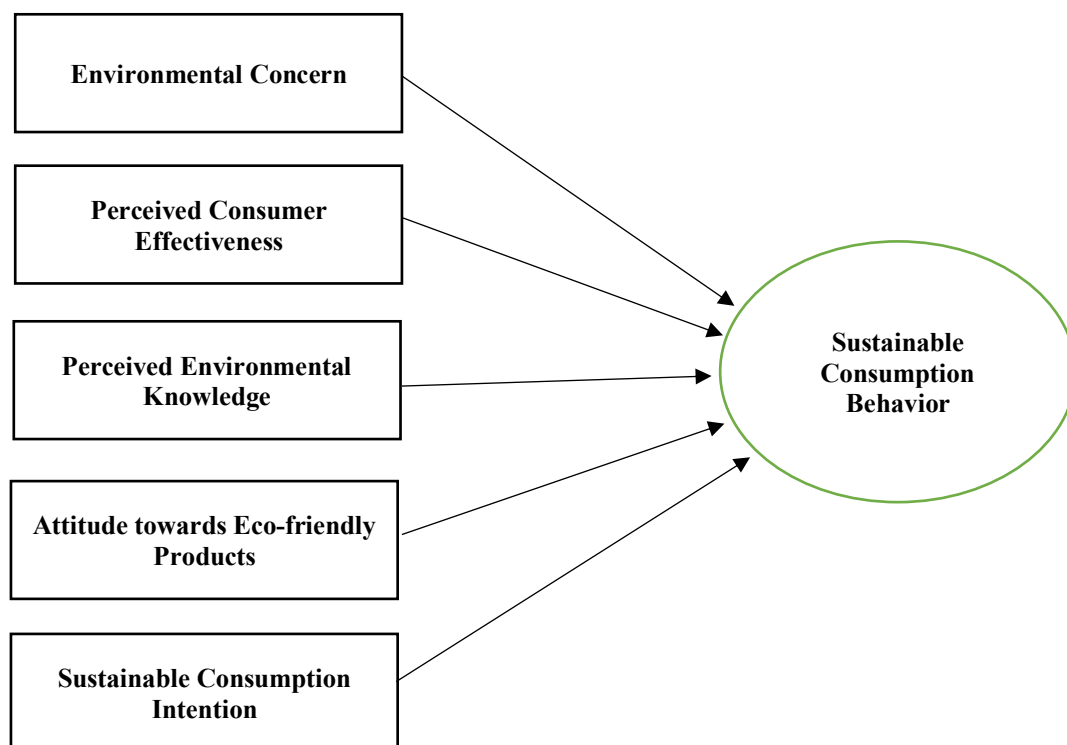


Figure 1: A conceptual framework

3. Material studied, area descriptions, methods and techniques

3.1. Study sites

A quantitative survey was taken to ascertain how environmental concern, perceived consumer effectiveness, perceived environmental knowledge, attitude towards eco-friendly products and sustainable consumption intention influence consumers' behavior towards sustainable consumption in Bangladesh. We placed the spatial emphasis on Khulna City Corporation (KCC) under Khulna district (South-western region) of Bangladesh based on the author's flexibility and availability to conduct the study.

Locating in the south-western region of the country, KCC is the third-largest city and second port entry of the country and covers an area of around 45.65 km² including around 1.5 million population. In 1884, KCC had been established as a Pouroshava (local government municipalities), which was later promoted as a Municipal Corporation in 1984 and declared as City Corporation in 1990. This City Corporation is comprised of 5 thanas (a kind of sub-district) and 31 wards (Banglapedia, 2014; Corporation, 2019). However, this study was carried out in Khulna Sadar thana and Sonadanga thana, which includes two largest residential areas of the city. Study area was selected by using purposive sampling.

3.2. Sample size determination and collection of data

In this analysis, we used only primary data to accomplish the study objective. In order to collect primary data on the driving forces behind consumers' behavior, a quantitative survey using an interview schedule with face-to-face conversations was carried out in the research sites. Respondents aged ≥ 18 years and having minimum higher secondary educational qualifications, were selected for this study by using purposive convenient sampling. Respondents who were willing to participate, were interviewed until the determined sample size has achieved. We had used the corresponding widely used formula for determining the sample size (Naing et al., 2006):

$$n = \frac{Z^2 P (1 - P)}{d^2}$$

Where n = Sample size; n' = Sample size with finite population correction; Z = The standard normal deviate, corresponding to a significance criterion of 0.05 (95%) = 1.96; d = Margin of error, we will tolerate which is ± 0.05 ; P = Incidence rate or proportion predicted, corresponding to a significance criterion of 0.5 (50%), we had included total 422,730 population including 250,651 population from Khulna Sadar thana and 172,079 population from Sonadanga thana (Banglapedia, 2014).

$$n = \frac{(1.96)^2 \times 0.5 (1 - 0.5)}{(0.05)^2} = 384.2$$

Therefore, we had enrolled 384 participants from the two study sites. To reduce the variance, we had used stratified sampling for data collection including 228 participants from Khulna Sadar thana and 156 participants from Sonadanga thana. The survey was conducted between the time span September, 2019 to January, 2020.

3.3. Research instruments

This research included standardized validated scales with few adjustments in order to evaluate environmental concern, perceived consumer effectiveness, perceived environmental knowledge, attitude towards eco-friendly products, sustainable consumption intention and sustainable consumption behavior in Bangladeshi context (Carrete et al., 2012; Chen & Chai, 2010; Ertz et al., 2016; Jaiswal & Singh, 2018; Kim, 2011; Kim & Choi, 2005; Lee, 2008; Mostafa, 2006; Newton & Meyer, 2013; Paul et al., 2016) that is reported in Table 1. All scale items have been based on a 3-point Likert scale ranging from 1 (disagree) to 3 (agree) with the exception of a 3-point Likert scale of the sustainable consumption behavior ranged between 1 (never) and 3 (always).

Table 1: Descriptive statistics analysis on driving forces of sustainable consumption behavior

Drivers		Mean	Std. Dev.
Environmental Concern			
EC1	I am worried about the worsening quality of the environment in Bangladesh	2.55	0.717
EC2	Bangladesh's environment is my major concern	2.65	0.604
EC3	I am emotionally involved in environmental protection issues in Bangladesh	2.33	0.783
EC4	I often think about how the environmental quality in Bangladesh can be improved	2.53	0.715
Perceived Consumer Effectiveness			
PCE1	Each person's behavior can have a positive effect on society by signing an appeal in support of promoting the environment	2.25	0.704
PCE2	I feel capable of helping solve the environmental problems	1.94	0.790
PCE3	I can protect the environment by buying products that are friendly to the environment	2.42	0.753
PCE4	I feel I can help to solve natural resource problems by conserving water and energy	2.32	0.751
Perceived Environmental Knowledge			
PEK1	I am very knowledgeable about environmental issues	2.05	0.841
PEK3	I know more about recycling than the average person	1.74	0.817
PEK3	I know how to select products and packages that reduce the amount of landfill waste	1.47	0.577
PEK4	I understand the environmental phrases and symbols on product package	1.81	0.804
PEK5	I know that I buy products and packages that are environmentally safe	1.74	0.822
Attitude towards Eco-friendly Products			
AEP1	I like to purchase eco-friendly products	2.43	0.618
AEP2	I have a favorable attitude towards purchasing a green version of a product	2.22	0.742
Sustainable Consumption Intention			
SCI1	I intend to reduce household's energy and water consumption	2.37	0.757
SCI2	I intend to spend on environmental friendly products	2.12	0.801
SCI3	I intent to avoid excessive packaging and polythene bag	2.27	0.739
Sustainable Consumption Behavior			
SCB	I choose to buy products that are reusable and/or recyclable and/or repairable and/or environment friendly	2.51	0.723

3.4. Statistical analysis

Depending on the descriptive and inferential statistics, the data were processed, analyzed and interpreted. Descriptive statistics present frequency, percentage, mean and standard deviation. Inferential statistics include Spearman's correlation to evaluate the association between sustainable consumption behavior and related drivers and principal component analysis (PCA) to investigate the driving forces of consumers' behavior towards sustainable consumption. By considering p-value <0.05 as statistical significance, the analysis was conducted in SPSS 20.0 Windows version.

4. Results and discussion

4.1. General characteristics of the participants

The general characteristics of the study participants are presented in Table 2. A total of 251 (65.4%) participants were male. The age group estimates of the participants appeared nearly identical, with about 52.6% (n= 202) of the participants aged ≥ 26 years including an average age of 29.25 (± 8.71) years. Educational status revealed that the majority of the participants were higher educated, with about 81.5% (n= 313) participants at least having a graduation degree. The majority of the participants (n= 302, 78.6%) were from a nuclear family. Approximately,

71.1% (n= 273) of the participants reported that their family income was ≤ 40000 BDT (≈ 471.87 USD) with an average of 38804.69 (± 9350.77) BDT (≈ 457.77 USD) per month.

Table 2: General characteristics of the participants

Characteristics	Frequency	Percentage
Age (years)		
18-25	182	47.4
≥ 26	202	52.6
	Mean = 29.25	Std. Dev. = 8.71
Gender		
Male	251	65.4
Female	133	34.6
Education		
Higher Secondary	71	18.5
Graduation	167	43.5
Post-graduation or more	146	38.0
Family type		
Extended	82	21.4
Nuclear	302	78.6
Family income per month (BDT)		
≤ 40000	273	71.1
> 40000	111	28.9
	Mean = 38804.69	Std. Dev. = 9350.77

4.2. Correlation between the related drivers and sustainable consumption behavior

The findings of the Spearman's correlation analysis are demonstrated in (Table 3). All the drivers under environmental concern are positively and significantly associated with the participants' sustainable consumption behavior. Among the drivers, EC1 is strongly correlated with SCB. EC2 and EC2 are moderately correlated and EC4 is weakly correlated with SCB of the participants, respectively. Accordingly, all the drivers under perceived consumer effectiveness are significantly associated with the participants' sustainable consumption behavior. Among the drivers, PCE3 is weakly and negatively correlated and PCE1, PCE2 and PCE3 are weakly and positively correlated with SCB of the participants, respectively. Two drivers under perceived environmental knowledge including PEK1 and PEK3 are weakly, negatively and significantly associated with the participants' sustainable consumption behavior. In addition, all the drivers under attitude towards eco-friendly products are moderately, positively and significantly associated with the participants' sustainable consumption behavior. Accordingly, all the drivers under perceived consumer effectiveness are significantly associated with the participants' sustainable consumption behavior. Among the drivers, SCI3 is weakly and negatively correlated and SC11 and SC12 are moderately and positively correlated with SCB of the participants, respectively.

Table 3: Correlation analysis between the related drivers and sustainable consumption behavior

Related Drivers	Sustainable Consumption Behavior (SCB)	
	R	p-value
EC1	0.718	<0.001**
EC2	0.334	<0.001**
EC3	0.472	<0.001**
EC4	0.298	<0.001**
PCE1	0.245	<0.001**
PCE2	0.120	0.019*
PCE3	-0.175	0.001**
PCE4	0.204	<0.001**
PEK1	-0.110	0.032*
PEK2	-0.079	0.120
PEK3	-0.114	0.025*
PEK4	0.009	0.858
PEK5	0.074	0.147
AEP1	0.549	<0.001**

AEP2	0.523	<0.001**
SCI1	0.412	<0.001**
SCI2	0.442	<0.001**
SCI3	-0.179	<0.001**

*p-value <0.05 (2-tailed); **p-value <0.01 (2-tailed).

4.3. Principal Component Analysis

In total, 18 variables (environmental concern= 4, perceived consumer effectiveness= 4, perceived environmental knowledge= 5, attitude towards eco-friendly products= 2, sustainable consumption intention= 3) were used in this research to investigate the factors relating to sustainable consumption behavior of the participants. Twelve (12) factors are identified as possible interpretations of the correlated variables, which are comparable from the predicted (18) variables, based on the PCA analytical model (Table 4). Based on significant level (0.5), six variables have been loaded significantly by the first factor, two variables have been loaded significantly by second factor, two variables have been loaded significantly by third factor, and only one variables have been loaded significantly by the fourth, fifth and sixth factor, successively.

Table 4: Rotated component factor loading, total variance, Kaiser–Meyer–Olkin measure of sampling adequacy and Bartlett's test of sphericity

Factor No.	Drivers	Driving Forces	Factor Loading	Communalities
1	SCI2	Sustainable Consumption Intention*	0.856	0.753
	SCI1	Sustainable Consumption Intention*	0.823	0.742
	AEP2	Attitude towards Eco-friendly Products*	0.666	0.713
	AEP1	Attitude towards Eco-friendly Products*	0.608	0.731
	PCE4	Perceived Consumer Effectiveness*	0.598	0.653
	EC1	Environmental Concern*	0.578	0.730
2	SCI3	Sustainable Consumption Intention	-0.777	0.702
	EC4	Environmental Concern*	0.773	0.723
	EC3	Environmental Concern*	0.669	0.794
3	EC2	Environmental Concern*	0.760	0.627
	PEK5	Perceived Environmental Knowledge*	0.738	0.692
4	PEK2	Perceived Environmental Knowledge	-0.674	0.464
	PCE1	Perceived Consumer Effectiveness*	0.646	0.589
	PEK3	Perceived Environmental Knowledge	-0.590	0.753
5	PCE2	Perceived Consumer Effectiveness	-0.830	0.707
-	PEK4	Perceived Environmental Knowledge	-	0.462
6	PEK1	Perceived Environmental Knowledge	-0.829	0.707
	PCE3	Perceived Consumer Effectiveness*	0.569	0.702

Kaiser-Meyer-Olkin Measure of Sampling Adequacy: 0.621

Bartlett's test of sphericity χ^2 (df): 2504.36 (153)

p-value <0.001

% of variance: 68.02

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 9 iterations.

*Value of factor loading and communalities >0.5.

By considering the factor loading and communalities value >0.5, this study has found twelve variables under the listed five driving forces to examine rank order of driving forces behind the consumers' behavior towards sustainable consumption (Table 5). Environmental concern was found to be the top ranked driving force behind consumers' behavior towards sustainable consumption. On the contrary, perceived environmental knowledge was found to be the lowliest ranked driving force. Alongside, attitude towards eco-friendly products, perceived consumer effectiveness and sustainable consumption intention were found to be the second, third and fourth ranked driving forces, respectively.

Table 5: Driving forces ranked model

Driving Forces	No. of Variables	No. of Variables Control with Factor Loading, N (%)	Rank
Environmental Concern	4	4 (100%)	I
Perceived Consumer Effectiveness	4	3 (75%)	III
Perceived Environmental Knowledge	5	1 (20%)	V
Attitude towards Eco-friendly Products	2	2 (100%)	II
Sustainable Consumption Intention	3	2 (66.7%)	IV

4.4. Discussion

This research is focused on prior researches and demonstrates empirical evidence for such studies and adds the green or sustainable consumption behavior literature through the findings. There was a substantial relationship that has been found between green procurement and diverse drivers under five driving forces: environmental concern, perceived consumer effectiveness, perceived environmental knowledge, attitude towards eco-friendly products, sustainable consumption intention. These five driving forces might be used to optimize the green or sustainable consumption behavior of the consumers.

With regard to the environmental concern aspect, the much more a consumer is concerned regarding his environment, the greener goods this customer would consume. The concern is the psychological interest of the consumer in the environmental issue. This study found that environmental concern is the highly significant and top ranked driving force behind the consumers' behavior towards sustainable consumption. The positive association between environmental concerns and the sustainable or green consumption behavior was confirmed as previous findings by (Datta, 2011). With more concern people had for their environment, the much more sustainable or green consumption behavior had been developed, as indicated in the previous study by (Dagher & Itani, 2012). The findings of this research reveal that the attitude towards eco-friendly products calculation has been demonstrated to be the effectively significant and second ranked driving force for the sustainable consumption behavior of the consumer. The much more satisfactory attitude towards eco-friendly products contributes to a higher consumer behavior for green and environmentally friendly products which is consistent with previous study findings by (Chan, 2001; Jaiswal & Singh, 2018; Kumar et al., 2017; Wei et al., 2017). The perceived consumer effectiveness calculation has a positive and significant relationship to attitude towards green or eco-friendly products and thus contributes to consumer behavior in the direction of sustainable consumption, as reported by (Jaiswal & Singh, 2018; Kang et al., 2013; Tan, 2011). Accordingly, our study found that all the drivers under perceived consumer effectiveness expect one are significantly correlated with the sustainable consumption behavior and third ranked driving forces behind the consumers' behavior. Furthermore, sustainable consumption intention of the participants was found to be the fourth ranked driving force towards sustainable consumption behavior in this study. Whereas, previous research has reported sustainable or green consumption intention to be the strongest determinant of sustainable or green consumption behavior (Chan, 2001; Jaiswal & Singh, 2018; Kumar et al., 2017; Wei et al., 2017). This is inconsistency to our study. Nevertheless, perceived environmental knowledge was identified as the lowliest driving force towards sustainable consumption behavior of the participants in this study. There was no important relationship between perceived environmental knowledge and sustainable consumption behavior here in this research, which is that these results are closely similar line with the analysis by (Chan, 2001; Jaiswal & Singh, 2018) in the context of Asia. These results have implications on the design of policies, strategies and programs that support people and businesses in Bangladesh to maintain and strengthen sustainable consumer behavior.

5. Limitations and further research

While the results of this study identified and improved the conceptual framework of sustainable consumption behavior in accordance with the basic and literature context, there was little consideration of limitations on the particular subject under this study. Small sample size is the first limitation of this study. Future research should attempt to collect data from a larger sample. Data from a larger sample should be obtained in further researches. Secondly, a convenience sampling was used to collect data from a city corporation of Bangladesh which is also regarded as a major limitation of this study. Thus, the results do not represent the whole population Bangladesh.

Future research is recommended to conduct in other parts of the country. Thirdly, the research is focused completely on consumer responses. Future research should collect the data from other actors in order to analyze the significant implication of these five driving forces. Eventually, future researcher and scholars should analyze the theoretical foundation using a variety of other variables including eco-labeling, green advertising, green trust, and so on in the developing markets in Bangladesh. Last but not least, in the sense of emerging market economies in the current era of sustainable development, the authors hope and expect the findings of this article to provide crucial information for respective authorities and policy-makers to design market research and management policies and strategies.

Data availability

The data that support the findings of this study are not publicly available as the authors did not have ethical permissions to publish the data in a public repository. However, the data set may be available from the corresponding authors upon request.

Acknowledgement

The authors would like to recognize the kind assistance of the participants in this study. Furthermore, the authors would like to express their heartiest gratitude to all the stakeholders and enumerators for their immense support during data collection.

Conflict of interest

The authors declare no conflict of interest

Funding information

No finance has been received for this research.

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Workplace Spirituality, Perceived Organizational Support, and Organizational Citizenship Behavior

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Abstract

This research investigates the effect of workplace spirituality and perceived organizational support on the organizational citizenship behavior of the employees working at one of the factories in Magelang, Central Java, Indonesia. The number of employees becomes the population is 404, and the total samples are 198, obtained by the Isaac and Michael formula and taken by simple random technique. Moreover, we utilize the survey and structural equation model based on covariance to receive the responses from the employees through questionnaires and analyze the proposed effects through hypothesis examination. To conclude, this research demonstrates that workplace spirituality is needed to enhance employees' organizational citizenship behavior level. Meanwhile, perceived organizational support does not. Based on this evidence, some implications are also discussed.

Keywords: Workplace Spirituality, Perceived Organizational Support, Organizational Citizenship Behavior

1. INTRODUCTION

The employees are people working for the company. According to Ardana, Mujiati, and Utama (2012), before they are accepted as employees, the company needs to plan their number, recruit and select them. After receiving them, the company places them in the correct position, equips them with job-related knowledge, and trains them with skills. Furthermore, the company appoints human resource managers to handle these steps. Besides, Siddiqui (2014) explains that these managers need to ensure the company's goals get attained based on this employee performance

Generally, the company rewards the employees financially to motivate them to work well (Ardana et al., 2012). Unfortunately, not all employees can work well without the formal rewarding system. According to Organ (1997), the employees with this feature have a low level of organizational citizenship behavior (OCB). Additionally, elevating this OCB level is not easy for the company when its employees still search for physiological, safety, love, and esteem needs. In other words, the high OCB level will be attained if they already own the need to actualize themselves (Jayanti & Yuniawan, 2015).

In this research, we want to examine the effect of workplace spirituality on organizational citizenship behavior. This intention is due to the attention of scholars from various countries like Taiwan (Chiang & Hsieh, 2012), Malaysia (Nasurdin, Nejati, & Mei, 2013), Iran (Ahmadi, Nami, & Barvarz, 2014; Ghorbanifar & Azma, 2014), Indonesia (Jannah & Santoso, 2017; Ridlo, Wardhana, & Jessica, 2020; Utami, Sapta, Verawat, Astakoni, 2021), Pakistan (Ullah, Ahmad, & Naheed, 2020; Rehman, Jalil, Hassan, Naseer, & Ikram, 2021), and India (Dubey, Pathak, & Sahu, 2020), with different results. Only the study of Utami et al. (2021) cannot verify this impact. However, the others provide a positive causal relationship.

Besides workplace spirituality, we want to test the impact of perceived organizational support on organizational citizenship behavior. This destination is due to the attention of scholars for several countries, such as Malaysia (Asgari, Silong, Ahmad, & Samah, 2008; Osman, Othman, Rana, Solaiman, & Lal, 2015; Azim & Dora, 2016), South Africa (Mathumbu & Dodd, 2013), Kuwait (Muhammad, 2014), Indonesia (Jannah and Santoso 2017, Nurfalah 2021), and Pakistan (Ali, Rizavi, Ahmed, & Rasheed, 2018), and Iran (Asgari, Mezginejad, & Taherpour, 2020), with the different results. Only the study of Ali et al. (2018) cannot prove this influence. However, the others provide a positive causal association.

Additionally, this research utilizes the workers in one of the factories in Magelang. This factory belongs to the company established in 2008, and it started producing timber in 2009. Currently, this factory has plywood, laminated veneer board, laminated veneer lumber, blockboard, platform as the sold goods based on environmental-friendly production. Besides, this company adopts the five philosophies of Japanese cultural working: brief, set in order, shine, standardize, and sustain. Since the COVID-19 pandemic, this factory has followed and applied the health protocol based on Minister of Health Circular Letter No. HK.02.01/MENKES/216/2020.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1. The association between workplace spirituality and organizational citizenship behavior

Applying the employees from the hotels in Taiwan, Chiang and Hsieh (2012) discover that spiritual activities at work increase organizational citizenship behavior. In their investigation utilizing the employees in Malaysia, Nasurdin et al. (2013) examine the effect of three dimensions of workplace spirituality: meaning of work, community sense, and value alignment on organizational citizenship behavior. Then, they statistically conclude that the work meaning affects organizational behavior positively; however, the others do not. Through their study using employees from the banking industry in Iran, Ghorbanifar and Azma (2014) prove a positive relationship between workplace spirituality and organizational citizenship behavior. Similarly, this relationship is confirmed by Ahmadi et al. (2014) after investigating the employees in the Iranian high schools.

After researching the employees working in the local government institutions in Indonesia, a positive association between spirituality in the workplace and organizational citizenship behavior is affirmed by Jannah and Santoso (2017). Also, this tendency exists in the study of Ridlo et al. (2020) investigating the employees working in the branch office of the Muamalat Bank in Solo. Moreover, by using the workers from the manufacturing industry in Pakistan, Ullah et al. (2020) point out the positive connection between spirituality in the workplace and organizational citizenship behavior. Dubey et al. (2020) confirm this positive propensity after researching the employees in the manufacturing firms in India. The same evidence is obtained by Rehman et al. (2021) when

investigating the employees from the banking sector in Punjab, Pakistan. Based on several indications displayed in this section, we propose the first hypothesis:

H₁. The higher the spiritual in the workplace, the better employee citizenship behavior in the company.

2.2. The association between perceived organizational support and organizational citizenship behavior

Asgari et al. (2008) find a positive effect of perceived organizational support and organizational citizenship behavior when investigating the employees working in an educational institution in Iran. Furthermore, this effect is also confirmed by Mathumbu and Dodd (2013) after surveying the perception of the nurses working at the Victoria Hospital in Alice, Eastern Cape, South Africa. Correspondingly, this effect is also found by Muhammad (2014) when investigating 261 employees in nine companies in Kuwait.

In their study, Osman et al. (2015) document that perceived organizational support affects organizational behavior positively once investigating employees working at the American companies in Malaysia. Besides, a similar influence gets obtained by Azim and Dora (2016) when studying the employees in the multimedia firms in Malaysia. Again, Jannah and Santoso (2017) confirm this impact after investigating the employees working in the Indonesian local government organizations. Also, this tendency gets confirmed by Asgari et al. (2020) after studying the employees at the University of Birjand, Iran. Furthermore, Nurfalah (2021) confirms this indication once investigating the public senior high school teachers in Sukabumi, Indonesia. Based on several proofs displayed in this section, we propose the following second hypothesis:

H₂. The higher the perceived support, the better employee citizenship behavior in the company.

2.3. Research Model

After formulating hypotheses one and two, the subsequent step is to create the research model. Furthermore, this model is obtainable in Figure one, where WPS = workplace spirituality, POS = perceived organizational support, and OCB = organizational citizenship behavior.

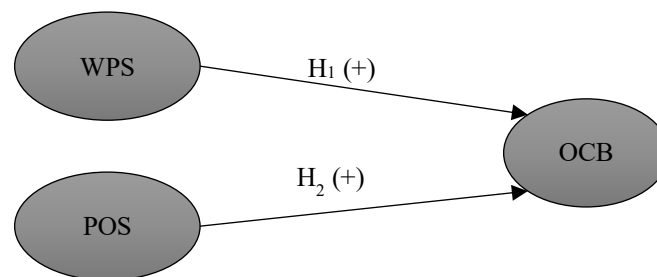


Figure 1: Research Model

3. Research Method

3.1. Variable measurement

In this study, we employ workplace spirituality as the exogenous variable. According to Ashmos and Duchon (2000), this spirituality has three dimensions: inner life, meaning at work, and community situation. Moreover, items to measure these dimensions are available in Table 1.

Table 1: The dimensions of workplace spirituality and their items

Dimension	Items
Inner life	I am optimistic about my life (IL1). My divine principle affects my choice (IL2). I assume that I am religious (IL3).

Table 1: The dimensions of workplace spirituality and their items

Dimension	Items
	Praying has become one of the essential parts of my life (IL4). I give attention to the divine well-being of my colleagues (IL5).
Meaning at work	I am happy to work with the company (MAW1). My other colleagues are glad because of what I do (MAW2). My works boost my spirit (MAW3). My works relate to what I consider vital in my life (MAW4). I cannot wait to work along the days (MAW5). I can connect my works with the greater good of society (MAW6). I know what contributes to my meaning in the workplace (MAW7).
Community situation	I become the part of the organization I work for (CS1) My manager helps to stimulate my working progress (CS2). I have several working experiences influencing my personal development (CS3). When I am worried, my manager stimulates me to confer my worries (CS4). When I have a concern, I tell it to the right individual (CS5). My colleagues and I work together to solve the tension in the company (CS6). I am reasonably assessed in the company (CS7). I am motivated to take risks when working (CS8). My manager respects me for what I do (CS9).

Source: Ashmos and Duchon (2000)

Meanwhile, we treat perceived organizational support (POS) and organizational citizenship behavior (OCB) as endogenous variables.

- a. Denoting to Eisenberger, Cummings, Armeli, and Lynch (1997), POS is measured by eight items:
 1. The company is interested in my ideas (POS1).
 2. The prosperity of the employee is my company concern (POS2).
 3. The company pays attention to my objectives and idealism (POS3).
 4. The company assists me when I face trouble (POS4).
 5. The company will apologize for my faults if I honestly confess them (POS5).
 6. Although the chance exists, the company does not take benefits from me (POS6).
 7. The company significantly gives me significant devotion (POS7).
 8. The company is ready to contribute to me if I need exceptional support (POS8).
- b. OCB consists of five dimensions: altruism, conscientiousness, sportsmanship, courtesy, and civic virtue (Hoofman, Blair, Meriac, & Woehr, 2007). Furthermore, we refer to Lin, Lyau, Tsai, Chen, and Chiu (2010) for the utilized items. Additionally, they are in Table 2.

Table 2: OCB dimensions and their items

Dimension	Items
Altruism	I succor my unattended colleagues (ALT1). I succor my colleagues in taking significant loads (ALT2). I succor new colleagues, although they do not need my assistance (ALT3). I succor my colleagues with work matters (ALT4).
Conscientiousness	I lessen the personal chat with my co-workers during work (CONS1). I lessen the involvement of unrelated chat with works (CONS2). I arrive at the office early when the demand for it exists (CONS3). I can obey the rules without being supervised (CONS4).
Sportsmanship	I do not protest about unimportant matters (SPT1). I devote myself to the truth (SPT2). I tend to be tranquil (SPT3). I do not seek for the organization's faults (SPT4).
Courtesy	I make working synchronization in the office (CT1).

Table 2: OCB dimensions and their items

Dimension	Items
	I consider the impact of my treatment on colleagues (CT2).
	I willingly join the meeting in the office (CT3).
	I like to coordinate a meeting in the office (CT4).
Civic virtue	I exist in unimportant meetings that upsurge company image (CV1).
	I keep pursuing the dynamic situation in the company (CV2).
	I recite and follow notes and announcements at the workplace (CV3).
	I take the time to give the best for the company (CV4).

Source: Lin et al. (2010)

3.2. Population and Samples

The employees working in *PT Prima Wana Kreasi* Wood Industry become the population of this study. According to the company data, their number is 404. To determine the number of samples (n) signifying the total population, we use the Isaac and Michael formula using P, Q of 0.5, d of 0.05, and a significance level (α) of 5% to calculate the χ^2 -statistic. Furthermore, this formula referring to Sugiyono (2012) appears in equation one.

$$n = \frac{\chi^2 \text{ statistic} \cdot N \cdot P \cdot Q}{d^2(N-1) + \chi^2 \text{ statistic}(0.5)(0.5)} = \frac{\chi^2 \text{ statistic} \cdot N \cdot (0.5)(0.5)}{0.05^2(N-1) + \chi^2 \text{ statistic}(0.5)(0.5)} \dots\dots\dots (1)$$

By applying this formula, the total samples (n) = $\frac{3,841 \cdot (404) \cdot (0.5)(0.5)}{0,05^2(404-1) + 3.841(0.5)(0.5)} = \frac{404}{1.97} = 197.162 \approx 198$ employees, taken by a simple random sampling technique.

3.3. The technique of grabbing the response

We use the survey as the technique to grab the data. According to Hartono (2012), the survey captures the responses by demanding the workers fill in the questionnaires. Additionally, to measure the agreement response, we use the Likert scale consisting of five points, an interval, as Sekaran and Bougie (2016) elucidate. Moreover, this survey was carried out in October 2020 in Magelang onsite.

3.4. Model for analyzing the data

We use the structural equation model with a covariance basis by denoting the features of the variables in the measurement section. This model is operated because the variables used are unobservable, and the total samples next to 200, as Ghozali (2005) explains. Moreover, this model is presented in equation two.

$$OCB = \beta_1 WPS + \beta_2 POS + \zeta_1 \dots\dots\dots (2)$$

Because of this circumstance, we need to examine validity, reliability, and model fitness (Ghozali, 2014). Furthermore, we use confirmatory factor and Cronbach Alpha analyses to check validity and reliability by following the information:

- In confirmatory factor analysis, the answer to items will be valid if the loading factor is above 0.5. If this circumstance is not achieved, their response is inaccurate; hence, the related indicators must be removed (Ghozali, 2014).
- In the Cronbach alpha analysis, the answer to items will be reliable if the Cronbach Alpha is above 0.7. If this circumstance is not achieved, the answer is unreliable (Ghozali, 2016).
- In detecting the model fitness, we use the Chi-square to the degree of freedom ratio (CMIN/DF), Root Mean of Square Error Approximation (RMSEA), and Parsimony ratio (P-RATIO). Additionally, the cut-off value to assess the model follows Ghozali (2014): If CMIN/DF is less than two, RMSEA is between 0.05 and 0.08, P-RATIO is below 0.6, the data fit with the model.

4. RESULT AND DISCUSSION

4.1. Result

Table three informs the demographic aspects of the 198 workers involved in this survey. This survey is dominated by women, and workers with age 20 to 29 years (116 persons), married status (178 persons), formal education from senior high school (92 persons), and working tenure below one year (72 persons).

Table 3: Demographic Aspects

Aspect	Descriptive category	Total
Gender	Man	82
	Woman	116
Age	From 20 to 29 years	91
	From 30 to 39 years	81
	From 40 to 49 years	18
	From 50 to 59 years	8
Marital status	Married	178
	Unmarried	73
Education	Elementary	14
	Junior high school	87
	Senior high school	92
	Vocational school	3
	Bachelor school	2
Working tenure	From 1 month until 1year	72
	From 13 until 24 months	42
	From 25 until 36 months	36
	From 37 until 48 months	32
	From 49 until 60 months	15
	Above five years	1

Source: Researcher database

After running the confirmatory factor analysis at first, we delete items with a loading factor below 0.5. As a result, we find that IL2, IL5, MAW3, MAW4, MAW7, CS1, and CS2 are the indicators with the valid response for workplace spirituality dimensions and the dimensions reflecting workplace spirituality: IL, MW, and CS because the loading factor is above 0.5: 0.535, 0.501, 0.625, 0.532, 0.627, 0.738, 0.563, 0.629, 0.766, and 0.999 (see Table 4). Also, the composite reliability coefficients are above 0.7, i.e., 0.776, 0.799, 0.829, and 0.803 (see Table 4). It means that the valid answers are consistent.

Table 4: The loading factors and composite reliability coefficients of the indicators and dimensions reflecting workplace spirituality

Position	Symbol	Inner Life (IL)	Meaning at Work (MAW)	Community Situation (CS)	Workplace Spirituality (WPS)
Indicator	IL2	0.535			
	IL5	0.501			
Indicator	MAW3		0.625		
	MAW4		0.532		
	MAW7		0.627		
Indicator	CS1			0.738	
	CS2			0.563	
Dimension	IL				0.629
	MAW				0.766

Table 4: The loading factors and composite reliability coefficients of the indicators and dimensions reflecting workplace spirituality

Position	Symbol	Inner Life (IL)	Meaning at Work (MAW)	Community Situation (CS)	Workplace Spirituality (WPS)
	CS				0.999
Composite reliability coefficient		0.776	0.799	0.829	0.803

Source: Modified output of IBM SPSS AMOS 19

Similarly, we show that POS1, POS2, POS3, POS4, POS5, and POS8 become the indicators with the accurate response for perceived organizational support. It is due to the loading factor above 0.5: 0.519, 0.515, 0.606, 0.700, 0.555, and 0.612 (see Table 5). Furthermore, the composite reliability coefficient for these items is 0.833 (see Table 5). It means that the accurate answers are consistent.

Table 5: The loading factors and composite reliability coefficient of the indicators reflecting perceived organizational support

Indicator	Loading factor	Composite Reliability Coefficient
POS1	0.519	0.833
POS2	0.515	
POS3	0.606	
POS4	0.700	
POS5	0.555	
POS8	0.612	

Source: Modified output of IBM SPSS AMOS 19

Likewise, we find that ALT1, ALT2, ALT3, ALT4, CONS1, CONS3, SPT1, SPT3, CT1, CT2, CT4, CV1, and CV3 are the indicators with the accurate response for OCB dimensions. It is due to the loading factor above 0.5: 0.694, 0.578, 0.581, 0.663, 0.522, 0.623, 0.551, 0.501, 0.868, 0.535, 0.699, 0.610, and 0.599, as Table 6 exhibits. Although the responses for the courtesy are valid, the dimension of courtesy cannot reflect OCB well (see the loading factor of CT below 0.5: 0.187 in Table 6). Unlike courtesy, the other dimensions can reflect the OCB because their loading factors are above 0.5. In the same table, the composite reliability coefficients are above 0.7, i.e., 0.830 for ALT, 0.797 for CONS, 0.778 for SPORT, 0.849 for CT, 0.811 for CV, and 0.781 for OCB. It means the reliability result is already encountered: the accurate answers are reliable.

Table 6: The loading factors and composite reliability coefficients of the indicators and dimensions reflecting organizational citizenship behavior

Position	Symbol	Altruism (ALT)	Consciousness (CONS)	Sportsmanship (SPT)	Courtesy (CT)	Civic Virtue (CV)	OCB
Indicator	ALT1	0.694					
	ALT2	0.578					
	ALT3	0.581					
	ALT4	0.663					
Indicator	CONS1		0.522				
	CONS3		0.623				
Indicator	SPT1			0.551			
	SPT3			0.501			
Indicator	CT1				0.868		
	CT2				0.535		
	CT4				0.699		
Indicator	CV1					0.610	
	CV3					0.599	
Dimension	ALT						0.745
	CONS						0.881

Table 6: The loading factors and composite reliability coefficients of the indicators and dimensions reflecting organizational citizenship behavior

Position	Symbol	Altruism (ALT)	Consciousness (CONS)	Sportsmanship (SPT)	Courtesy (CT)	Civic Virtue (CV)	OCB
	SPT						0.731
	CT						0.187
	CV						0.969
Composite reliability coefficient		0.830	0.797	0.778	0.849	0.811	0.781

Source: Modified output of IBM SPSS AMOS 19

After that, the goodness of fit assessment results is presented in Table 7, i.e., CMIN/DF, RMSEA, and P-RATIO of 1.156, 0.053, and 0.886, respectively. Because these values meet the required circumstance, the model fits with the data.

Table 7: The assessment result of the goodness of fit

Assessment tools	Value	Required circumstance	Meaning
Chi-square to the degree of freedom ratio (CMIN/DF)	1.556	CMIN/DF < 2 (Ghozali, 2014)	Model fits with data.
Root Mean of Square Error Approximation (RMSEA)	0.053	0.05 < RMSEA < 0.08 (Ghozali, 2014)	Model fits with data.
Parsimony ratio (P-RATIO)	0.886	PRATIO > 0.60 (Ghozali, 2014)	Model fits with data.

Source: Modified output of IBM SPSS AMOS 19

Table 8 demonstrates the estimation result of path coefficients based on the structural equation model based on covariance. It shows that the probability of the critical ratio for a positive unstandardized path coefficient of WPS is ****: lower than 0.000 and significance level (α) of 0.05. Hence, the first hypothesis is accepted: workplace spirituality affects organizational citizenship behavior (OCB) positively. Meanwhile, the probability of the critical ratio for a positive unstandardized path coefficient of POS is 0.255 (see Table 8), upper than α of 0.05. For this reason, the positive sign is not meaningful statistically. Therefore, the second hypothesis is declined: perceived organizational support does not influence OCB.

Table 8: The estimation of path coefficients in the covariance-based SEM

Hypothesis	Causal association	Unstandardized path coefficient	Standard error	Critical ratio	Probability
One	WPS → OCB	0.610	0.171	3.572	***
Two	POS → OCB	0.141	0.124	1.138	0.255

Source: Modified output of IBM SPSS AMOS 19

4.2. Discussion

The first hypothesis testing result declares that workplace spirituality affects organizational citizenship behavior (OCB) positively. Workplace spirituality is the perception of employees on finding the life destination, the precious works, the support from managers and co-workers in the workplace. In this study context, although the implementation of three aspects is not perfect yet, reflected by a few valid and reliable items (see IL2 and IL5 for the inner life, MAW3, MAW4, and MAW5 for the meaning at work, CS1 and CS2 for community situation), this condition still elevates the OCB well. Therefore, this result is in line with the study of Chiang and Hsieh (2012), Ahmadi et al. (2014), Ghorbanifar and Azma (2014), Jannah and Santoso (2017), Ridlo et al. (2020), Ullah et al. (2020), Dubey et al. (2020), and Rehman et al. (2021).

The second hypothesis testing result declares that perceived organizational support does not influence OCB. By denoting Chinomona (2012), we interpret this fact that the workers do not experience the prosperity given by the

company yet. It happens because the workers dominantly participating in this survey have short-term work: 150 of 198 workers or 75.57%, work below or the same as three years. To feel prosperity, the workers have long working tenure. Therefore, this insignificant result is consistent with Ali et al. (2018) when investigating the employees around Lahore.

By considering the few accurate and reliable items of workplace spirituality, especially for community situations, the factory managers are expected to create a social atmosphere to work by helping the workers to stimulate their working progress, confer their worry, and respect their achievement. Besides, they are expected to improve the inner life of workers and the meaning of the work can hold religious and motivational meetings by inviting religious leaders and motivational speakers.

5. Conclusion

Investigating the influence of workplace spirituality and perceived organizational support on organizational citizenship behavior statistically becomes this research goal. To achieve this goal, we use 198 workers in one of the factories in Magelang as samples. Also, we employ the structural equation model based on covariance with its statistical features to examine this causal relationship. After testing the related hypotheses, we demonstrate that workplace spirituality positively influences organizational citizenship behavior. However, perceived corporate support does not. Therefore, workplace spirituality becomes the determinant to enhance employees' citizenship behavior in the workplace.

This research is conducted with some restrictions. Firstly, this research only employs the two determinants of OCB. To improve it, we suggest that the subsequent scholars utilize the other causing factors, for instance, work engagement, leadership style applied in the organization, leader-member exchange, job satisfaction, locus of control, well-being situation, and organizational commitment. Secondly, this study only employs the workers from one factory in Magelang. To improve it, we suggest the following researchers enlarge the scope of the area. For illustration, they can employ the workers in all factories in Central Java as their population and take them as samples by applying the name of the factory as the strata.

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Behavior Analysis Herding of Indonesian Stock Exchange (Case Study of Stocks Listed in LQ45 Index)

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Abstract

Decision making in the capital market is not always based on rational considerations. Investors' actions are also influenced by psychological characteristics that emerge as human innate nature. These psychological characteristics will encourage different investor reactions. This study aims to test the indications of behavior herding on the Indonesia Stock Exchange 2006 to 2010. This study uses a sample of companies listed in the LQ45 index of 62 companies. The herding detection method is the CSAD (Cross-Sectional Absolute Deviation) method from Chang et al (2000). The variables used were dispersion value, returns absolute market and returns market squares. The data return used is derived from returns weekly for 260 weeks. The results in this study are no discovery of behavior herding on the Indonesia Stock Exchange either overall (5 years) or every year.

Keywords: Psychological Characteristics, Behavior Herding and CSAD

1. Introduction

Investors in acting on the capital market are faced with investment decisions. The investment decision in question is the decision to buy, sell or maintain share ownership (Cahyadin and Milandari, in Puspaningtyas, 2013). The decisions he makes are based on rational reasons. Wendy (2012) argues that rational investors prioritize mathematical or statistical calculations before making risky investment decisions. In behavioral finance, theory explains that often psychological factors affect investor behavior so that investors act irrationally. Among the irrational behaviors is herding. behavior is Herding defined as the tendency of investors to imitate the actions of other market participants so that they ignore their information (Filip et al, 2015). Some previous studies explain that behavior herding often occurs during market stress (Chang et al, 2000 and Christie and Huang, 1995). In addition, it was also explained that developing country exchanges are "fertile ground" for the detection of behavior herding (Filip et al, 2015 and Lao and Singh, 2010) conditions Market stress occurred in Indonesia in 2008 which caused JCI to drop by 50.64% at the end of the year. Previous research explains that herding behavior causes inefficiency market, such as unstable price movements and the emergence of price bubbles that have implications for returns for portfolio and risks (Peterson et al, 2004).

In Asia research on herding has been carried out in recent years. Gunawan et al (2011) prove that behavior occurs herding on all Asia Pacific stock exchanges. Wijaya and Nuffus (2013) examined behavior herding on the Indonesian stock exchange and did not find any behavior herding from 2008 to 2012. Zheng et al (2017) found herding behavior on 9 Asian exchanges, one of which was Indonesia.

2. Method

2.1 Identify Subsections

This research is quantitative research, the variable used is CSAD as the dependent variable and return market ($R_{m,t}$) and $|R_{m,t}|$ as the independent variable. The data used are data of return the weekly market the LQ45 Index and the weekly return individual of shares listed in the LQ45 index from 2006 to 2010.

2.2 Participant (Subject) Characteristics

Appropriate identification of research participants is critical to the science and practice of psychology, particularly for generalizing the findings, making comparisons across replications, and using the evidence in research syntheses and secondary data analyses. If humans participated in the study, report the eligibility and exclusion criteria, including any restrictions based on demographic characteristics.

2.3 Sampling Procedures

The sampling technique is purposive sampling with the following criteria:

- Company shares were included in the LQ45 index from 2006 to 2010 .
- Availability of data according to the study period.

2.3.2 Experimental Manipulations or Interventions

Return Marketsquared $R_{m,t}^2$ in this study is used to illustrate the situation when there is high movement. Whereas *returns* absolute market ($|R_{m,t}|$) to prove linear coefficients and also to illustrate the situation when *returns are* market normal. The research model uses the model CSAD by the formula:

$$CSAD_t = \alpha + \gamma_1 |R_{m,t}| + \gamma_2 R_{m,t}^2 + \varepsilon_t$$

Table 1: Formulas Return and CSAD

Stock Return	
<p>Stock Return Individual</p> $R_{i,t} = \frac{P_{i,t} - P_0}{P_0}$ <p>(Brigham and Houston, 2006: 410)</p> <p>Return the Market</p> $R_{m,t} = \frac{P_{m,t} - P_{m(t-1)}}{P_{m(t-1)}}$ <p>(Jogiyanto, 2000 : 232)</p> <p>Where:</p> <p>$R_{i,t}$ / $R_{m,t}$: Return stock in period t</p> <p>$P_{i,t}$ / $P_{m,t}$: the share price in period t,</p> <p>P_0 / $P_{(t-1)}$: stocks period t-1 (previous period).</p>	$CSAD_t = \frac{1}{N} \sum_{i=1}^N R_{i,t} - R_{m,t} $ <p>Where:</p> <p>$R_{i,t}$: <i>returns</i> individual stock in the same period</p> <p>$r_{m,t}$: <i>returns</i> market in the same period t</p> <p>N: number of companies in the sample</p> <p>(Chang et al, in Gangopadhyay and Elkanj, 2016)</p>

3. Results

3.1 Statistics and Data Analysis

Table 2: Statistical Descriptive

	N	Minimum	Maximum	Mean	Std Deviation
Csad	260	0.0245	0.2850	0.049428	0.0243858
Rmt	260	-.02373	0.1500	0.005514	0.0432155

table above shows the results of descriptive statistics for CSAD variables and market returns (Rm). CSAD has a maximum value of 0.285 which occurred in the first week of March 2009 (March 1, 2009) with a minimum value of 0.024 that occurred in the last week of 2007 (December 30, 2007). The average CSAD value for 260 observations weeks was 0.049 with a standard deviation of 0.0243 . Standard deviation values indicate that during the observation period the size of the CSAD spread was 0.0243 points. The Rmt value of has a maximum value of 0.150 which was achieved in the first week of May 2009 (May 3, 2009). The minimum value of Rmt of -0.2373 occurred in the first week of October 2008 (October 5, 2008) which was also the week with the largest index decline during the crisis. Rmt during the 260 weeks of observation has an average value of 0.0054 with a standard deviation of 0.043 which indicates that during the period of observation data dissemination size Rmt by 0043 points.

3.2 Regression Analysis

Table 3: Overall Regression Test Period 2006 - 2010

σ	1 (rmabs)	χ^2 (rm ²)	AR ²
0.040	0.243	1,382	0.331
(0.000)	(0.006)	(0.014)	

Chang et al (2000) argue that if there is a behavior herding it will cause the relationship between returns quadratic market (Rm, t)² with CSAD which was originally linear, will be non linear. This non-linear relationship will cause the coefficient (Rm, t)² to be statistically significant negative ($\gamma_2 < 0$). The coefficient γ_2 negative and significant ($\gamma_2 < 0$), indicates that there is a herding on the stock market. Table 3 is the overall regression test results from 2006 to 2010, from the table there is no empirical indication of herding behavior. This is indicated by the coefficient value χ^2 which is positive and significant, which is 1,382 with a significance of 0.014.

Table 4: Regression Test

Year	σ	1 Yearly(rmabs)	γ^2 (rm ²)	R^2
2006	0.035 (0.000)	0.408 (0.079)	-2.153 (0.442)	0.110
2007	0.038 (0.000)	0.272 (0.041)	-0.685 (0.501)	0.211
2008	0.051 (0.000)	0.268 (0.203)	0.188 (0.863)	0.153
2009	0.047 (0.000)	0.416 (0.058)	8.755 (0.000)	0.741
2010	0.039 (0.000)	0.271 (0.072)	- 1.249 (0.460)	0.132

Table 4 above shows the regression results for each year, the regression results for the years 2006 and 2007 produced the coefficient of χ^2 negative, namely -2153 and -0685 yet results to a significance level greater than 0:05. then empirically in 2006 and 2007 there was no behavior herding.. Regression testing in 2008 resulted in

coefficient β_2 a positive of 0.188 with a significance level greater than 0.05 ($0.863 > 0.05$), the results showed the absence of herding behavior. Results of regression test in 2009 resulted in the coefficient of β_2 is positive and significantly by 8755 (0000), empirical coefficient β_2 are positive and significant, indicating not happen to herd the year. Testing the regression results in 2010 produced coefficient β_2 a negative of -1,249 but a significance level greater than 0.05, it can be concluded in 2010 there was no behavior herding.

4. Discussion

This research detects behavior herding in Indonesia by using a sample of companies listed in the LQ45 index for the period 2006 to 2010. The first hypothesis test is conducted using the entire data to produce a coefficient γ^2 value that is positive and significant that is equal to 1,382 (0.014). value γ coefficient² is positive and significant empirically indicates no behavior herding during 2006 s / d 2010. The test results per year respectively show the coefficient of β^2 that is not negative and not significant that occur annually test herding behavior on the Stock Exchange. The results of testing in 2008 and 2009 are consistent with testing herding by Chiang and Zheng (2010) who examined behavior herding in 18 countries including Indonesia during the crisis (3/1/2008 to 3/31/2009). In the research of Chiang and Zheng (2010) during the crisis period there was no indication of behavior herding in the Indonesian stock exchange. This study is different from the research of Christi and Huang (1995), Lao and Singh (2010) and Filip et al (2015) which states that behavior herding tends to be more common in developing country exchanges. This study supports the study of Ahsan & Sarkar (2013) that not all exchanges in developing countries have behavior herding.

Degirman et al (2012) argued that the quality of information available on the exchange also became one of the causes of behavior herding. The emergence of asymmetric information will cause information gaps between investors on the stock exchange. Conversely, when the information on the exchange is even and accurate, it will cause investors to trust their own information and suppress behavior herding.

This study aims to detect behavior herding in Indonesia in the period 2006 to 2010 by using a sample of companies from the LQ45 Index. The detection herding was performed using a model CSAD. Overall results of this study showed that there was no indication behavior herding in Indonesia during 2006 s / d 2010. The limitation in this study is not to differentiate market conditions (bearish and bullish) as well as the type of investor (domestic, foreign, individuals and institutions).

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An Empirical Study of National Education and Economic Development Based on a Variable Coefficient Model

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Abstract

This paper studies the relationship between the level of national education and economic development in 31 provinces and cities in China from 2012 to 2019. Principal component analysis is used to comprehensively evaluate the level of national education, on the basis of which a variable coefficient model is tested and a constant coefficient model is established for comparison. The results show that: (1) there is a co-integration relationship between the level of national education and economic development, i.e. the two are in equilibrium in the long run. (2) In some provinces and cities in China, economic development is positively correlated with the level of national education, and some provinces and cities are negatively correlated. (3) Economic development has different effects on the level of national education in the east, middle and west. (4) Economic development and national education level are positively correlated in the average sense in China.

Keywords: Economic Development, National Education, Indicator System, Variable Coefficient Model

1. Introduction

The level of national education is an important measure of a country's wealth and strength. "Education is a major plan for the country and for the Party" is the original and important assertion made by General Secretary Jinping Xi at the National Education Conference. China needs education to pass on its excellent history and culture, and to stimulate the creativity of its people. The development of education in a country requires economic support, so without economic development, there can be no development of education. In turn, for a country to develop economically, it needs not only the previous economy as support, but it must also promote the development and innovation of science and technology, and education is the basic way to promote technological progress. Economic development is the material basis for educational advancement, while the rate of economic growth determines the scale of educational development.

In recent years, many domestic scholars have conducted research on the relationship between education and economic development, and the relevant literature is mainly reflected in the following two aspects: firstly, research is conducted from the perspective of education investment and economic growth, and the methods used are mainly Granger causality test (Zhou, 2007), multiple linear regression model (Xi & Lu, 2019), Harold Domar model (Tian, 2017), spatial econometric model (Xie, 2015), etc. Secondly, research is conducted from the perspective of higher education and economic growth, and the main methods used are fixed-effects models (Qin & Wang, 2017), C-D production function models (Fan & Ma, 2017), VEC models (Liu, 2016), etc.

A very small number of scholars abroad have also studied the relationship between education and economic development. Nicholas (2020) investigated the dynamic causal relationship between education and economic growth in South Africa, using the ARDL boundary test method and an ECM-based Granger causality model. Agasisti and Bertolotti (2020) investigated the impact of higher education systems on economic growth in 184 European regions, finding that an increase in the number of universities in a region is beneficial to the region's economic growth.

The above literature shows that there is less research on the relationship between the level of national education and economic development, both domestically and abroad, focusing instead on aspects such as investment in education or higher education. Based on this, this paper expands the scope of the study to examine the relationship between the level of national education and economic development in 31 provinces and cities in China from 2012 to 2019. Firstly, seven indicators are selected to comprehensively evaluate the national education level of 31 provinces and cities in China, and then a variable coefficient model is established on the basis of unit root test and co-integration test to explore the relationship between the two.

2. Selection of indicators

This paper focuses on the relationship between the level of national education and economic development in 31 provinces, autonomous regions and municipalities directly under the central government in China, so the indicators are selected mainly from the two aspects of national education level and economic development. We usually use the regional gross domestic product per capital (GDP per capital, in yuan) of the region to measure the economic strength of the region. Therefore, this paper selects the GDP per capital of 31 provinces, autonomous regions and municipalities directly under the central government in China to measure local economic development. In terms of national education, seven indicators are selected in this paper, namely the proportion of education expenditure to GDP X1, the average number of students enrolled in higher education per 100,000 people (number) X2, the proportion of those who have obtained a higher degree X3, the number of public library collections per capital (volumes) X4, the ratio of student teachers in primary education X5, the ratio of student teachers in higher education X6, and the proportion of illiterate people X7 (Zhang & You, 2018). The data for the above indicators are selected for the years 2012-2019. The data were obtained from the China Statistical Yearbook and the China Education Statistical Yearbook.

Table 1: National education level indicator system

Indicators		Indicator Direction
National education level	Share of GDP spent on education X1	Expenditure on education as a percentage of GDP, % Positive
	Average number of students enrolled in tertiary education per 100,000 people X2	Positive
	Percentage of those who have obtained tertiary qualifications X3	Proportion of the population that has obtained tertiary education and above Positive
	Public library holdings per capital X4	Positive
	Student teacher ratio (primary education) X5	Number of pupils per teacher (primary education including general primary schools) Positive

Student teacher ratio (secondary education) X6	Number of students per teacher (secondary education includes general high school, secondary vocational education and general lower secondary school)	Positive
Illiteracy rate X7	Illiterate population as a proportion of population aged 15 and over, %	Negative

3. Data processing

First, the data need to be normalized and different formulas need to be used for positive and negative indicators (Jia, He & Jin, 2018):

Positive indicators:

$$x_{ij} = \frac{x_{ij} - \min(x_{1j}, x_{2j}, \dots, x_{nj})}{\max(x_{1j}, x_{2j}, \dots, x_{nj}) - \min(x_{1j}, x_{2j}, \dots, x_{nj})} \quad (1)$$

Negative indicators:

$$x_{ij} = \frac{\max(x_{1j}, x_{2j}, \dots, x_{nj}) - x_{ij}}{\max(x_{1j}, x_{2j}, \dots, x_{nj}) - \min(x_{1j}, x_{2j}, \dots, x_{nj})} \quad (2)$$

Where, x_{ij} denotes data for the first indicator j for the first i province.

4. Comprehensive evaluation of the level of national education

In this paper, principal component analysis is used to make a comprehensive evaluation of the level of national education. Before the principal component analysis, the data were standardized. KMO and Bartlett tests were performed on the data to determine whether the data could be analysed using principal component analysis. In this paper, principal component analysis was conducted on the data for 2019. As can be seen from Table 2, the KMO value is 0.544, the value of the statistic of Bartlett's test is large and the p-value is less than 0.05, indicating that there is a correlation between the quantities and that it is suitable for principal component analysis.

Table 2: KMO and Bartlett's test

KMO sampling suitability number		0.544
Bartlett Sphericity Test	Approximate cardinality	130.704
	Freedom	21
	Significance	0.000

Table 3: Results of principal component analysis

Total variance explained						
Ingredients	Initial Eigenvalue			Extraction of sum of squares of loads		
	Total	Percentage variance	Cumulative %	Total	Percentage variance	Cumulative %
1	3.273	46.755	46.755	3.273	46.755	46.755
2	1.863	26.617	73.372	1.863	26.617	73.372
3	0.811	11.588	84.960	0.811	11.588	84.960
4	0.540	7.719	92.679			
5	0.281	4.017	96.696			
6	0.172	2.457	99.153			
7	0.059	0.847	100.000			

Table 4: Principal component coefficient matrix

	Ingredients		
	1	2	3
X1	-0.182	-0.391	0.149
X2	0.252	0.097	0.099
X3	0.264	0.091	0.287
X4	0.198	0.114	0.718
X5	-0.144	0.358	0.619
X6	0.213	0.304	0.255
X7	0.185	0.363	-0.392

Using principal component analysis to extract the common factors, the results are shown in Table 3 (Tian, Sun & Zhan, 2017; Zhou & Lin, 2020) It can be seen that the cumulative contribution rate of the first three principal components is 84.96%, which can retain the information of the original variables better, and the seven original variables can be replaced by three principal components. The cumulative contribution rate of the three selected principal components was set at 1, and the weight of the cumulative contribution rate was calculated as the weight of each principal component, and the comprehensive score of the national education level of each region was calculated separately to obtain the following function: $W = 0.551F_1 + 0.313F_2 + 0.136F_3$. where F_1, F_2, F_3 is the factor score function, and $X1^*, X2^*, X3^*, X4^*, X5^*, X6^*, X7^*$ are the standardized variables.

$$F_1 = -0.182X1^* + 0.252X2^* + 0.264X3^* + 0.198X4^* - 0.144X5^* - 0.213X6^* + 0.185X7^* \quad (3)$$

$$F_2 = -0.391X1^* + 0.097X2^* - 0.091X3^* - 0.114X4^* + 0.358X5^* + 0.304X6^* + 0.363X7^* \quad (4)$$

$$F_3 = 0.149X1^* + 0.099X2^* + 0.287X3^* + 0.718X4^* + 0.619X5^* + 0.255X6^* - 0.392X7^* \quad (5)$$

The same method was used to obtain the overall score and ranking of the national education level for the other years, and the results are shown in Table 5.

Table 5: Overall score and ranking of national education levels, 2012-2019

	2012	2013	2014	2015	2016	2017	2018	2019	Variance
Beijing	0.573(2)	0.582(2)	0.582(2)	0.501(1)	0.568(2)	0.525(2)	0.623(1)	0.579(1)	0.268
Tianjin	0.472(3)	0.459(3)	0.465(3)	0.389(2)	0.466(3)	0.385(3)	0.446(3)	0.448(3)	0.125
Hebei	0.274(22)	0.298(18)	0.299(20)	0.287(18)	0.285(18)	0.196(19)	0.160(19)	0.249(15)	3.982
Shanxi	0.263(24)	0.251(23)	0.254(26)	0.231(23)	0.244(24)	0.210(14)	0.192(15)	0.236(23)	19.714
Inner Mongolia	0.275(21)	0.250(24)	0.260(24)	0.231(24)	0.276(21)	0.200(18)	0.199(14)	0.238(21)	12.125
Liaoning	0.386(5)	0.390(5)	0.385(6)	0.314(12)	0.353(7)	0.268(7)	0.282(5)	0.328(8)	5.554
Jilin	0.291(16)	0.290(20)	0.286(21)	0.244(21)	0.280(19)	0.205(16)	0.249(9)	0.246(17)	15.696
Heilongjiang	0.274(23)	0.257(22)	0.257(25)	0.222(25)	0.241(25)	0.162(26)	0.191(16)	0.203(25)	10.554
Shanghai	0.595(1)	0.584(1)	0.608(1)	0.358(3)	0.573(1)	0.541(1)	0.533(2)	0.532(2)	0.571
Jiangsu	0.374(6)	0.385(6)	0.398(5)	0.350(4)	0.400(4)	0.288(4)	0.307(4)	0.387(4)	0.839

Zhejiang	0.397(4)	0.424(4)	0.417(4)	0.318(11)	0.379(5)	0.278(5)	0.267(6)	0.352(5)	5.429
Anhui	0.256(25)	0.279(21)	0.311(18)	0.292(17)	0.279(20)	0.169(24)	0.131(23)	0.243(19)	8.411
Fujian	0.319(9)	0.335(10)	0.366(9)	0.309(14)	0.342(8)	0.244(9)	0.222(10)	0.318(9)	3.357
Jiangxi	0.309(10)	0.340(9)	0.360(11)	0.327(8)	0.320(12)	0.226(12)	0.123(24)	0.247(16)	26.500
Shandong	0.297(12)	0.312(15)	0.326(16)	0.300(16)	0.317(15)	0.208(15)	0.216(12)	0.279(13)	2.786
Henan	0.295(14)	0.308(16)	0.337(15)	0.303(15)	0.300(17)	0.190(21)	0.149(20)	0.260(14)	7.143
Hubei	0.335(8)	0.355(7)	0.343(14)	0.325(9)	0.340(11)	0.251(8)	0.266(7)	0.339(6)	6.786
Hunan	0.296(13)	0.330(11)	0.352(13)	0.341(5)	0.341(9)	0.238(10)	0.186(17)	0.302(11)	12.125
Guangdong	0.346(7)	0.349(8)	0.371(7)	0.337(6)	0.368(6)	0.274(6)	0.221(11)	0.337(7)	2.786
Guangxi	0.280(19)	0.323(14)	0.361(10)	0.310(13)	0.311(16)	0.214(13)	0.105(26)	0.242(20)	25.986
Hainan	0.282(18)	0.233(25)	0.266(22)	0.232(22)	0.250(23)	0.204(17)	0.145(21)	0.219(24)	7.714
Chongqing	0.306(11)	0.329(12)	0.368(8)	0.328(7)	0.340(10)	0.229(11)	0.214(13)	0.294(12)	4.286
Sichuan	0.279(20)	0.291(19)	0.307(19)	0.273(19)	0.269(22)	0.180(23)	0.143(22)	0.237(22)	2.786
Guizhou	0.163(28)	0.211(29)	0.253(27)	0.189(27)	0.187(29)	0.162(25)	0.049(28)	0.164(28)	1.696
Yunnan	0.152(29)	0.218(27)	0.246(28)	0.208(26)	0.206(27)	0.133(27)	-0.036(30)	0.191(26)	2.000
Tibet	-0.126(31)	-0.102(31)	-0.088(31)	-0.128(31)	-0.113(31)	0.118(30)	-0.112(31)	-0.145(31)	0.125
Shaanxi	0.289(17)	0.303(17)	0.314(17)	0.324(10)	0.317(14)	0.194(20)	0.253(8)	0.316(10)	18.696
Gansu	0.195(27)	0.195(30)	0.208(30)	0.315(30)	0.150(30)	0.118(31)	0.081(27)	0.119(29)	2.125
Qinghai	0.152(30)	0.230(26)	0.264(23)	0.148(29)	0.188(28)	0.124(28)	0.046(29)	0.118(30)	5.554
Ningxia	0.291(15)	0.327(13)	0.356(12)	0.268(20)	0.319(13)	0.185(22)	0.165(18)	0.244(18)	13.411
Xinjiang	0.231(26)	0.211(28)	0.242(29)	0.189(28)	0.210(26)	0.121(29)	0.107(25)	0.187(27)	2.214

Overall, the top 10 regions in terms of overall score during 2012-2019 are Shanghai, Beijing, Tianjin, Jiangsu, Zhejiang, Liaoning, Guangdong, Hubei, Fujian and Chongqing. Hunan, Jiangxi, Shaanxi, Shandong, Ningxia, Guangxi, Henan, Jilin, Hebei and Sichuan have composite scores between 11th and 20th for. The last 11 places in the overall score are Tibet, Gansu, Qinghai, Guizhou, Yunnan, Xinjiang, Heilongjiang, Shanxi, Hainan, Inner Mongolia and Anhui, indicating that the national education level in these regions is low and needs to be strengthened.

The variance in Table 5 shows that the national education level of Beijing, Tianjin, Shanghai, Jiangsu and other provinces and cities maintain the top and steadily growing in China. Jiangxi and Guangxi have the most unstable national education levels, followed by provinces such as Shanxi, Shaanxi, Jilin and Heilongjiang, for which national education should be strengthened so that the national education level grows steadily.

5. Panel Model of National Education Level and Economic Development

5.1 Unit root test

Before modelling, a unit root test was conducted for the stationarity of the variables in each of the 31 regions to avoid "pseudo-regressions". In order to ensure the accuracy of the unit root test, two methods are used: the LLC test, which contains the same unit root, and the Fisher-PP test, which contains different unit roots. In this case, the composite score of the previous national education level (JY) was chosen as the indicator of national education level and economic development was measured by GDP per capital (GDPPC) (unit: yuan). Natural logarithms were done for GDPPC to eliminate the interference of exponential growth trends and heteroskedasticity in data processing. Each tested separately using Eviews 8.0. The results of the tests for each variable are shown in Table 6.

Table 6: Panel unit root test results

Variables	LLC test	PP Inspection	Stability
JY	-10.118 4 (0.000 0)	138.709 (0.000 0)	Stable
LNGDPPC	39.527 4 (1.000 0)	4.079 52 (1.000 0)	non-stationary
Variables	First order differential LLC test	First order differential PP test	
LNGDPPC	-2.809 23 (0.002 5)	82.153 3 (0.044 3)	Stable

As can be seen from the results in Table 6, national education levels all reject the existence of a unit root at the 5% level of significance, so the national education levels series is a smooth series. The economic development series is non-stationary at the 5% level of significance. The series obtained by first-order differencing is smooth at the 5% level of significance, so economic development is a first-order single integer series.

5.2 Co-integration test

Cointegration tests are performed before building the model to test whether the causal relationship described by their regression equation is a pseudo-regression. The purpose of the cointegration test is to determine whether a linear combination of a set of non-stationary series has a stable equilibrium relationship. Since the two series LNGDPPC is a first-order single integer process and JY is not, and the series obtained by performing a first-order difference on JY is also smooth, the series LNGDPPC and JY are both first-order single integer processes. We can therefore perform a panel cointegration test on them. Through the p-value of the test results of the Kao test we can see that, given a significance level of 5%, the original hypothesis is rejected, i.e. there is a cointegration relationship between the level of national education and economic development, which is able to ensure that the model constructed below in this paper is meaningful.

Table 7: Results of the Kao test for panel cointegration

Test methods	Testing the hypothesis	Statistical quantities	Statistical values	P-value
Kao test	The original hypothesis is that there is no co-integration relationship	ADF	2.169 603	0.015

5.3 Model setting and construction

As panel data contains both cross-sectional data and time series data, a panel model is a model that combines cross-sectional data with time series data and can improve the reliability of data analysis. Panel models can be classified into variable coefficient models, variable intercept models and constant coefficient models according to the form of the model. In this paper, the model form is determined using the F-test. To conduct the F-test, two original hypotheses are first proposed: (1) $\beta_1 = \beta_2 = \beta_3 = \dots = \beta_N$ (2) $\alpha_1 = \alpha_2 = \alpha_3 = \dots = \alpha_N$, $\beta_1 = \beta_2 = \beta_3 = \dots = \beta_N$. Accept (2), then it is a constant coefficient model and the test is completed. Reject (2), and (1) is tested. If (1) is accepted, the model is a variable intercept model, otherwise it is a variable coefficient model. Calculate the test statistics F_1 and F_2 .

$$F_2 = \frac{(S_3 - S_1) / [(N-1)(k+1)]}{S_1 / (NT - N(k+1))} \sim F[(N-1)(k+1), N(T-k-1)] \quad (6)$$

$$F_1 = \frac{(S_2 - S_1) / [(N-1)k]}{S_1 / (NT - N(k+1))} \sim F[(N-1)k, N(T-k-1)] \quad (7)$$

The sum of squared residuals for the variable coefficient model is S_1 , the sum of squared residuals for the variable intercept model is S_2 , and the sum of squared residuals for the constant coefficient is S_3 . N is the number of cross-sectional members, T is the number of periods in each variable series, and k is the number of explanatory variables. In this paper, we study the impact of economic growth on national education, and we first obtain the residual sums of squares for each model estimate, $S_1=0.837\ 133$, $S_2=1.057\ 950$, $S_3=3.755\ 354$. Based on the above equation, we obtain, and therefor $F_2=10.806\ 5 > F_{0.05}(60,186)=1.39$ reject (2). $F_1=1.635\ 4 > F_{0.05}(30,186)=1.52$, so rejecting (1) suggests that the model should choose a fixed effects variable coefficient model as the set-up form of the panel regression model.

The results of the model estimation are shown in the table 8, using the economic development status of each region of China as the explanatory variable and the level of national education as the explanatory variable in a panel regression with variable coefficients, categorised by the central and eastern regions (Wang, 2017).

Table 8: Estimation results of the variable coefficient panel model

Eastern Region		Central Region		Western Region	
Province	Coefficient	Province	Coefficient	Province	Coefficient
Jiangsu	1.620 152	Hunan	1.363 586	Guizhou	2.092 149
Hebei	1.181 252	Shanxi	-0.024 959	Ningxia	1.436 034
Shandong	1.007 127	Hubei	-1.449 372	Tibet	1.363 790
Heilongjiang	0.679 879	Anhui	-1.257 532	Guangxi	1.228 091
Jilin	0.492 251	Jiangxi	-2.143 476	Qinghai	1.132 396
Guangdong	0.329 972	Henan	-2.924 739	Gansu	0.328 215
Shanghai	0.288 143			InnerMongolia	0.237 980
Tianjin	0.286 637			Chongqing	0.011 701
Hainan	0.199 414			Shaanxi	-0.327 565
Liaoning	-0.032 782			Yunnan	-0.494 856
Beijing	-0.388 376			Xinjiang	-0.507 273
Zhejiang	-0.779 309			Sichuan	-2.101 560
Fujian	-1.693 139				
Extreme difference:	3.313 291	Extreme difference:	4.288 325	Extreme difference:	4.193 809

The regression equation estimated by the model is as follows.

$$JY_{i,t} = 0.262\ 623 + \alpha_i^* + \beta_i L\text{NGDPPC}_{i,t} + u_{i,t} \quad (8)$$

The goodness of fit $R^2=0.777$, with a good fit, indicates that the model has a good degree of interpretability. The following conclusions can be drawn about the impact of economic development on the level of national education in the 31 regions of China.

First, the data from the provinces and municipalities verify that the level of national education is influenced by the state of economic development, and it is clear from the results that in some of our provinces and municipalities economic development is positively correlated with the level of national education, and some negatively. Their coefficients vary considerably. Among the provinces with positive correlations, the coefficients are, from largest to smallest, Guizhou, Jiangsu, Ningxia, Tibet, Hunan, Guangxi, Hebei, Qinghai, Shandong, Heilongjiang, Jilin, Guangdong, Gansu, Shanghai, Tianjin, Inner Mongolia, Hainan and Chongqing. Among the provinces with a negative correlation, the coefficients in descending order are Shanxi, Liaoning, Shaanxi, Beijing, Yunnan, Xinjiang, Zhejiang, Hubei, Anhui, Fujian, Sichuan, Jiangxi and Henan, indicating that the economic development of these provinces has not led to an increase in the level of national education in the province, but rather a downward trend in the level of national education.

Second, The effect of economic development on the level of national education varies between the East, Central and West. In the East, the difference in the effect of economic development on the level of national education in each province is the smallest in the Central and Western regions. In the central region, the coefficient is negative in all provinces except Hunan, and the difference is the largest in the central and western regions, i.e. in the central region, the level of national education is negatively correlated with economic development in all provinces except Hunan. In the western region, such as: Guizhou, Ningxia, Tibet and Guangxi, their coefficients are larger and they can improve the level of national education by means of economic development. However, compared to central China, most of the provinces and cities cannot improve national education by developing their economy, which requires them to adopt other policies or measures to strengthen national education.

In order to reflect the degree of influence of China's economic development on the level of national education, this paper continues to build a constant coefficient model and obtains the following regression equation.

$$JY_{i,t}=0.244\ 307+0.161\ 007LNGDPPC_{i,t} \quad (9)$$

The fit of $R^2=0.777$ the variable coefficient model is smaller than that of the variable coefficient panel regression model. The variable coefficient model only gives the impact of economic development on the level of national education in a single average sense, and is not able to see the difference between different provinces and cities. The variable coefficient model gives the magnitude of the impact of economic development on the level of national education under different provinces and cities, and also gives the coefficient of the degree of impact, which can better analyse the impact between the level of national education and economic development in different regions and different economic development areas.

6. Summary

This paper studies the relationship between the level of national education and economic development. Firstly, we select the relevant indicators that can reflect the level of national education and measure the level of national education in 31 provinces and cities in China through principal component analysis. The results show that there is a co-integration relationship between the level of national education and economic development, i.e. the two are in equilibrium in the long run, so we can establish a regression model for it. In this paper, we establish a variable coefficient model through the test and draw the analysis results: in some provinces and cities in China, economic development is positively correlated with the level of national education, and some are Some are negatively correlated. In provinces with a positive correlation, such as Guizhou, Jiangsu and Ningxia, the level of national education can be enhanced by increasing economic growth. In the provinces with a negative correlation, economic growth is not enough to improve national education, but requires the support of various parties and national policies or other measures to strengthen national education.

The economic development of different regions and economic development areas has different degrees of effect on the level of national education. Therefore, the 31 provinces and cities in China cannot formulate a uniform programme, but should formulate different national education programmes according to the sub-regional situation and economic development of each province and city, so that the national education level of each province and city can be improved to a higher level. For example, some provinces in the west can develop their economies to raise the level of national education, while this approach is not feasible in the centre. However, economic development in the average sense of the word in China is positively correlated with the level of national education.

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The Impact of the Pandemic on the Maintaining Happiness at Work

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Abstract

During the pandemic, it became especially difficult for companies to maintain employee engagement and motivation. They are cut off from the normal environment and work team, no longer have social relationships with colleagues, which leads to a natural decrease in emotional connection with the company, a sense of belonging and loyalty. In today's environment, the challenge is to manage, attract and retain talent, further compounded by the COVID-19 pandemic. During the period of working from home, as a result of the experience gained in the new reality, employees have other requirements that the company must meet. The transition to remote work in early 2020 has forced employees to develop new skills and become more familiar with technologies, manage tasks and solve problems online. It is true that some did more remote work, some less and some did not like it at all, but the fact is that it showed them new opportunities, and companies were challenged - how to maintain and increase the employee happiness index during the pandemic and post-pandemic period. The purpose of the article is to demonstrate the impact of the pandemic on maintaining a happiness index at work and to assess employees' attitudes towards remote work in general. How did the changes in work regime and environment during the pandemic affect employees and their job satisfaction? - In order to identify these factors, a study was conducted in Georgia, in which 200 employees participated and the results of which are given in this article.

Keywords: Employee motivation, Happiness Index, Remote work, Benefits, Pandemic

1. Introduction

There is no standard definition of employee happiness. Each definition identifies different important elements and suggests a different grouping of them. According to one study, happiness includes controls such as motivation, job satisfaction, and employee engagement. However, the critically important is a person's individual perception of how he or she estimates his or her own level of happiness, because it is almost impossible to scientifically generalize the phenomenon of happiness (Benuyenah, Pandya, 2020).

*Why is it important to assess the impact of the pandemic on the employee happiness index and research results?
What is the relationship between company success and employee happiness?*

Employee happiness and their satisfaction is directly related to the success of companies. There are three groups of people associated with any organization. These are the founders, employees and users. Which group happiness is most important and has the greatest impact on the company's results and quality of performance? - Employee happiness is paramount (Wagner, 2017). A satisfied employee can make the customer happy. If the employee is satisfied with the work, the organization and the team, as a result the customer is also satisfied; If the customer is satisfied, it means that he / she enjoys and will continue to use the company's products and services, which is the key to success and therefore the founder is also satisfied.

At all levels, there is evidence that employee happiness has a significant impact on the outcomes of both individuals and organizations (Fisher, 2010). Numerous studies confirm the existence of a strong link between employee well-being and customer satisfaction. A happy employee is associated with companies' ability to provide better service to customers, especially in industries where there is a close connection between employees and customers, including retail, tourism, healthcare and financial services. This is confirmed by a survey conducted by Glassdoor, in which they analyzed the following two data to examine the relationship between employee and customer satisfaction: 1. Evaluations of different companies as employers by employees and 2. Their ratings from the American Consumer Satisfaction Index (ACSI), which records 300,000 Customer feedbacks on products and services (Chamberlain, Zhao, 2019).

That is, happiness at work (HAW) has an effective impact on work outcomes (Salas-Vallina, Pozo-Hidalgo, and Gil-Monte, 2020). That is why, it is important to assess the impact of the pandemic on the employee happiness index. Organizations need to formulate what changes they will make and what offers they will make to employees to retain talent in the long run.

Today, in a Pandemic situation, the task of companies is to make systemic changes and offer employees benefits that will motivate them to a new reality. The Covid-19 virus was first detected in China, soon spread around the world (Kampf, Todt, Pfaender, and Steinmann, 2020) and it is not yet clear when it will end, although even in the post-pandemic period it will be relevant to offer new working terms and conditions.

2. Research Methodology

The aim of the study is to demonstrate the impact of the pandemic on maintaining a happiness index at work and to assess employees' attitudes towards remote work in general.

The results of the study are of interest to the founders and management of organizations to make the right and timely changes in personnel policy and management principles. This is what they need in order to have a good employer reputation and actually offer employees working conditions tailored to their interests.

Hypotheses were developed prior to the survey, which has already been verified as part of the research. The questions in the questionnaire were given in three directions:

1. How employee happiness and job satisfaction have changed under remote working conditions;
2. Key factors that were identified remote working favor or against.
3. Would they like to continue remote working terms

The research was conducted with a questionnaire processed in Google forms, which consisted of 10 questions.

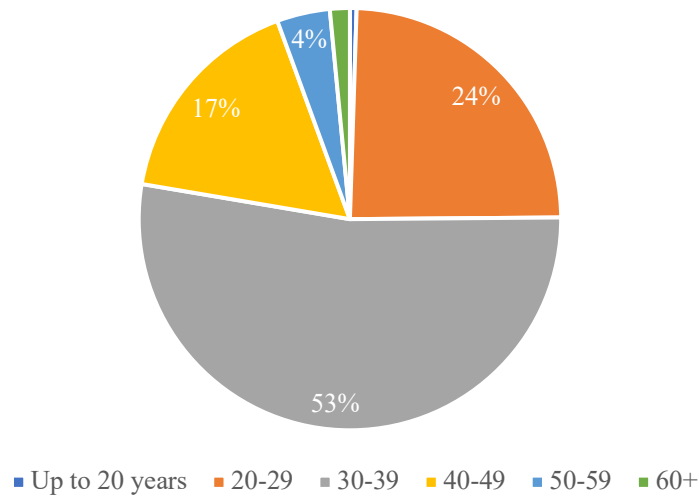


Figure 1: Age ratio of respondents

The survey involved 200 employees from different managerial levels, from different companies, of which 74% are female and 26% male. 94% of respondents are in the age category of 20 to 49 years (see Figure 1); Also, 72% are representatives of senior and middle management (see Figure 2).

The interest and urgency of the research are also indicated by the fact that during the survey a number of feedbacks were received from the employees participating in the research. They expressed great interest in the topic and asked for permission to share the questionnaire with other employees as well, given its relevance. Analysis of the research results, conclusions and recommendations are given in this article.

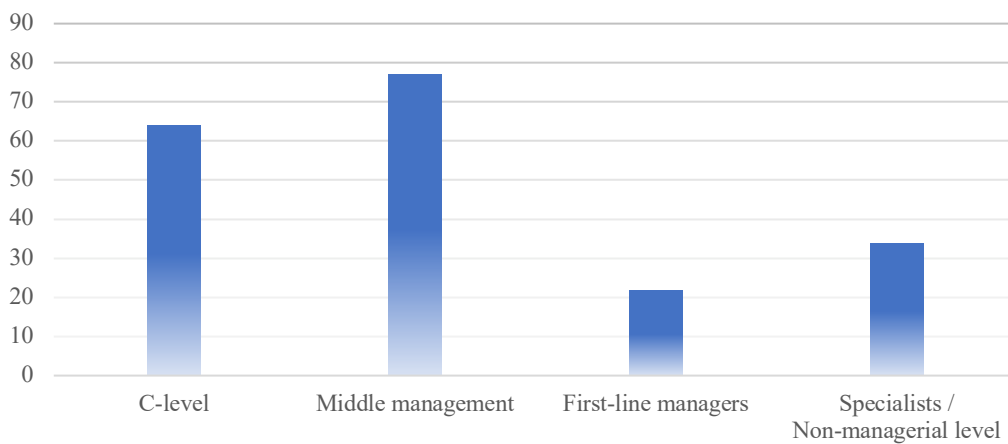


Figure 2: Managerial level of respondents

3. Research Results

3.1. In times of pandemics, the index of happiness was decreased significantly or did not change

Taking up the mode of remote work for significant parts of the workforce showed not quite a simple challenge to carry on. Because of this new approach, with which many had no experience at all before, the reaction of the co-worker was different – some was pro and some against, that means there are all sorts of reasons for that.

Some respondents noticed that in a very short-term period their happiness was increased after the transition to the down mode, but then gradually decreased. Some became less productive, which, in essence, reflected on the results and, as a consequence, increased their indifference to the absence of success in their feelings and self-realization. There are also hidden general responsibilities, hidden command work and an increased time interval, necessary for completing certain tasks. For a number of reasons remote work turned out to be difficult to fulfill, and besides, the employees lacked relationships with company colleagues and the advantage of working on the ground.

In this regard, to see and summarize the overall picture, the results of a survey are interesting, in which only 26% of employees indicated that their level of happiness in remote working conditions has increased. Most said the degree of happiness had decreased or not changed. It is noteworthy that an even smaller number of respondents indicated that they would prefer to continue working in full distance mode in the future - only 12%.

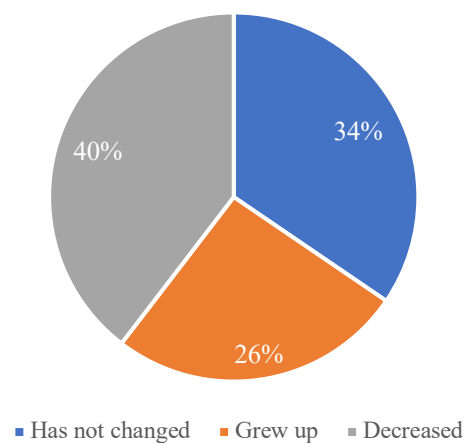


Figure 3: Change in happiness index while working remotely

Within the study process was exposed the basic factors that were mostly liked about remote working and which led to an increase in their happiness index (see Figure 6); Accordingly, companies have the opportunity to analyze them and make decisions accordingly and offer employees changes in the work schedule.

The fact that only 12% of employees wanted to continue working in full remote mode in the future is a clear signal to employees that working from the office and interacting with colleagues is important for job satisfaction. However, the results also show that there are certain aspects of remote work that employees would like to maintain in the future and that is why hybrid mode is preferred and important to most.

3.2. Most employees prefer the hybrid model of work; They are inconvenienced by working remotely, despite some benefits

Most of the employees surveyed want to return to the office and continue working with the hybrid model. They did not find the desired fully remote mode. The hybrid model involves offering employees a remote work mode with a certain scheme in addition to working in the office. When employees are given the opportunity to make a choice according to the specific scheme offered by the company - go to the office and work from there, if they are online.

What is the reason for employees' preference for a hybrid model and what is the reason for this? The point is that man is a social being and he needs to interact with people, make contact with other colleagues, share emotions and get back in return for further productivity and happiness. Research has shown that these are the factors that are significantly lacking when working remotely. In addition, they liked the benefits of remote work and wanted to hold on to some extent. These benefits include: saving time on the road and engaging in other activities (e.g. sports), eating healthily and properly at home, reducing financial costs, spending more time with family and children, going out and keeping the working regime online from distance.

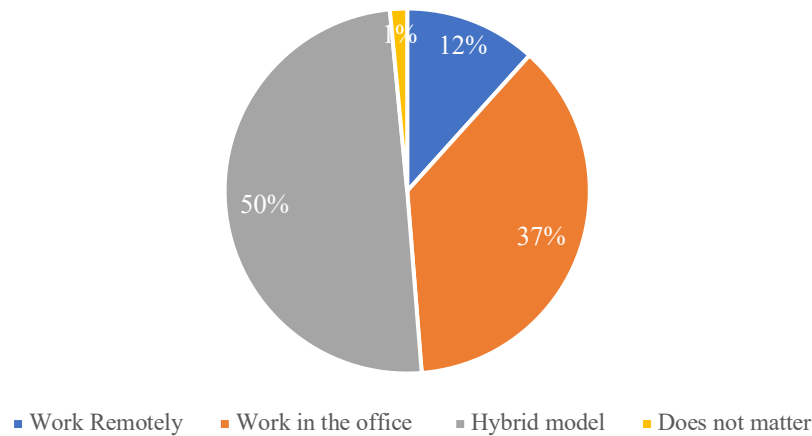


Figure 4: What kind of work format do employees like

Belonging, respect, and self-realization are the three basic human needs from the Maslow Pyramid (Maslow, 1970) method. Accordingly, it is necessary for a person to be recognized at work, to have a sense of respect, to be appreciated, to share his / her success with others and to receive it from them. A person, no matter how humble he/she is, will be happier as more co-colleges are known about his achievements and feels dew respect from them. Even in remote working conditions, it decreases because you do not have the opportunity to receive and share these emotions, which reduces job satisfaction.

Relationships and the emotions derived from them are one of the important factors that contribute to job satisfaction. Consequently, it is not surprising that the majority of respondents to the study noted that they had the most lack of contact with colleagues while working remotely during the pandemic period.

3.3. Employees most lacked social relationships and contacts with colleagues; As well as separation of the work environment from the living environment

Analysis of the survey results revealed that for employees the job is not only just to do a specific job and get paid as a result. It's more. It is a way to communicate with other people, not only at work, but also on other informal topics. Pandemic and isolation have once again shown that a person needs a certain dose of contact with others. The following three factors are important for employee happiness - job satisfaction, balance between personal life and work, and well-being. Important elements of job satisfaction are employees and communication with them (Omar, Ramdani, Mohd, Hussein 2018). The study revealed this very factor that employees lacked when working from home.

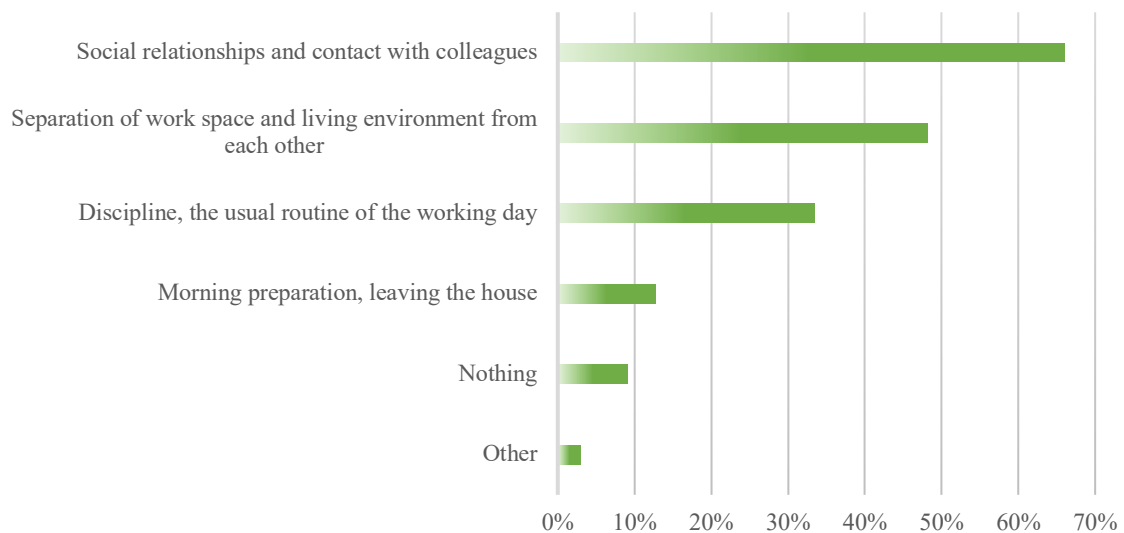


Figure 5: What employees lacked most when working remotely

The most number of employees who lack relationships with colleagues (66%), as well as a sharp separation of work space and living environment (48.2%). While working remotely, they have disturbed the perception of the balance between work and personal life, which has already been proven by numerous studies to be important for job satisfaction (Gagnano, Simbula, and Miglioretti, 2020).

Job satisfaction, as already mentioned, directly affects the motivation and results of employees, their desire to stay longer in this or that company as members of its team. As a result, the number of job seekers and those wishing to move to another company increased during the pandemic - on the one hand, loyalty to the company due to distance from it decreased, and on the other hand, job satisfaction and happiness decreased; Even in the category of employees who say that their sense of job satisfaction has not changed, their sense of loyalty and belonging is still diminished, which also pushes them to look for other alternatives.

3.4. When working remotely, the most employees like is flexibility - they do not spend time on the road and can go out of town and work from there if needed

One of the aims of the study was to identify the positive benefits and factors that employees enjoyed while working remotely and that they would like to maintain in the future, in the post-pandemic period. Possessing the information like this is too important for organizations to respond to new labor market demands with competitive offers. Make appropriate changes to human resource management policies and introduce modern management principles adapted to the new reality to make it easier to retain and attract talent.

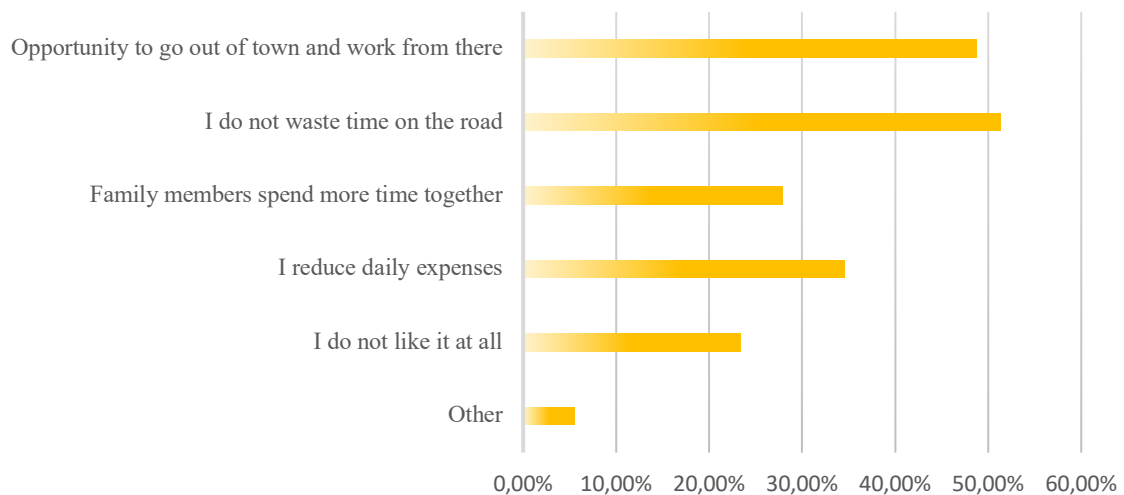


Figure 6: What employees liked most about remote work

Research has shown that employees like flexibility when working remotely, and would like to maintain this when returning to the office. There are two factors that make employees feel very comfortable: one is that they do not spend time on the road (51%) and the other is that they could go out of town and work from there (49%). Mainly because of these factors, 50% of respondents want to continue working in hybrid mode. They want to maintain a certain dose of these benefits in their working life.

4. Conclusion

Remote work has been stressful for many and this has negatively affected the feeling of happiness at work. Job satisfaction of 74% of respondents decreased or did not change during the pandemic period. A large proportion of this, 40%, indicated that it had decreased. There is Dimitri Uznadze's "Theory of Mood" (Uznadze, 1977), which explains well the main bases of the research results and the problems related to this issue. Work needs an environment that creates a specific mood.

In addition to solving specific tasks, people need to be in direct contact with each other, exchange information on achievements or failures, sharing joy and be acknowledged by others, and encouragement aspects in case of failure. In face-to-face relationships, it is easier to understand and manage each other's emotions, and there are more opportunities to express care.

Most prefer to go back to the office and the reason for this was primarily the lack of relationships with colleagues and the separation of work and personal life. Added to this is the stress experienced by many working from home. This is especially true for working mothers and those who do not have adequate facilities at home. These are the reasons why they want to return to the office, although it has become important for them to offer flexibility and hybrid working conditions at the same time.

If companies want to have satisfied employees, they must take into account the current trends in the labor market. In a pandemic, employees had to change their work routine and rearrange to work remotely. They were given the opportunity to experience both the pros and cons of remote work. This has led to the creation of new demands on employees, therefore in the future they will link their careers to companies that will best meet and take into account their interests.

5. Recommendations

Companies need to switch to a flexible work schedule and give employees the choice of whether to work from home or from the office. With the development of technology, the hybrid model is non-alternative and the sooner companies initiate and implement the relevant changes, the better prepared they will be for new challenges.

Of course it is also important for companies to develop and maintain an organizational culture, increase employee belonging and loyalty, and build a team, which is complicated by remote work and even a non-systemic hybrid model. It is therefore important for companies to create a system within which they will offer a hybrid model of work and employees will be given freedom of choice. for example:

1. Give employees the opportunity to work remotely 1 day a week, if desired. This one day could be Friday. This will be announced and if the manager or human resource manager needs to schedule a meeting or event, he / she will use other days of the work week;
2. In addition, besides due vacation give 2 more weeks per year when employees could work remotely. This will allow them to spend more time out of town with family or just relax, changing work environments.

What system solution references would be offered by companies to their employees within hybrid mode depends on them, although, the fact is that for 50% of respondents prefer hybrid mode and making a choice is too important to them.

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The Effect of Glass Ceiling on Women Advancement: A Case Study of Financial Institutions in Bangladesh

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Abstract

Glass ceiling, a widely practiced but unrevealed obstacle for the development of women and minorities towards executive and upper level of managerial hierarchy in the organizations. At the present time this issue is drawing more attention from human resource practitioners around the globe. In developed and developing countries, women's empowerment is the burning issue as the economy can reach its peak through the participation of all genders. In Bangladesh also women are engaging more in jobs specifically in the financial sector and contributing to the economy at large volume. But the disparity between male and women participation at the decision-making level raises the question of the presence of a glass ceiling and the factors contributing to the glass ceiling in the financial sector of Bangladesh. Based on the survey by using structured questionnaires from the commercial banks of Dhaka City Corporation, this study explores organizational factors, explicitly the absence of human resource practices responsible for creating glass ceilings and its presence at the workplace. Using factor analysis and multiple regressions among the six factors, the study found five factors have a significant contribution to the presence of glass ceiling and thus creating barriers to women's advancement. The factors include recruitment practices, performance appraisal, promotion policy, maintenance issues and equal employment opportunities. Policy implications are discussed in light of the findings to minimize glass ceiling effect to contribute gender parity, women's advancement and reducing gender discrimination.

Keywords: Glass Ceiling, Commercial Banks, Women Advancements, Gender Discrimination, Human Resource Practices

1. Introduction

The presence of women participation in the corporate world has increased significantly over the last few decades. In many cases women received tremendous success in their work-life careers. Although women have become very successful in terms of their participation in every sector of their working life, their role in the top management is still marginal. Thus, the issues of women's role in management received much attention recently (Rishani, Mallah,

Houssami & Ismail, 2015). Several researchers indicated that women faced both visible and invisible barriers in their careers (Jackson, 2001; Tracey, 2006; Veale & Gold, 1998). Several recent studies found that women are not only received lower wages but also under-represented in the top corporate ladder than men (Helfat, Harris, & Wolfson, 2007; Blau & Kahn, 2007; Kochan, 2007). In Canada, women occupied only 25.6% senior managerial management positions in the private sector (Moysier, 2017). One study reported that women who belong to the corporate hierarchy are also less likely to be promoted than men in the same level (Yap and Konrad, 2009). Thus, they are continuously facing the 'glass ceiling' in terms of advancing into management positions (Pichler, Simpson, & Stroh, 2008; Cech & Blair-Loy, 2010). This paper aims to examine to what extent and how the universal human resource practices reduce the glass ceiling effect on women's careers. Several studies also indicate that universal practices in terms of recruitment systems with the aim of attracting female applicants would create a broader scope for women into managerial positions (Konrad, 2007; Konrad, Kramer, & Erkut, , 2008; Terjesen & Singh, 2008). The argument is that organization with a discrimination free recruitment system would play crucial role in dealing with the glass ceiling effect in the organization.

1.1 Objectives of the Study

The main objective of the study is to investigate how the universal set of human resource practices can minimize the glass ceiling effect on women and minorities in the financial sector of Bangladesh. The other objectives are to examine the presence of glass ceiling in the financial sector and also identify the major contributing factors for accelerating the glass ceiling and of course focusing on the issue of whether glass ceiling has any adverse effect on women's career development.

1.2 Hypothesis of the study

H1: Ha: Presence of universal set of HRM practices reduces ceiling effect in the organization.

Ho: Presence of universal set of HRM practices does not reduce the glass ceiling effect in the organization.

H2: Ha: Presence of glass ceiling has a negative impact on women's advancement in careers.

Ho: Presence of glass ceiling has positive impact on women's advancement in careers.

H3: Ha: Gender and glass ceiling has a positive relationship.

Ho: Gender and glass ceiling have no relationship.

2. Literature Review

The "Glass Ceiling" is a term that indicates a variety of barriers that prevent qualified women achieving higher positions in the organizations. Though many women nowadays hold top positions around the globe, few made positions in the upper top level or in boardrooms (Carole A. Kadir, 1999). Women have been unable to exert power over economic structure in their societies as they are virtually absent from or poorly represented in economic decision making (FWCW 1995, Para 152). The International Labor Organization (ILO) clarifies that the promotion of participation in economic activity, including the management and decision making levels, it's not a simply a question of equity, but one of the necessities of viable and sustainable national development (United Nations 1989, p:242). Glass ceiling not only indicates the invisible barrier to hierarchical promotion but also represents the gender inequality (David A. Cotter, 2000).

Literature suggests that both the individual and organizational factors are responsible for creating barriers for women who are advancing into management roles. Lower self-efficacy and self-esteem than men, work/life conflict, a lack of social capital, and a lack of family and social supports are those individual factors that hinder women's career advancement into the managerial level (Pell, 1996; Matthews et al., 2010; Konrad & Cannings, 1997; Coronel et al., 2010; Aycan, 2004; Ragins and Cotton, 1991; Hersby et al., 2009; Metz, 2009). On the other hand, organizational culture (negative attitudes and biases against women; Aycan, 2004; Weyer, 2007), lack of organizational support (Aycan, 2004), gender stereotyping (Lee and James, 2007; Schein, 2007), and inadequate universal human resource practices (Konrad, 2007; Hamel, 2009) also found responsible for contributing to the glass ceiling effect at the organizational level. In this regard, men and other colleagues indicate that both individual level and organizational levels are also affected by the glass ceiling. The effect of the glass ceiling has negatively

affected women's progress in the organization, it also prevents them from receiving higher wages (Wesarat, & Mathew, 2017). Moreover, women who have reached the same position also received a lower wage rate than men (Jackson & O'Callaghan, 2009; Sharma & Sehrawat, 2014). One study also suggests that there is a pay discrepancy between men and women for the senior level administrative position (Jackson & O'Callaghan, 2009). Smith and colleagues (2012) also indicate that women's job satisfaction, psychological well-being, and their happiness are also negatively affected by the glass ceiling in the organizations. As such the reduction of glass ceiling effect in the organizations will improve their subjective career success which is important to increasing organizational performance (Wesarat, & Mathew, 2017). In this regard, it can be argued that the presence of a glass ceiling affects women's careers in the workplace. While past studies suggest that the lack of universal human resource practices is responsible for the glass ceiling (Konrad, 2007; Hamel, 2009), little is known about which specific practices reduce the glass ceiling effect in the organization. In this study, we examine the effect of universal human resource practices on the glass ceiling effect on women's careers in the context of the banking sector in Bangladesh.

Presence of well-practiced universal human resource practices, especially like- discrimination-free work environment, pay-based performance system, equal employment opportunities, management attitude are helping organizations to break the glass ceiling. (Syed Rownak A & M. K. Newaz, 2008). Universal HR practices (i.e., selective staffing, comprehensive training, job rotation and cross-utilization) and firm performance are intuitively appealing and supported by theoretical arguments from a number of disciplines (Syed, Z & Jamal, Waseef. (2012). Universal Model suggests that HRM has a number of practices that are considered 'best' in delivering the 'best' possible forms of success in business performance or other indicators (Brewster, 1999; Huselid, 1995). Selective hiring, extensive professional and competency enhancing training and development program, appropriate internal flexible working system enable the organization to heighten their performance (Phillips, 1996; foot & Hook, 1999).

3. Research Methodology

3.1 Data Sources

Both primary and secondary data have been collected and used for this study. Secondary data have been collected from various publications, journals, books and websites to explore more about the glass ceiling and its presence in Bangladesh. Primary data have been collected through a structured survey questionnaire to reveal the presence of glass ceiling in financial organizations especially in banks in Bangladesh and also identify the major contributing factors of glass ceiling impact in these organizations.

3.2 Sampling Design

The study implemented a structured questionnaire survey method to gather data regarding the glass ceiling effect in the financial sector in Bangladesh. Executives (officer grade officials) of the financial industry of Bangladesh are considered as the target population for this study. Sampling for this target population is rather inaccessible; hence a multi-stage random sampling was done to select the sample for this study. Primarily a list of publicly listed financial institutes (Banks, Insurance companies and other financial companies) was obtained from Dhaka Stock Exchange (DSE). In the first stage, 40 financial institutes were selected randomly. In the second stage, 3 branches of each financial institute (across Dhaka) were selected randomly (if the institute has more than 3 branches including head office). The enumerators attempted to get responses from top 4 officials from each branch (if unavailable then next available senior most official). The following diagram would portray sampling methodology graphically;

During execution enumerators faced difficulties to get responses from top officials, as the methodology accommodated, next available senior most officials were then approached if top most official was not available. Due to non-response and missing values, a total of 388 responses were obtained for this study. The response rate for the survey was nearly 40%. As the sample size should be able to provide an acceptable range of confidence level, the researchers decided to go ahead with 388 sample size. The analyzed results from the data may contain 5% margin of error at 95% level of confidence.

3.3 Survey Instrument

A structured questionnaire survey was developed to understand the level of glass ceiling impact in the Bangladeshi financial sector. The questionnaire was developed based on current literature, specialized opinion and brainstorming. As the study targeted top finance executives, the primary questionnaire was developed in English. The questionnaire then pretested in the field. Based on pretest results, few questions were modified for betterment of the assessment. Several factors relating to women leadership in financial institutions of Bangladesh, were assessed through 39 components. Each component was basically a statement. Respondents were asked if they agreed with the statements or not. All measurements were done on a 5-point likert's scale, where 5 is strongly agree and 1 is strongly disagree. Multidimensional factors were measured through multiple components.

4. Analysis

Basic descriptive statistics and cross tabulations were obtained from the data to check data entry errors and other data-related issues. Once the consistency of the data was checked through descriptive statistics, a multivariate factor analysis (with principal component extraction) was performed to reduce the data into several factors of interest. The factor analysis also applied with Varimax rotation to understand factor structures more prominently. Once the factor analysis was performed and factor loading structure was finalized, reliability of each factor was then assessed through Cronbach's Alpha. Each factor passing through reliability tests was then calculated by taking averages of components contributing to that factor. Once all the factors were created, correlation analysis and multiple regressions analysis was performed to understand underlying relations of factors assessed in this study.

Factor analysis (a data reduction technique) using principal components analysis with varimax rotation was conducted first to group the variables measuring the five main constructs of the conceptual model – promotion policy, recruitment, performance appraisal, maintenance policy, equal employment policy. A final factor structure was retained consisting of 20 items and five factors that were easy to interpret and (see Table 1). Level of the glass ceiling was assessed separately and resulted in a five-item construct.

Table 1: Rotated Component Matrix^a

	Component					
	Equal Employment policy	Promotion	Maintenance issues	recruitment	Level of Glass ceiling	Performance appraisal
Q20	.820	-.119	-.077	-.058	-.026	.124
Q24	.817	-.157	-.060	-.106	.006	.066
Q19	.657	.129	.234	.180	-.007	-.082
Q32	.637	.002	.092	-.127	-.046	.386
Q21	.538	-.189	-.164	-.108	-.040	.496
Q16	-.045	.732	.037	.251	.055	.003
Q7	-.166	.732	.073	-.019	.096	.134
Q8	-.125	.638	.076	-.017	.345	-.104
Q17	.089	.615	.187	.267	.081	-.101
Q29	-.094	.115	.810	.012	.047	.115
Q30	.024	.011	.787	-.102	.062	-.142
Q26	.026	.387	.663	.142	.028	-.158
Q27	.139	.004	.622	.251	.053	.118
Q3	.006	.056	-.004	.700	.249	.116
Q6	.156	.358	.023	.657	-.015	-.221
Q2	-.117	.355	-.076	.647	.207	.070
Q1	-.186	-.121	.300	.608	.104	.362

Q15	-.159	.092	.320	.513	.216	-.135
Q38	.035	.140	.032	.217	.831	.002
Q37	-.079	.303	.122	.132	.772	-.071
Q36	-.047	.113	.088	.290	.766	-.122
Q11	.198	.154	-.003	.042	-.058	.737
Q5	.299	-.255	-.026	.114	-.156	.615
Cronbach's alpha	0.660	0.706	0.733	0.714	0.822	0.506

Extraction Method: Principal Component Analysis.

Rotation Method: Quartimax with Kaiser Normalization.

a. Rotation converged in 8 iterations.

Reliability of each factor was assessed using Cronbach's α . To be reliable, the value of α ought to equal or exceed the value of 0.7 (Nunnally, 1978). Two factors had a α value slightly less than .7 (see Table 1). Frequency analysis was performed next to obtain measures of central tendency, variation, and distribution values, shown in Tables 2 & 3.

Table 2: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Recruitment	392	1.20	5.80	4.0233	.66933
Performance appraisal	392	1.00	7.00	3.2117	1.16088
Promotion policy	392	1.00	7.75	3.9488	.81783
maintenance issues	392	1.75	9.00	4.1609	1.16334
glass ceiling level	391	1.67	9.00	3.9433	.99011
EQUAL EMPLOYMENT POLICY	392	1.00	7.60	3.1543	1.12511
Valid N (listwise)	391				

Table 3: Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	.818	.335		2.442	.015
1 Recruitment	.550	.071	.372	7.697	.000
Performance appraisal	-.113	.042	-.133	-2.711	.007
Promotion policy	.285	.059	.235	4.835	.000
maintenance issues	.022	.039	.026	.569	.570
EQUAL EMPLOYMENT POLICY	.019	.043	.022	.439	.661

a. Dependent Variable: glass ceiling level

The mean scores, standard deviations and reliability scores are provided in Table 2. The results show how the respondents perceived the effect of the glass ceiling. Glass ceiling level (the dependent variable), measured on a 5-point scale, rated a mean score of 3.94 ($s=0.99$). Maintenance issue had a mean of 4.16 ($s=1.16$); equal employment policy had a mean of 3.15 ($s=1.12$); promotional policy had a mean of 3.94 ($s=0.81$); performance appraisal had a mean of 3.21 ($s=1.16$) and recruitment had a mean of 4.02 ($s=0.67$).

5. Results

In our factor analysis, we began by conducting an EFA (Thompson, 2004) using the principal axis factoring method. We chose to use an oblique rotation (direct oblimin) method assuming that the different types of HRM practices would be highly interrelated (Fabrigar et al., 1999). The Kaiser criterion or a Scree test (Thompson, 2004) are used for effectively determining the number of factors to be retained in our model. Our results indicated that, at most, a six-factor solution should be interpreted. In our interpretation of the factors, the first factor indicated the equal employment opportunity policy, the second factor represented the promotion policy, the third factor indicated the wellness practices, the fourth factor represented the recruitment policy, the fifth factor indicated the glass ceiling level, and the six factors represented the performance appraisal policy. In order to eliminate the items from the particular factor, we followed the criteria of 0.33 proposed by the Comrey and Lee's as an acceptably strong loading (1992). All standardized loadings on the latent variables were significant ($p < .01$; range .65–.98), supporting the construct validity of the scales with R^2 of 0.292 and adjusted R^2 of 0.282.

Equal employment opportunity policy has Cronbach's alpha 0.660, while not overly high, is deemed acceptable for justifying the simple addition of these five items Q19-Q21, Q24, and Q32. Whereas Promotion policy has Cronbach's alpha 0.706, which is high, which is acceptable for our research study. Answers obtained from Q7-Q8 and Q16-Q17. Maintenance Issues has a simple sum of the four-item answers obtained from Q26-Q27 and Q29-Q30. The Cronbach's alpha statistic of these five items is 0.733, which is high, acceptable for our research study. Recruitment policy answers obtained from Q1-Q3, Q6 and Q15 in the dataset, Cronbach's alpha is 0.714, which is high—is acceptable for our research study. This variable Performance appraisal practice is the sum of the two-item Q5 and Q11 in the dataset has Cronbach's alpha 0.506, while is not overly high—is deemed acceptable for our research study.

Three of the factors – recruitment, performance appraisal and promotional policy were found to be highly significant whereas wellness practices or maintenance issues and equal employment policy were found to be significant with the probability 5 percent of the time. Here the dependent variable is glass ceiling level. Table 3 summarizes the regression results of the final model. The standardized beta (β) values indicate that “recruitment” had the greatest impact on the glass ceiling for women's advancement. Properly defined job duties, working environment, skill recognized by the organization has an impact over presence of glass ceiling. Promotional policy has second highest values which carries promotion training and interview benefits influencing glass ceiling for in the path of women advancement. Maintenance issue and equal employment opportunity have relatively lower value than the previous two variables which covers grievances, resignation, biasness with training, work environment and benefits seems to have lower impact on the glass ceiling. There must be some other social unexplained factors affecting the respondents while making a decision. Performance appraisal covering less interest of management assigning important work to women and reward system favoring male employees seems to have quite a strong impact on the effect of glass ceiling on women advancement.

6. Conclusion

In our study we mostly focused on the position of women in the top-level management in the financial intuitions in Bangladesh, not on minorities. In the financial sector of Bangladesh, very few women employees are holding the positions at the executive and decision-making level which may lead the allegation of gender discrimination, lack of women empowerment which ultimately leads to slower economic growth. This study also edifies the human resource department to ensure more fair policies which creates a way to break the intangible barrier i.e glass ceiling.

In this study we focused on a universal set of HRM practices which includes recruitment and selection, promotion and leave policies, training and development policies, equal employment policies, maintenance issues and performance appraisal policies that may reduce the impact of glass ceiling in an organization which guides the ultimate growth ladder in an organization. Proper recruitment and selection policy, job placement, specification of job duties and more over working environment and skill recognition may have a negative impact on the professional elevation of women. Balanced HRM policies create the condition in which women can rise, flourish and access the same level of opportunities as their male counterparts which helps organizations to grow more with

building trust and interpersonal relationships with more accountability which ultimately benefits the financial health of the organization.

Our research suggested that a solid blend in HRM policies and practices may reduce the gender gap which creates equal employment opportunities and change in working culture may help the financial organizations to build more trust among the customers, investors and other stakeholders which may utilize the natural capacity of transformational leadership of women in this changing world.

Our study does not represent the financial institutions outside Dhaka city corporation where a good number of financial institutions are situated. Further study should consider to develop a broader reach and to understand situations and working culture over there. In our study we also find some other unexplained social factors which are affecting respondents while making decisions. This study provides a preliminary look to explain the impact and presence of glass ceiling in the financial institution especially in Banks in Bangladesh.

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Determinant Factors of the Public Company's Value which Listed in Indonesia Stock Exchange

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Abstract

The study was conducted to evaluate and analyze the factors that influence the value of the company, using 3 (three) alternative regression models, namely the stock market value; share price to book value; and the rate of return as a proxy for company value. Using the stratified random sampling technique, 22 companies were listed on the Indonesia Stock Exchange over a 10-year period from 2009 to 2018. The appropriate panel data estimation method for analyzing the regression model in this study used the fixed effect model (FEM). Regression results show that the variable of debt to total asset (DAR), return of asset (ROA) and gross profit margin (GPM) significantly influenced the value of the company measured by price to book value (PBV) as the dependent variable. For further research has to pay attention to differences in industry characteristics and also consider to use of other variables, such as age the company and the level of risk of the company that measures with the market model, so that it is possible to get better estimation results.

Keywords: Firm Value, FEM, ROA, GPM, DAR, PBV

1. Introduction

The public companies are classified as high-risk investments, because the nature of the instruments is very sensitive to changes, such as changes in politics, economy, monetary, laws or regulations (Karim, 2015). The rate of return and risk are two inseparable factors. In world investment, return and risk have a strong, linear and unidirectional relationship, with the principle that any investment that has a high potential risk will also produce high returns. Public company shares are classified as high-risk investments, because the nature of the instrument is very sensitive to changes, such as changes in the political, economic, monetary, laws or regulations (Karim, 2015).

The return and risk are two inseparable factors. In the world of investment, return and risk have a strong relationship, linear and unidirectional, with the principle that any investment that has a high risk potential will produce a high return (Fahmi, 2014). Stock returns are also influenced by decisions or policies taken by companies such as debt policies. Debt policy is a company funding policy that comes from outside to finance the company's operational activities.

Excessive funding from outside the company has an impact on the high cost of the company and if the domestic economy is unstable, it will result in the company defaulting and increasing the risk of bankruptcy for the company which has an impact on the decline in stock prices. The trade off theory explains the company's balance in utilizing debt funding with higher interest rates and bankruptcy costs (Brigham and Houston, 2001). The use of debt with the right accuracy by the company can provide benefits for the company which will ultimately provide a positive signal for investors.

In previous research, by Mishra and Dasgupta (2019); Widayanti and Haryanto (2013) suggested that financial leverage, has a significant and negative effect on firm performance, while research by Safitri et al. (2015), Anton (2016), and Mishra and Dasgupta (2019) suggests that leverage has a positive and significant effect on firm value. Companies with high debt levels tend to reduce shareholder dividends to be used as retained earnings to finance loan interest. A decision whether the profits earned by the company will be given to investors in the form of dividends or will be retained in the form of retained earnings to finance future investment is known as dividend policy (Sartono, 2012: 281).

Dividend policy is proxied in the dividend pay-out ratio (DPR). The high amount of DPR distributed by companies has resulted in an increase in the value of share prices because investors have better certainty about dividend distribution on their investment (Carlo, 2014). A high DPR can also boost the number of companies shares demand which results in an increase in the company's share price. In a previous study, Putra et al (2014) suggested that the DPR has a significant and negative effect on stock returns, while Carlo (2014) and Anton (2016) research suggests that DPR has a positive and significant effect on firm value which measured by stock returns.

Based on the description above, this research was conducted to identify and analyze the factors that influence firm value such as financial leverage and dividend policy by using three alternative measurements of firm value, namely, Market Price of Stock (Po); Price to Book Value (PBV) and Return on Asset (ROA).

2. Literature Review

2.1. Return and Risk of Investment

Information is a fundamental need for investors in making decisions. Information has meaning if the investor makes transactions on the capital market. Investors in investing will make an estimate of the level of income expected from their investment for a certain period in the future (Tandelilin, 2010). Uncertainty about the level of income or return is the essence of investment, namely that investors must always consider the element of uncertainty which is an investment risk.

The aim of investors to invest is certain to get optimal returns, in addition to dividends, investors also expect stock returns. So before investing, investors carry out an analysis to predict future stock prices so that later they will get the expected rate of return and profit. Returns are divided into two types, namely: Realized Return and expected return. Realized return is a return that has occurred which is calculated based on historical data (ex post data). Realized return is important because it is used as a measure of company performance. Realized return or historical return is useful as a basis for determining the expected return and risk in the future; Expected Return is the return expected to be obtained by investors in the future (Hartono, 2014). According to Fahmi (2015: 357) "risk is uncertainty about a situation that will occur in the future with decisions made based on various current considerations." Husnan (1998: 196) explains that "risk sources are divided into two groups, namely systematic risk, which is the risk that affects all (many) companies, and unsystematic risk, which is the risk that affects one (small group) of companies."

The single index model was developed by William Sharpe (1963), is based on the observation that the price of a security fluctuates in the direction of the market price index" (Hartono, 2014: 407). Stock prices tend to increase when the market price index increases, and vice versa. This shows that the level of profit of a stock has a correlation with market changes (Husnan, 1998: 103). The single index model uses beta in measuring the sensitivity of a

security's profit level to the market (Hartono, 2014: 409). The greater the beta of a stock, the greater the market risk involved in it.

2.2. Debt policy

Debt policy is a company funding policy sourced from externally in financing the company's operational activities (Joni and Lina, 2010). The decision to choose the best funding source requires careful analysis of the company's financial managers. Companies are considered risky if they have a large portion of debt. The amount of debt that is too high will cause financial distress and reduce the value of the company, so company managers must be smart and able to control debt (Astuti and Nurlaelasari, 2013). If the use of debt can optimize the company's performance with the support of economic conditions and the company's capacity, external funding policies are allowed. Debt policy is proxied as DAR is used to measure the ratio of all company debt guaranteed by company assets. This ratio measures the level of company solvency.

"Pecking order theory is a policy pursued by a company to seek additional funds by selling its assets. Such as selling buildings, land, equipment (inventory) it owns and other assets, including funds originating from retained earnings". The pecking order theory policy means that companies tend to choose internal sources of funding to meet the company's funding needs. Companies are required to apply the prudential principal policy, by performing mathematical and mature calculations before making a decision. This is done to minimize the risks that may arise due to the implementation of the packing order theory policy (Fahmi, 2015).

According to Brigham and Houston (2001: 33-34) "trade off theory explains the balance of companies in utilizing financing from debt (favorable corporate tax treatment) with higher interest rates and bankruptcy costs." Companies can maximize their value by balancing the costs and benefits of financing with debt (Susilowati and Turyanto, 2011). Companies that use 100% debt are bad, because they increase costs related to bankruptcy (Brigham and Houston, 2001: 34), but accurate analysis of the use of debt can increase company profits (Astuti and Nurlaelasari, 2013).

2.3. Dividend Policy

According to Sartono (2012: 281) "dividend policy is a decision whether the profit earned by the company will be distributed to shareholders as dividends or will be retained in the form of retained earnings for future investment financing." A number of considerations and decisions regarding determining the appropriate amount to be distributed as dividends are a difficult financial decisions for management (Suharli, 2007). Dividend policy involves two parties with different interests, namely shareholders and companies. If management increases the portion of earnings per share paid as dividends, the company will improve the welfare of shareholders (Rakhimsyah and Gunawan, 2011). On the other hand, if management chooses to withhold profits, the formation of internal funds will be even greater (Sartono, 2012: 281).

There are several theories about dividend policy as follows:

a. Dividends Are Irrelevant

Modigliani-Miller (MM) argues that the decision whether the profit earned will be distributed in the form of dividends or will be retained does not affect firm value but is determined by the earning power of the company's assets. So a dividend policy is not a cause for concern in company growth.

b. Bird-in-the-hand theory

Myron Gordon and John Lintner argue that investors feel safer earning income in the form of dividend payments than waiting for capital gains. Gordon-Litner considers one bird in his hand to be worth more than a thousand birds in the air in the sense that ultimately the retained earnings may never materialize as future dividends.

c. Tax Differential Theory

Tax differential theory is a theory that states that investors are taxed on dividend profits and capital gains so investors prefer capital gains because the tax on capital gains is only paid after shares are sold, while tax on dividends must be paid annually after dividend payments.

According to Sartono (2012: 290) 67lientele effect classifies investors into two groups. First, investors who like companies that pay high dividends because they seem more profitable and have good prospects. The second is investors who want the company to pay low dividends. This is because investors want to reinvest their income so that for them a large dividend payment means that the tax to be paid is also getting bigger.

Thus, company management must determine the best dividend policy in order to improve company performance and minimize agency costs. To see the size of the dividends paid by the company to shareholders, it can be measured by the dividend payout ratio (DPR). The DPR is a ratio used to measure the level of profits that the company will distribute to investors later in the form of dividends (Nirayanti and Widhiyani, 2014). DPR is a percentage that is earned and given to investors in the form of cash.

2.4. Empirical Study

Previous research has been carried out related to this research topic (Aryani et al., 2015; Safitri et al., 2015; Carlo, 2014; Setianan and Adwitya, 2011; Sutanto, 2007). Government policy, politics, economic conditions and other macro factors are other factors that can influence the independent variables used in this study.

This is what causes the author to use the control variable to determine the real relationship between the independent variables including profitability, leverage or debt policy and dividend policy on the dependent variable, namely stock returns. Profitability, liquidity, debt policy and dividend policy are estimated to affect the level of investment opportunities in the company (Nazir et al., 2010), therefore the authors include asset growth as a control variable so that there is no other relationship that affects the independent variable on the dependent variable. used in this study and the results obtained from the study can be known more with certainty (Sugiyono, 2009: 41).

Supadi and Amin (2012) found that EPS and ROA have a positive effect, while DER and Beta have negative and positive effects, but not significant. Safitri et al., (2015) found that ROE, CR and DAR have a positive and significant effect on stock returns. Nirayanti and Widhiyani (2014) found that DPR and PER have a positive and significant effect on stock returns, while DER has a negative and significant effect on stock returns. Carlo (2014) found that ROE and DPR have a positive and significant effect on stock returns, while PER has no significant effect on stock returns.

Nazir et al., (2010) show that the dividend policy (dividend yield and pay-out ratio) has a significant impact on stock price volatility in Pakistan. Size as a control variable has a positive effect, while earning volatility, leverage and assets growth have no effect on stock price volatility. Furthermore, Onsomu and Onchiri (2014) found that there was no significant relationship between dividend policy and stock price volatility in Kenya. Control variables, namely company size, long-term debt and asset growth, were also found to have no significant relationship with stock price volatility in Kenya.

2.6. Hypothesis

The company's ability to meet current liabilities, as measured by the ratio of current assets to current liabilities (Current Ratio, CR) is to measure the company's ability to meet short-term obligations. The company's ability to provide cash flow will help facilitate daily operational activities, so that the company's long-term continuity is guaranteed. Previous research has proven that ROE, CR and DAR have a positive and significant effect on stock returns (Safitri et al., (2015). Furthermore, Gill and Mathur (2011), prove that CEO duality and company liquidity affect the performance of service companies in Canada., Farooq and Bouaich (2012) revealed that there is a significant positive relationship between liquidity and company performance in countries that are members of the Mena region.

Profitability is the company's ability to earn profits in relation to sales, total assets, and own capital. Total net income is often compared to measures of other activities or financial conditions such as sales, assets, shareholder equity to assess performance as a percentage of some level of activity or investment. (Sartono, 2012). The company's ability to generate profits is an important factor affecting the company's performance in the market. The level of profit generated, using the measurement of the rate of return on assets, and the rate of return on their own capital and the resulting profit margin are the main indicators for investors in any selected stock investment decisions. The ability to generate profits will affect the stock market price. If the profit generated is relatively high, then investors will maintain their stock portfolio or try to buy these shares. So thus that:

Ha1: The company's liquidity has a positive effect on firm value

Debt policy is a company funding policy sourced from externally in financing operational activities to increase company profits (Joni and Lina, 2010). "Trade off theory explains the balance of a company in utilizing debt financing (favorable corporate tax treatment) with higher interest rates and bankruptcy costs" (Brigham and Houston, 2001: 33-34). The funding process can be said to be successful if the company earns revenue. greater than loan interest expense (Rusliati and Prasetyo, 2011). This must be supported by company considerations with due regard to economic conditions and state policies as well as internal conditions of the company. Thus, the use of debt within the company will not have a negative impact, instead it will have a positive effect on the company, such as an increase in profits, which ultimately increases firm value and is captured as a positive signal for investors (Fama and French, 1998).

In this study, debt policy is proxied in the debt to total assets ratio (DAR). Previous research by Safitri et al. (2015) suggested that DAR has a positive and significant effect on stock returns. Different research disclosed by Widayanti and Haryanto (2013) states that DAR has a negative and significant effect on stock returns, while Putra et al (2014) research states that DAR has no significant effect on stock returns.

Ha2: Debt Policy (DAR) has a positive effect on firm value.

Dividend policy is "a decision whether the profits received by the company will be given to investors in the form of dividends or will be retained in the form of retained earnings to finance future investment" (Sartono, 2012: 281). Bird-in-the-hand theory explains that investors feel safer earning income in the form of dividend payments than waiting for capital gains (Sartono, 2012: 282-289). Investments resulting from dividend policy have a positive impact on firm value (Fama and French, 1998). The high portion of earnings per share paid by the company as dividends is considered to improve the welfare of shareholders (Rakhimsyah and Gunawan, 2011). As a result, potential investors will be interested in investing their funds in companies that affect share price increases. The rate of return on shares will move in the direction of the stock price, because the stock price interprets the rate of return on shares.

In this study, the dividend payout ratio (DPR) is used to measure dividend policy. The DPR is a profit sharing presentation between payments to shareholders and reinvestment (Yusi, 2011). A high DPR provides a positive signal for investors because the amount of dividends distributed by the company reflects the high profit the company receives and is considered to have good prospects in the future. In previous research, Carlo (2014) and Nirayanti and Widhiyani (2014) suggest that the DPR has a positive and significant effect on stock returns. Different research is expressed by Putra (2008) which states that the DPR has a significant and negative effect on stock returns and Musyarofah et al. (2015) which states that the DPR has no significant effect on stock returns.

Ha3: Dividend policy has a positive effect on firm value.

Asset growth is an indicator that can be used to predict the rate of return on shares (Cooper, Gulen and Schill, 2008). Companies with large assets indicate that the company has large cash flow and is captured as a positive signal for investors (Sutanto, 2007). The company hopes to be able to maintain its business continuity (going concern) and make company activities better for a long time. The greater the company's operational results, the greater the trust of outsiders in the company (Setianan and Adwitya, 2011). Research by Setianan and Adwitya (2011) and Sutanto (2007) states that asset growth has a positive and significant effect on stock returns, while research by Nazir et al. (2010) and Onsomu and Onchiri (2014) stated that asset growth does not affect stock price movements as a control variable.

3. Research Method

3.1. Population and Sample

The population in this study were all companies listed on the Indonesian Stock Exchange for the period 2009 - 2018. The research sample was taken by strative random sampling, which is a stratified sampling technique from a population based on a certain strata or level, then sampling by simple random sampling.

3.2. Research Variables and Operational Definitions

1) Dependent Variable

- Company Shares Price (Po)

The value or price of a company's stock is the main indicator in choosing a stock investment portfolio. The high and low share prices will determine the investment value or the wealth of investors. The value of the company's shares is measured by:

Share value = the logarithm of the stock price

- Share price ratio to book value (PBV)

To measure the comparison between the company's present value to the company's historical value. To calculate this ratio is the following formula:

$PBV = \text{Market Price per Share} / \text{Book Value per Share}$

- Return on Asset (ROA)

Used to measure the company's ability to generate net profit after tax from each total invested asset. The ROA variable is an important indicator for companies and investors in assessing the company's ability to survive in the long term. ROA is calculated by the following formula.

$ROA = \text{Net Income} / \text{Total Asset}$

2) Independent Variables

- Gross Profit Margin (GPM)

GPM is used to measure the company's ability to generate gross profit. This variable is important to measure how efficient the company is in using the company's main resources. GPM is measured by the formula:

$GPM = \text{Gross Profit} / \text{Net Sales}$.

- Current Ratio (CR)

The current ratio, or Current Ratio (CR), is a measure of a company's ability to meet its short-term obligations. The company's ability to meet short-term obligations is very important, because failure to fulfill these obligations will result in disruption of the company's operational activities, which will reduce productivity and the trust of the parties to the company. Current Ratio can be calculated by the following formula:

$\text{Current Ratio (CR)} = \text{Current Assets} / \text{Current Liabilities}$

- Debt Policy (DAR)

The indicator used in measuring debt policy is the debt to assets ratio (DAR). According to Fahmi (2014: 72) this ratio measures the ratio of all company debt guaranteed by company assets. The higher this ratio, the greater the amount of loan capital used to invest in assets in order to increase profits for the company. The formula for calculating DAR is as follows.

$DAR = \text{Total Debt} / \text{Total Asset}$

- Dividend Policy (DPR)

The indicator used in measuring dividend policy is the dividend pay-out ratio (DPR). The DPR is a profit-sharing presentation between payments to shareholders and reinvestment (Yusi, 2011). Investors tend to be attracted to a

high DPR because the company is considered to have good prospects in the future. The formula for calculating the DPR is as follows.

$$\text{DPR} = \text{DPS} / \text{EPS}$$

3) Control Variable

- Asset Growth (AG)

The growth of company assets illustrates how much the company uses its funds (Anastassia and Firnanti, 2014). Companies with large assets indicate that the company has large cash flow and is captured as a positive signal for investors (Sutanto, 2007). The way to calculate asset growth is the current total assets minus the previous total assets then divided by the previous total assets. The process of calculating assets is calculated using a formula.

$$\text{Asset Growth (AG)} = \frac{\text{Total Aset}_t - \text{Total Aset}_{t-1}}{\text{Total Aset}_{t-1}}$$

3.3. Data analysis

- Regression Model

In this study, the regression model is divided into three sub-models with the following regression equation:

Model 1:

$$\text{LnPoi}_{i,t} = \alpha + \beta_1 \text{CR}_{i,t-1} + \beta_2 \text{DAR}_{i,t-1} + \beta_3 \text{ROA}_{i,t-1} + \beta_4 \text{GPM}_{i,t-1} + \beta_5 \text{YDPR}_{i,t-1} + \beta_6 \text{AGR}_{i,t-1} + u_{i,t}$$

Model 2:

$$\text{PBVi}_{i,t} = \alpha + \beta_1 \text{CR}_{i,t-1} + \beta_2 \text{DAR}_{i,t-1} + \beta_3 \text{ROA}_{i,t-1} + \beta_4 \text{GPM}_{i,t-1} + \beta_5 \text{YDPR}_{i,t-1} + \beta_6 \text{AG}_{i,t-1} + u_{i,t}$$

Model 3:

$$\text{ROAi}_{i,t} = \alpha + \beta_1 \text{CR}_{i,t-1} + \beta_2 \text{DAR}_{i,t-1} + \beta_3 \text{PBVi}_{i,t-1} + \beta_4 \text{GPM}_{i,t-1} + \beta_5 \text{YDPR}_{i,t-1} + \beta_6 \text{AGR}_{i,t-1} + u_{i,t}$$

Where:

LnPoi, t = Transform logarithm of the share price of company i, period t.

PBVi, t = the ratio of the share price to the book value of own capital (price to book value, PBV) company i period t

ROAi, t = The rate of return on total assets (ROA) of the company i period t

CRi, t-1 = current asset ratio (current ratio, CR) company i period t-1

DARi, t-1 = ratio of total debt to total assets (debt to total assets, DAR) company i period t-1

GPMi, t-1 = company i gross profit margin (GPM) period t-1

DPRi, t-1 = dividend pay-out ratio to net income (dividend pay-out ratio, DPR) company i period t-1

AGRi, t-1 = The rate of growth of assets (asset growth rate, AG) company i period t-1.

3.4. Model Specifications

In the regression model estimation method using panel data, it can be done through three methods of panel regression analysis, namely:

- Common Effect Model (CEM)

A regression model that does not pay attention to the dimensions of time or individuals and assumes that the behavior of company data is the same over time is known as Common Effect estimation. This method can use the Ordinary Least Square (OLS) approach or the least squares technique to estimate the panel data model. Multiple linear regression based on the least squares method (MKT) or OLS which is one of the methods often used to estimate a regression line by minimizing the number from the square of the error of each observation to the line (Ghozali, 2013: 96). The regression model equation with Common Effect estimation can be written as follows:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + e_{it}$$

Information :

Yt = dependent variable

β_0 = intercept

β_1, β_2 = differentiating intercept
 X_1, X_2 = independent variable
i = type of company
t = time
e = error

- Fixed Effect Model (FEM)

A regression model that assumes different intercepts in the equation is known as the Fixed Effect regression model. To estimate panel data with the Fixed Effects model using dummy variable techniques to capture differences in intercepts between companies, but the intercept is the same between times (time invariant). This model also assumes that the regression coefficient (slope) remains between firms and over time. This model is often called the Least Squares Dummy Variable (LSDV) technique with the following equation:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 D_{1i} + \beta_4 D_{2i} + \beta_5 D_{3i} + e_{it}$$

Where: D_{1i} , D_{2i} and D_{3i} are dummy variables for objects 1,2,3 and 0 for other objects.

- Random Effect Model (REM)

The use of dummy variables in the Fixed Effect model aims to represent ignorance of the real model. This reduces the degree of freedom which in turn reduces the efficiency of the parameter. This problem can be solved by using a random effect model that uses error terms, by estimating panel data where the disturbance variables may be interrelated between individuals and over time. This model is also called the Error Component Model (ECM) or Generalized Least Square (GLS) technique with the following equation:

$$Y_{it} = \bar{\beta}_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + v_{it}$$

Note: $\bar{\beta}_0$ is an unknown parameter indicating the population mean intercept and v_{it} is a disturbance variable.

In determining the most appropriate panel regression model estimate to be used, the Chow Test, Hausman Test and LM Test are carried out.

- Chow Test;

It aims to choose the use of the Common Effect Model or Fixed Effect Model as a method of estimating the right panel regression model for our research (Widarjono, 2007: 77). The basis for decision making is by looking at the probability value of F, if the probability value of $F < 0.05$ then H_0 is rejected and vice versa.

H_0 : Common Effect Model

H_1 : Fixed Effect Model

- Hausman Test;

It aims to choose the use of the Fixed Effect Model or the Random Effect Model as a method of estimating the appropriate panel regression model for our research. The basis for decision making is by looking at the probability value, if the probability value is < 0.05 then H_0 is rejected, on the other hand if the probability value is > 0.05 then H_0 is accepted.

H_0 : Random Effect Model

H_1 : Fixed Effect Model

- LM Test:

It aims to choose the use of the Common Effect Model or the Random Effect Model as a method of estimating the appropriate panel regression model for our research. The basis for making the decision is by looking at the probability value at Breusch-Pagan, if the probability value is < 0.05 then H_0 is rejected, on the other hand if the probability value > 0.05 then H_0 is accepted.

H_0 : Common Effect Model

H_1 : Random Effect Model

4. Result and Discussion

4.1. Descriptive Analysis

Descriptive analysis is performed to briefly describe each variable used, namely showing the average or mean value of the data determined by dividing the amount of data by the amount of data. The median is to determine the middle location of the data after the data is arranged in order of value. Standard deviation or standard deviation variance to measure the variation in data distribution. The smaller the value of the distribution means that the variation in data values is getting the same. Then the maximum and minimum values of each variable. The value of skewness or the size of the slope, which shows whether the curve is sloping or not in a frequency distribution. Kurtosis or also known as the size of a distribution relative to the normal distribution. to measure the number that can is is and kurtosis.

The results of the descriptive analysis of the variables used in this study are as follows. For the Current Ratio (CR) variable, the average or mean and median values were 229.88 percent and 175.49 percent, while the maximum current ratio value of 953.04 percent occurred at PT. Kawasan Industri Jababeka Tbk, in 2014 and the minimum current ratio was 16.91 percent occurred at PT. Jaya Agra Wattt Tbk in 2017. The variable ratio of total debt to total assets (Total Debt to Total Asset, DAR) with an average or mean value of 45.04 percent and a median value of 42.00 percent. For a maximum value of 88.00 percent occurs at PT. FKS Multi Agro Tbk in 2011 and a minimum value of 13.00 percent is found at PT. Multi Indocitra Tbk in 2009.

The mean and median value of the return on assets (ROA) variable were 8.51 percent and 7.05 percent, respectively. The highest ROA of 41.55 percent was found at PT. HM Sampurna Tbk in 2011 and the lowest ROA was at PT. Jaya Agra Wattt Tbk in 2018. The gross profit margin variable (GPM) has a mean and median value of 28.24 percent and 24.20 percent, respectively. The highest GPM is at PT. Bumi Serpong Damai Tbk amounted to 74.69 percent in 2015 and the lowest GPM value at PT. FKS Multi Agro Tbk amounted to 1.86 percent in 2009.

The average or mean and median values of the dividend pay-out ratio (DPR) variable are 25.35 percent and 15.96 percent, respectively. The maximum value of the DPR variable is 137.71 percent at PT. HM Sampoerna Tbk in 2013 and the lowest DPR value of 0.00 percent was at PT. Astra Autopart Tbk in 2009, 2010 and 2011, and in 2009 at PT. Ciputra Development Tbk and PT. FKS Multi Agro Tbk. The mean and median value of the stock price to book value (PBV) ratio variable were 1.97 times and 1.42 times, respectively. The maximum value is 16.76 times at PT. Indofood Sukses Makmur Tbk in 2011 and a minimum value of 0.00 times at PT. Jaya Agra Wattt Tbk in 2009 and 2010 and PT. Indofood CBP Sukses Makmur Tbk in 2009.

The mean and median value of the asset growth variable (AG) is 15.47 percent and 13.43 percent, respectively. The highest AG value of 97.66 percent occurred at PT. FKS Multi Agro Tbk in 2010. For the lowest AG value of -22.00 percent occurred at PT. FKS Multi Agro in 2014. The mean and median value of the variable Price per share (Price of stock, Po) is Rp. 7,744.41 and Rp. 1115.00. The highest share price was Rp. 94,000, happened to PT. HM. Sampoerna Tbk in 2014. The lowest share price of Rp. 104 occurred at PT. Jababeka Tbk Industrial Estate in 2009.

Table 1: Descriptive Statistic

	CR	DAR	ROA	GPM	DPR	PBV	AG	PO
Mean	229.8814	0.450409	8.511727	28.24764	25.35091	1.973409	15.47614	7744.414
Median	175.4950	0.420000	7.050000	24.20000	15.96500	1.420000	13.43000	1115.000
Maximum	953.0400	0.880000	41.55000	74.69000	137.7100	16.76000	97.66000	94000.00
Minimum	16.91000	0.130000	-8.720000	1.860000	0.000000	0.000000	-22.00000	104.0000
Std. Dev.	176.5108	0.175625	7.298437	16.36633	27.41849	1.774371	16.08191	16769.19
Skewness	2.219780	0.337931	1.780302	0.785164	1.130115	3.782823	1.737456	3.100767
Kurtosis	8.069087	2.307966	7.832201	3.054375	3.974600	27.72614	8.582480	12.33699
Jarque-Bera	416.2156	8.577251	330.2573	22.63146	55.53612	6129.028	396.3584	1151.686
Probability	0.000000	0.013724	0.000000	0.000012	0.000000	0.000000	0.000000	0.000000

Sum	50573.90	99.09000	1872.580	6214.480	5577.200	434.1500	3404.750	1703771.
Sum Sq. Dev.	6823180.	6.754863	11665.51	58660.62	164638.4	689.4977	56639.52	6.16E+10
Observations	220	220	220	220	220	220	220	220

4.2. Statistical Testing Results

The form of data used in this study is panel data, which combines time series data with cross-section data. So there are three alternative estimation models that can be used, namely the Common Effect Model (CEM), Fixed Effect Model (FEM), and the Random Effect Model (REM) To find out which estimation model is appropriate to explain the relationship between independent variables and trend variables in this study, the first step is to select one of the three existing models, namely by conducting a model selection test.

In this study, there are three alternative regression models that will be tested using these three estimation methods. The results of the three regression models of the factors that influence firm value are reported in table 2. Based on the results of testing 3 (three) three panel data regression models using three (3) estimation methods, namely CEM, FEM and REM, it was decided that the FEM model was the most appropriate method in estimating the three models used in this study. This is evidenced by the results of the test of selecting the estimation method, namely the Cho-test and the Hausman test. Where the test results of the two test tools are significant, where the probability value of both is smaller than $\alpha = 0.05$.

From the three models, it is stated that each variable produces different levels of significance, so that there is no consistency in the results of the three models used. For the current ratio variable, CR is only significant in model 1, while the other two models are not. For the debt to assets ratio variable, DAR is only partially significant in model 3. The variable rate of return on assets (Return on Asset, ROA) has a significant effect on model 1 and model 3. Gross profit margin variable, GPM has a significant effect on all models, while the dividend pay-out ratio, DPR is only has a significant effect on the second model.

Table 2: Hypothesis Testing Results by Using FEM

Variabel	Model 1 (LnPo)	Model 2 (ROA)	Model 3 (PBV)
C	6.610.401*** (0.151202)	-2.527.402 (2.033.889)	1.623100*** (0.286783)
CR(-1)	-2.42E-05*** (4.85E-06)	4.99E-05 (5.90E-05)	0.000146 (0.000109)
DAR(-1)	0.088201 (0.204737)	2.163.146 (2.406.789)	0.685386* (0.365864)
ROA(-1)	0.018293*** (0.005351)	- -	0.043565*** (0.015674)
GPM(-1)	0.021918*** (0.004132)	0.367090*** (0.047750)	-0.011927** (0.005484)
DPR(-1)	-0.000817 (0.001067)	-0.022076** (-0.022076)	-0.001207 (0.002104)
PBV(-1)	- -	-0.01804 (0.185186)	- -
AG(-1)	0.000912 (0.000890)	0.008099 (0.008001)	0.001779 (0.001772)

R-squared	0.980422	0.705543	0.785373
Adjusted R ²	0.977319	0.658776	0.751285
F-statistic	3.153.063***	1.508.645***	23.03971***
DW-statistic	1.497.059	1.181.559	1.862946
Cho test	219.825.31***	10.200.310***	20.032319***
Hausman test	24.920.544***	35.130.748***	13.689979**

The classical assumption test results found that only model 3, namely the variable stock price to book value ratio (PBV) as a proxy for firm value passed the four classical assumption tests. Lie and Lie (2002) found that the variable market to book value (PBV) ratio generally produces more accurate estimates with a smaller yield bias than other variables. So at this discussion point only analyzes the estimation results in model 3. As described in Table 2, there are three variables that have a significant effect on firm value, namely DAR (-1), ROA (-1) and GPM (-1).

4.3. Discussion

The results of this study prove that the use of debt has a positive impact on firm value. The increase in the amount of debt gives a signal to the market that the company is in the business development phase and that the ratio of debt to total assets is still below 50 percent, namely a new average of 45.04 percent. By increasing the amount of debt, it provides an opportunity for companies to be careful in using funds originating from debt, so that in consideration of investment, companies can not only increase their investment but also be more careful in choosing their investment portfolio (Marchica and Mura, 2010). Thus, the increase in the amount of debt is responded positively by investors, that the company will be able to produce better cash flow in the future (Lewellen and Emery, 1986).

The results of this study support the trade-off theory, where up to a certain level of use of debt, it will increase the firm's value, because the use of debt generates compensation from the value of the tax protection of debt used by the company. The value-added benefit of debt will reach the maximum level when the company's capital structure is optimal, so that the benefits of the value of tax protection will be the same as the additional cost of bankruptcy as a result of the company's failure to meet its debt obligations. So that companies are encouraged to continue to increase their debt until they reach an optimal capital structure (Lin and Chang, 2011).

The variable rate of return on assets (ROA) has a significant positive effect on firm value, while the variable gross profit margin (GPM) has a significant negative effect on firm value. The results of this study are in line with the research by Hermuningsih (2013) that the profitability variable as measured by ROA has a significant positive effect on banking companies in Indonesia. The same results are shown from Chen and Chen's (2011) research that profitability has a positive effect on the value of companies listed on the stock exchange in Taiwan.

The ability to increase debt as an alternative to financing will be carried out by companies, especially loans that offer relatively cheap debt costs, for example by looking for sources of debt abroad that provide relatively cheaper interest on debt compared to domestic loans. The company's ability to increase the rate of return on invested assets and gross profit margin is continuously carried out so that the company's value continues to increase in order to meet the interests of stakeholders, especially investors.

5. Conclusion and Sugestion

The regression results show that the variable debt to total assets ratio (DAR), rate of return on assets (ROA) and gross profit margin (GPM) has a significant effect on firm value which is proxied as the ratio of stock price to book value (PBV) as the dependent variable. Companies are advised to always be careful in using sources of debt funds, because in addition to bringing the consequences of fixed expenses in the form of debt interest and loan principal that must be paid, it also results in increased financial risk which to a certain level result in a higher risk of company bankruptcy. The use of debt is only recommended when the company has the ability to generate gross

profit margins and the ability to generate relatively high returns on assets, so that the company's financial risk is in a safe condition. For investors in the capital market, that in choosing stocks for the formation of their investment portfolios, they should choose a company that has a debt to total assets ratio that is in a safe condition or in an optimal capital structure condition and owns company shares with a return on assets and gross profit. relatively high, so that the risk of default on debt can be minimized.

Considering that this research still has several weaknesses, including in the sample selection not paying attention to the characteristics of the industry, it is recommended that further research also focus on the differences in each industry so that the characteristics of each industry can be known. It is recommended in the following research to also use other variables, such as the age of the company and the level of risk of the company as measured by market models and others, so that it is possible to get better estimation results.

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Indonesian Defense Economy in the Industrial Revolution Era

4.0

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Abstract

The defense economy as an economy that has an important role, of course, in its journey faces challenges, especially the low national Research and Development budget of <1% of GDP/Per Capita. Director-General of Research and Development (R&D) Kemenristekdikti Muhammad Dimiyati previously said that Indonesia's research growth in the last four years had grown rapidly. Based on 2017 data from the Ministry of Research, Technology and Higher Education, Indonesia's research budget is only 0.25 percent of total GDP, if converted into IDR 30.78 trillion. The second challenge is the entry of the digital era which must be responded wisely and anticipated as the 4.0 industrial revolution in the development of science. The purpose of this study is to describe more about how research & development and the industrial revolution 4.0 are in building a defense economy. In this study, the authors used data analysis techniques with a qualitative descriptive analysis strategy model. The results of the research show that the results of research and development funds are used to innovate to support increased productivity. As a result, the country's production performance has improved and boosted economic growth. The Industrial Revolution 4.0 makes work done by individuals or companies more effective and efficient. With this efficiency and effectiveness, the economy will increase and automatically the defense will also increase. So research & development and industrial revolution 4.0 in practice can build and strengthen the existing defense economy in a country.

Keywords: Defense Economy, Industrial Revolution 4.0, Indonesia, Research and Development

1. Introduction

The defense economy as an economy that has an important role, of course, in its journey faces challenges, especially the low national Research and Development budget of <1% of GDP/Per Capita. Director-General of Research and Development (R & D) Kemenristekdikti Muhammad Dimiyati previously said that Indonesia's research growth in the last four years had grown rapidly. Based on data from the Ministry of Research, Technology and Higher Education in 2017, Indonesia's research budget is only 0.25 percent of the total GDP, if converted into IDR 30.78 trillion (Rikin, 2019). Whereas in the sense that research and development or R&D are research, development activities and have commercial interests in relation to pure scientific research and applicative development in the field of technology. This research and development or R&D has an important role and is an indicator of the progress of a country.

Currently, almost all countries providing large-scale military equipment are supported by study skills and the empowerment of strong technological capacities from within the country (Haripin, 2011). However, the development of the defense industry in the country has in fact caused certain problems, including the development of the national defense industry. The country is required to fulfill the needs of the defense department as soon as possible. Basically, the procurement of defense equipment cannot wait a long time because the main weapon system is an integral part of the Strategic Plan and the goal is that the defense equipment system must be ready to use whenever it is needed (Al-Fadhat, 2019).

With the development of the globalization era, it has resulted in the increase of countries in order to protect regional integrity and maintain sources of competitive advantage, both natural and human energy sources as well as their national interests. In the context of protecting this competitive advantage, research and technology development are important aspects for each country that is developing its defense industry and aspires to achieve independence in the procurement of military equipment (Susdarwono, 2020).

The second challenge is the entry of the digital era which must be responded to wisely and anticipated as the 4.0 industrial revolution in the development of science. The Industrial Revolution 4.0 is a comprehensive transformation of all aspects of production in the industry through the incorporation of digital technology and the internet with conventional industry (Merkel, 2014). The President of Indonesia said that science and technology are developing very fast, even very fast. The industrial revolution 4.0 has given birth to many new technologies. Technology that changes the ways of life of the world's citizens. Furthermore, Jokowi pointed out that advanced robotics and artificial intelligence have made it easier in many ways, including in the military and police world (Widyastuti, 2019). In this article, the author will describe more about research & development and the 4.0 industrial revolution in building a defense economy. Based on this, the author is interested in writing an article on Research & Development and the Industrial Revolution 4.0 in Building a Defense Economy.

2. Research Methods

This article in Research is qualitative research using a literature research approach. Literature research is a study that studies various reference books as well as the results of similar previous research that are useful to get a theoretical foundation on the problem to be studied (Sarwono, 2006). Literature studies in this research are conducted by looking for and studying various literature, scientific articles, whether in the form of books, journals and other documents related to Research & Development and the Industrial Revolution 4.0. The data sources in this study are books, journals, web pages and other references that are considered relevant to the theme in this research, namely reviewing the role of Research & Development and the Industrial Revolution 4.0 in building the Defense Economy. According to Miles and Huberman, data analysis is an activity that refers to systematic research or testing of a thing in order to determine the parts of the data.

In this study the authors used data analysis techniques with qualitative descriptive analysis strategy models. This analytical technique model can provide an overview of how the flow of logic of data analysis in qualitative research can provide input to how qualitative data techniques are used.

3. Results and Discussions

3.1. Research and Development

Each country's defense budget can usually be grouped into budgets to finance research, development, testing and evaluation or Research, Development, Test and Evaluation (RDT&E). Shopping for RDT&E has shown constant long-term development since the 1940s. During the period 1948-2007, the total cost of RDT&E constituted approximately 42% of the cumulative expenditure of the U.S. Ministry of Defense (Yusgiantoro, 2014). By equalizing the pay incurred for RDT&E activities in developed countries, most importantly excelling in the development of defense forces, is the U.S., Germany, France, Britain, Italy, Japan, and Canada, after the Cold War (1991), the U.S. still allocates payments for RDT & E for the defense sector is very large. This is shown in the U.S., the basic principle of defense force development is (a) it needs to be supported by a strong defense industry, and (b) it needs to have a solid and strong foundation of intensive activities for RDT&E (Yusgiantoro, 2014).

In a post written by Doctor Derek Braddon entitled "Commercial Applications of Military R&D: US and Eu Programs Compared," we can learn that during the Cold War, for example, countries' R&D spending for the defense industry recorded a record of up to US\$120 billion. Of the total amount of this fund, 35 percent of which includes US military R&D spending.

The benefits of this massive funding for R&D are felt by the commercial sector in the form of a spillover effect and spinoff of commercial products derived from military products. The computer that we know today, for example, actually came from the Electronic Numerical Integrator and Computer (ENIAC) project which was initiated by the US since 1945. The virtual network project that DARPA developed in 1974 became the basis for the development of the internet that we enjoy today. Other products such as the Global Positioning System (GPS), semiconductors, jet engines, coolers, nuclear reactors, ship containers, weather satellites, and navigation systems were actually born from R&D for military purposes (Bitzinger (ed.), 2012)

The moral lessons that can be learned from the pattern of R&D development of the defense industry in the country, various discussions show trends to the aftermath of a change in state commitments such as that which occurred with the birth of BAE Systems in the UK. In Indonesia at this age, perhaps, like what happened in England in 1986, there was a LINK program that linked several universities, leading study institutions, commercial companies, to the defense industry (Karim, 2014).

The top 3 countries with the most research funds are the United States, China and Japan. The allocation of research funds owned by the 3 countries is more than 2% of the total GDP. Meanwhile, in Indonesia, it is only close to 0.25% of GDP. When compared to neighboring countries such as Vietnam, Thailand and Malaysia, Indonesia is still lagging behind. The 3 ASEAN countries have riser funds of 0.44%, 0.78%, 1.3% of GDP (Prasetyo, 2019). By looking at Strategic Theory according to Purnomo (2007: 4) says that the word strategy comes from the Greek strategos, which comes from the word stratos which means military and ag which means to lead. Strategy in the initial context is defined as generalship or something that generals do in making plans to conquer the enemy and win the war.

Therefore, the strategic objective to be achieved by research and development is to increase the productivity of inventions and to strengthen the transformation of a competitive and sustainable economy. As well as increasing good governance in the context of bureaucratic reform.

Internationally, it has been proven that investment in research and development, both by the government and the private sector, greatly encourages economic growth. The research and development funds are used to innovate to support increased productivity. As a result, the country's production performance has improved and boosted economic growth. Countries that do not develop the technology will be left behind. It should be remembered that building science and technology cannot be instantaneous (Dipua, 2020). Requires a long process and the support of adequate human and financial resources. Therefore, Indonesia must think about increasing the research and development budget in order to build a Defense Economy.

3.2. Industrial Revolution 4.0

According to Herman (2015) said that the Industrial Revolution 4.0 is a digital industrial era where all the parts contained in it work together and talk in real-time anywhere at any time with the use of IT (information technology) in the form of the internet and CPS, IoT and IoS to create new innovations or other optimizations that are more efficient and effective.

Some of the industrial design 4.0 principles are as follows, first, interconnection is the ability of machines, sensor devices and people to connect and talk to each other via the Internet of Things (IoT), this principle requires the cooperation of security and standards. Second, data transparency is the ability of data systems to produce virtual replicas of the physical world by enriching digital models with sensor information including information and data provision. Third, technical support which includes the ability of drive systems to support humans by mixing and evaluating data consciously to make the right decisions and uncover pressing problems in a short time (Prihantoro,

2020). Fourth, decentralized decisions, which is the ability of the virtual body system to make its own decisions and carry out tasks as effectively as possible (Hamdan, 2018).

The industrial revolution 4.0 is known as the digital revolution because there is a proliferation of computers and recording automation in all fields, because automation and connectivity in a field will make significant changes in the industrial world and job competition is non-linear. One of the characteristics of the industrial revolution 4.0 is practicing the application of artificial intelligence (Tjandarawinata, 2016).

The field of Economics in the 4.0 industrial revolution is currently in the middle of a major transformation in technological advances enabling automation in almost all fields. Among the challenges that are currently being experienced, technology that mixes the physical, digital world with methods that fundamentally change humanity, to the extent that this transformation will have a positive impact (Hamdan, 2018).

One example of the results of the development of the industrial revolution 4.0 is drones. Drones are unmanned aircraft that can fly remotely controlled using a remote control or sophisticated computer. Regular drones have various types of sizes, shapes, and functions. The drone material is made of lightweight materials, so it can fly quickly and fly at low altitudes or certain heights. Drones themselves have cameras, infrared, GPS, sensors, and other supporting tools (Rizal, 2021).

With these advantages, the beginning of the largest use of this drone was in the military field. Along with the times, drones are also increasingly being used for civilian (non-military) needs, for example, as we know today, there are many uses of drone technology for photography and videography purposes. Not only that, the agricultural sector is also entering a new phase by utilizing drone technology (Aryanto, 2020).

The Ministry of Industry has set four strategic steps in facing Industry 4.0. The steps to be implemented are: First, to encourage the workforce in Indonesia to continue to improve their abilities and skills, especially in using internet of things technology or integrating internet capabilities with industrial production lines. Second, the use of digital technology to spur productivity and competitiveness for small and medium- sized industries (IKM) to be able to penetrate the export market through the E-smart IKM program. Third, more optimal use of digital technology in national industries such as Big Data, Autonomous Robots, Cybersecurity, Cloud, and Augmented Reality. Fourth, encourage technological innovation through the development of start-ups by facilitating business incubation so that there are more technology-based entrepreneurs in the territory of Indonesia (Satya, 2018).

The industrial revolution 4.0 has a very good impact on building the defense economy. As the researcher explained from the benefits of one of the results of the industrial revolution 4.0. The existence of drones that can become military weapons and can also fulfill non- military activities is used for farmers to increase their productivity or activities related to big data. The Industrial Revolution 4.0 makes the work carried out by individuals or companies more economic growth. Countries that do not develop the technology will be left behind. Indonesia must think about increasing the research and development budget in order to build a Defense Economy. The Industrial Revolution 4.0 makes the work carried out by individuals or companies more effective and efficient. With this efficiency and effectiveness, the economy will increase and automatically the defense will also increase.

4. Conclusion

The conclusion of writing this article is that the results of research and development funds are used to innovate to support increased productivity. As a result, the country's production performance has improved and boosted economic growth. Countries that do not develop the technology will be left behind. Indonesia must think about increasing the research and development budget in order to build a Defense Economy. The Industrial Revolution 4.0 makes the work carried out by individuals or companies more effective and efficient. With this efficiency and effectiveness, the economy will increase and automatically the defense will also increase. So research & development and the industrial revolution 4.0 in practice can build and strengthen the existing defense economy in a country.

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Indonesian Economic Policy Universal Basic Income During the Covid-19 Pandemic for National Defense

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Abstract

The impact of the COVID-19 pandemic has prompted the government to carry out social assistance programs. The purpose of this study is to analyze Universal Basic Income as a response to the COVID-19 pandemic which can simultaneously strengthen economic defenses in Indonesia as a form of peace dividends. This research uses the literature study method to previous relevant research strategy theory by identifying ends, ways, and means. The results of this study support universal basic income as a policy (ways) to deal with the crisis due to COVID-19 pandemic. UBI can provide an increase in Indonesia's economic growth and empower Indonesian people to be better prepared to face risks, which will lead people to innovate more. UBI can also strengthen the defense economy in Indonesia because by reducing poverty, unemployment and social inequality, the crime rate caused by the economy will decrease, human resources will increase, and community relations will be stronger (ends). The resources (Means) needed to implement UBI in Indonesia are the budget, existing regulations, human resources (HR), and the latest Indonesia's population data.

Keywords: Universal Basic Income, COVID-19, Defense Economic, National Defense, Peace Dividend, Indonesia

1. Introduction

COVID-19 has a significant impact, especially in the health and economic fields. The government has been trying to address the health crisis and economic downturn caused by COVID-19. This event prompted the government to conduct social assistance programs, including sembako assistance, cash social assistance (BST), Direct Cash Assistance (BLT) village funds, free electricity, and employee salary subsidies (Ihsanuddin, 2020). BST provides funds of Rp 600,000 for April, May, and June 2020, and Rp 300,000 from July 2020 to June 2021 (Ihsanuddin, 2020). The main problems in BST during the COVID-19 pandemic were the insufficient amount of aid, the coverage was not wide enough, and the distribution was completely right on target (Asmanto et al., 2020). In nominal terms, BST on average can cover household needs 1-21% of total expenditure (Asmanto et al., 2020).

Indonesia has experienced an increase in the number of poor people according to data from the Central Statistics Agency (BPS), more than 2.7 million people as a result of the COVID-19 pandemic (Wijaya, 2021). In addition,

based on the open unemployment rate in February 2021, 19.10 million people (9.3% of the working age population) were affected by COVID- 19 (Midayanti, 2021). Which consists of unemployment due to Covid-19 (1.62 million people), Non-Work Force (BAK) due to Covid-19 (0.65 million people), temporarily not working due to Covid-19 (1.11 million people), and working population experiencing reduced working hours due to Covid-19 (15.72 million people) (Midayanti, 2021). Teguh Dartanto, an economic researcher at the University of Indonesia stated that the social assistance program carried out by the government is a pain reliever that only relieves and is not a solution to the disease itself (Wijaya, 2021). This pandemic has left many people facing an uncertain future due to their reduced ability to earn and reduced government subsidies (Johnson & Roberto, 2020). Universal Basic Income (UBI) is a government program to provide minimum income to all levels of society without certain conditions (Jamil, 2021). UBI is a “peace dividend” that can solve several problems in Indonesia. One of them is the crime rate, which is based on research that there is a significant influence between poverty and crime rates (Dulkiah & Nurjanah, 2018). UBI as a community welfare program has a relationship with the defense economy, namely to support the universal defense system (Sishanta) (Purwanto et al., 2020). Sishanta itself according to Law No. RI. 34 of 2004 is a system in the defense sector which involves all the people who are members of the existing components. Because Indonesia implements the sishta system, to support this there must be an increase in the capacity of the Indonesian people so that there is an increase in the welfare of the Indonesian people (Purwanto et al., 2020).

Defense economics focuses on the concept of the welfare state (welfare state) and the purpose of state defense, namely the realization of the socio- economic welfare of the community and national security (Supandi, 2020). Defense economics is a multidisciplinary study that discusses resource allocation, income distribution, economic growth, and political stability which is applied to topics related to defense (Saputro et al., 2021). Based on the above definition, it can be said that UBI as part of the defense economy can realize the socio- economic welfare of the community and national security. Thus, the purpose of this study is to analyze UBI as a response to the problems arising from the COVID- 19 pandemic in the defense economy in Indonesia.

2. Research Methods

This study uses a systematic literature study of relevant previous studies. A systematic literature study identifies, selects, and critically assesses research to answer clearly formulated questions (Dewey & Drahot, 2016). This article will use the strategy theory developed by Arthur F. Lykke Jr. According to him, strategy is a process that identifies ends (goals), ways (ways), and means (means) designed to achieve certain goals (Eikmeier, 2007). Ends are the goals or desired outcomes of the strategy. Ways are actions or in other words methods and processes that are carried out to achieve goals. Means are the resources needed to runways (Eikmeier, 2007). Using strategy theory, this article will discuss the government's goals during the COVID-19 pandemic, how to achieve these goals, and the means needed to implement ways to achieve these goals. This article will close with conclusions and suggestions from the author.

3. Discussion

The COVID-19 pandemic has been going on from the end of 2019 until now with no certainty when this pandemic will end. This pandemic caused the economic downturn to provide new challenges compared to other recessions that have occurred. First, the need to close many businesses leads to millions of unemployed in a matter of days or weeks, as many industries are directly affected. Second, even for those who can still work uncertainty and government policies such as PSBB and PPKM have made many consumers spend less money, focusing more on saving. Finally, because of the potential for the virus to spread, almost all businesses need to take steps to increase security and reduce physical contact. Restaurants, amusement parks, retail stores, malls, hospitals, and many other places were forced to limit the number of employees and consumers. Without this action, many people are afraid to visit these places even though the PSBB and PPKM have been relaxed (Johnson & Roberto, 2020). Provinces like Bali will feel a bigger impact, considering their main sector is tourism where many people will have physical contact. The pandemic has also resulted in many companies going bankrupt, reducing the number of jobs available when the economy recovers. In addition, the challenges of this pandemic could lead companies to a greater dependence on automation and technology as they provide security and are more reliable in performing basic tasks.

Therefore, the government is trying to overcome the impacts arising from this pandemic. According to the Vice President of Indonesia, K. H. Ma'ruf Amin, the government's main priority is the safety and economic resilience of the community (Kominfo, 2021). In addition, the Minister of National Development Planning (PPN/Bappenas), Suharso Manoarfa, stated four national development goals in 2021 due to the impact of the pandemic, namely; reducing poverty, reducing unemployment, maintaining economic growth, and increasing the human development index (Wahyudi, 2020). So, based on Arthur F. Lykke Jr.'s theory of strategy, these four goals are part of the ends or goals of the strategy process.

3.1. Concept of Universal Basic Income

Universal Basic Income (UBI) has been promoted by people across the political spectrum around the world as a way to replace the complex social welfare bureaucracy of society with a simpler and more efficient model (popular with the right-wing political spectrum), or provide support to every individual in society without any conditions (popular with the left-wing political spectrum) (Ståhl & MacEachen, 2021). For example, US politician Andrew Yang, encouraged and proposed UBI as one of the main pillars in his presidential campaign. Some countries or cities have even conducted experiments, such as Finland and Ontario (Ståhl & MacEachen, 2021). Meanwhile, India is considering replacing its social welfare policy with UBI (Straubhaar, 2017).

UBI must meet the following three criteria, namely: 1. Distributed to individuals 2. There is no Mean Testing, and 3. There is no requirement to get payment (van Parijs, 2013). Therefore, UBI can be said to have main characteristics, namely: 1. It is universal, which means that it is independent of a person's income level, employment status, work ability, or other indicators commonly used to determine eligibility for social welfare benefits, and 2. Without conditions, which means that there are no demands for program recipients, such as requirements to participate in employment programs or to be active in job search (Ståhl & MacEachen, 2021). UBI is usually associated with reducing poverty or unemployment because it tends to benefit the most vulnerable people in the population compared to the upper middle class (Johnson & Roberto, 2020).

3.2. UBI in response to the COVID-19 pandemic (ways)

UBI can be used as a government response in dealing with the impacts caused by the COVID-19 pandemic. The US philosopher, Karl Widerquist, argues that there are four main reasons for this policy ((Ståhl & MacEachen, 2021):

- a. Serves as a safeguard for unemployed or underemployed people during a crisis,
- b. Serves as a safeguard for people who have to work, essential workers, who often have low wages and can benefit from bonuses that recognize their contribution to society,
- c. Serves as a stimulus for the economy as a whole,
- d. It is simpler than other policies, because it involves fewer transaction costs and less bureaucracy.

UBI will provide guarantees for sources of income and will also provide security for those with higher incomes from being too careful in spending. This will lead to increased consumer confidence and spending (Johnson & Roberto, 2020). In addition, UBI will empower people to be better prepared to face risks in everyday life. If people believe that failure will not lead them to poverty and their minimum necessities of life are guaranteed, then they will view future challenges as opportunities rather than threats. New ideas and innovative solutions can emerge because of new thinking. The behavioral economics of insurance shows that the insured person is willing to accept more risk. And the greater the risk taker in the total population is positively correlated with the macroeconomic performance of a society (Straubhaar, 2017). Thus, the growth of MSMEs in Indonesia can also increase, thereby increasing the number of jobs that result in Indonesia's economic growth due to increased supply and demand. Judging from the explanation above, it can be concluded that the UBI method can assist the government in achieving the desired goals or ends, namely, reducing the number of unemployed, and maintaining economic growth.

Despite the benefits that UBI derives, suspicions against UBI remain. The main criticism in UBI is that minimum income reduces people's incentives to work (Ståhl & MacEachen, 2021). However, based on a previous experiment in Finland, the experiment showed higher life satisfaction, better mental health, and increased trust in the authorities, and no adverse effect on the number of workers (Ståhl & MacEachen, 2021). In Indonesia itself, one of the government programs that are closest to UBI is BLS or Direct Cash Assistance (BLT). Research conducted by Bazzi found that BLT was able to contribute to poverty reduction in both the short and medium-term, and found that BLT recipients had greater participation in the labor market than those who were not categorized as BLT recipients. Moreover, in terms of working hours, BLT recipients are relatively able to maintain productive working hours (Jamil, 2021). Another study conducted by Hossain et al. found that BLT recipient households invested in the development of MSMEs (Jamil, 2021).

3.3. UBI as peace dividend

UBI is a peace dividend in a post-conflict society to face challenges other than poverty, but also to face other complex challenges, namely ensuring peace, justice, and handling conflicts that have existed for a long time (Brown, 2020). Based on the experiments that have been carried out, UBI can strengthen the defense economy in Indonesia by tackling several problems exacerbated by the COVID-19 pandemic, namely:

a. Crime

Many studies around the world show a significant relationship between poverty and conflict, as well as poverty and crime. One of them is a study conducted by Dulkiah and Nurjanah in 2018 in the city of Bandung. Coupled with the COVID-19 pandemic, many people have experienced a decline in income and lost their jobs. The Banten Police noted that crime cases that occurred throughout 2020 increased compared to the previous year (Rasyid, 2020). Although UBI will not eliminate crime in Indonesia, it cannot be denied that UBI can reduce crime that arises because of economic needs. Sukawarsini Djelantik, an Indonesian academic, states poverty as the biggest threat to peace and security (Nainggolan, 2016). Usually people commit crimes because they face few or no job prospects, thus turning to illegal ways of earning an income. Crime is a complex problem and is not only based on poverty, but there are other factors such as injustice, community loyalty, and greed. However, UBI can reduce it, so it can focus its defense budget on other crimes and make Indonesia safer.

b. Opportunities for the younger generation

Based on research conducted by the SMERU Institute, it was found that children born to poor families tend to have lower incomes when they grow up (Diningrat, 2019). One of the impacts of COVID-19 is the increasing poverty rate in Indonesia. Therefore, the number of children born in poor families will increase. UBI can help these children to improve their grades and keep them in school. UBI can reduce child poverty and provide options that were not previously available to them, such as access to non-formal education, and purchasing productive assets that can change lives for the better for many children. Of course this will increase Human Resources (HR) in Indonesia. Tri Retno Isnainingsih, Head of the Manpower Barenbang of the Ministry of Manpower (Kemnaker) stated that HR excellence is the key to boosting economic growth and national competitiveness (Rea, 2020). This will improve the performance of industries in Indonesia, including the defense industry.

c. Stronger community and community relations

Indonesia is the largest archipelagic country and consists of various tribes that have their own characteristics and various regional languages. In addition, Indonesia also has 6 religions recognized by the state. So it can be said that Indonesia has a heterogeneous society, namely people with diverse racial, ethnic, religious and cultural identities. This difference will certainly be colored by conflict. One of them is the conflict between the Free Aceh Movement (GAM) and the Free Papua Organization (OPM). This can also be exacerbated by the COVID-19 pandemic, where social interaction is also limited by the PPKM and PSBB. Although UBI is not fully able to overcome the problem of separatism, it can help to form a stronger society, a higher nature of gotong royong, and give the importance of the community in life. There is evidence from previous research that countries with good universal programs, such as Scandinavian countries, have high levels of trust in governments and others. Compared to countries like the United States with limited universal programs they have low levels of social trust.

UBI can also increase community participation in social activities because it provides a means to volunteer or become more active in politics.

UBI has the ability to improve the human development index in Indonesia because it provides a variety of options that were previously unavailable to poor families and has access to more formal and non-formal education. It is hoped that this will be able to improve the quality of human resources in Indonesia so that it has an impact on increasing the human development index.

3.4. Ubi Implementation in Indonesia

In implementing UBI, the Indonesian government needs resources. Of course, Indonesia's resources and means (means) are limited. Until now, the Ministry of Finance has allocated a budget for handling Covid-19 for MSME companies, corporate financing and business incentives. However, the budget strength that has been prepared by the government in the context of handling Covid 19 is not sufficient in terms of numbers (Saputro, 2021). Some of the resources needed by the government to implement UBI in Indonesia are:

- a. The budget, according to the Fiscal Policy Agency of the Ministry of Finance of Indonesia, is estimated to be around Rp. 172 Trillion or around 1.1% of nominal GDP in 2019. Until now, the portion of the social budget in Indonesia is only around 0.7% of GDP for 5 years. the last one (United Nation of Development Program & Fiscal Policy Office, 2020). So that if you implement UBI, there will be an increase of almost double the current budget.
- b. Existing regulations, UBI implementation in Indonesia can be linked to existing laws in Indonesia. Article 34 of the 1945 Constitution mandates the state's obligation to care for the poor and neglected children. This regulation can be used as a legal basis for the implementation of UBI. In addition there are other laws, such as Law no. 11 of 2009 concerning social welfare and Law no. 40 of 2004 on the social security system. These two laws can become the legal umbrella for UBI in Indonesia.
- c. Human Resources (HR), it is necessary to consider which institution will be responsible for implementing the UBI program. Until now, the implementation of social programs in Indonesia has been divided into various institutions such as the Social Security Administering Agency (BPJS) and the Ministry of Social Affairs. With UBI, there is no longer any need for separation of social programs, therefore there is a possibility that an institution will lose its role, or there will be dissolution of the institution.
- d. Data, in order for this implementation to be successful, of course Indonesia needs up to date data from all the people of the Republic of Indonesia. The data required is the name, address, and bank account number.

4. Conclusion

In dealing with the COVID-19 pandemic, the government must be able to cope with the impacts arising from this pandemic. According to the Minister of National Development Planning (PPN/Bappenas), Suharso Manoarfa, there are four national development goals (ends) in 2021 due to the impact of the pandemic, namely: reducing poverty, reducing unemployment, maintaining economic growth, and increasing the human development index (Wahyudi, 2010). 2020). In order to achieve these ends, the method (ways) that can be used by the government is Universal Basic Income (UBI). UBI as a government welfare program can provide guarantees for sources of income and will also provide security for those with higher incomes. This will increase economic growth due to increased demand. Reducing the risks faced by society economically can also increase innovation so that it can increase a person's desire to become an entrepreneur. This will increase job opportunities. UBI itself as a whole can reduce the level of poverty in Indonesia. UBI can also reduce crime that arises as a result of economic needs, provide opportunities for the younger generation, and strengthen community relations in Indonesia.

Implementation at UBI in Indonesia requires various resources or facilities (means), including: 1. an estimated budget of around IDR 172 trillion or around 1.1% of nominal GDP in 2019, 2. existing regulations based on article 34 of the Law 1945 Constitution, Law no. 11 of 2009, and Law no. 40 of 2004, 3. Human Resources (HR) owned by the government 4. Indonesian population data that is up to date.

5. Suggestions

It is known that Universal Basic Income has the ability to cope with the impact of the COVID-19 pandemic in theory. To find out the effect of Universal Basic Income empirically, it is necessary to conduct a trial or experiment on the Indonesian people. In addition, it is necessary to think about how the government can finance the UBI program, because it is known that the social budget in Indonesia is not sufficient for UBI costs. UBI is an area that is still immature, so further research is needed.

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