DETERMINANTS OF LQ 45 INDEX BANKING STOCK PRICE VOLATILITY

Florentina Kurniasari T[1]
Technology Management, Universitas Multimedia Nusantara
florentina@umn.ac.id

Juvy Reyes, Ph.D[2]
Post Graduate Schools, Notre Dame of Marbel University (Philippines)
juvyreyes1976@gmail.com

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Abstract - As a developing country, Indonesia needs capital flow from investment to support country's development growth. Capital market is one form of source investment fund. Of the several indexes listed in Indonesia Stock Exchange, the LQ 45 Index is one of the indexes of concern to investors, in which banking is one of financial institution to support country's economic development. Investors is concerned about the stock price volatility which is influenced by internal and external factors. In this research there are three internal factors and two external factors as independent variable. This research measured the stock price volatility by analyzing the effect of some factors including dividend yield, return on asset, asset growth, interest rate, and exchange rate of banking industries which registered in LQ 45 Index for year 2012 –2019. The data will be analyzed using multiple linear regression analysis model. The research shows that interest rate had positive influence on stock price volatility. While return on asset and exchange rate have negative effect to stock price volatility.

Key Words: Stock Price Volatility, Dividend, ROA, Interest, Exchange Rate

1. INTRODUCTION

1.1 Research Background

Investors expected to get higher return for their financial investment. They preferred to choose low risk investment instruments with high return. The uncertainty risks could be measured by the volatility of firm's stock prices. Indonesia investors monitored the fluctuation of the firm stock price that were included in LQ 45 index. LQ 45 index showed the stock price of 45 firms with high liquidity and big capitalization. The name of the firms would be evaluated every six months based on the specific requirements, such as: financial performances, reputation and market valuation.

The volatility of stock price was highly influenced by both external and internal factors. Azura et al. (2018) in his research stated that interest rate and exchange rate as external factors had positive effect into stock price volatility. Higher interest rate encouraged investors to sell their stocks and switched their investments into bank's saving and deposits (Wijaya 2013). The investor action would make the stock price dropped and increased its volatility. The data showed that high interest rate in year 2014 that reached 7.54% made LQ45 stock price dropped.

The Indonesian currency (Rupiah) and its exchange rate into US $ also had influence to stock price index. The weak of Rupiah reduced the profit margin of the firm and increased the firms price volatility (Wijaya 2013). The weak of Rupiah in the year 2013 consistently followed with the LQ 45 index stock price decreased. On the contrary, the strong of Rupiah in the year 2016 followed by the higher LQ45 index stock price.

Ghauri (2014) in his research explained that internal factors such as dividend yield, return on asset and asset growth had insignificant but positive relationship into stock price volatility. Dividend yield defined as final total dividend distributed to all shareholders based on the current market stock price. Investors would attract with the firm that could distribute high dividend yield (Azura 2018). Investors kept the stock with the higher dividend yield and lower stock price volatility.

Investors also considered the firm's profitability by measuring the ROA (return on asset). ROA referred to the comparison of the firm's net profit margin with the firm's total assets (Fahmi 2012). Investors chose the firms with the higher ROA and lower stock price volatility.

Other internal factor that influence the stock price volatility was asset growth. Ananda and Mahdy (2016) explained that firms with the strong asset growth were able to manage their debt financing. Investors would keep the stock and the stock price would be less volatile (Mahdy 2016).

Banking industry played as a key role in country's development in creating the employment, mobilizing and allocating fund into productive businesses. Banking industry stock price were one of the major attraction for the investors and included in the stock price index in IDX. The index is a statistical tool that show the volatility of stock price based on some criteria and methodology and will be evaluated regularly. The index also can be used to measure the market sentiments, benchmark the active portfolio and as a guidance for the investors in choosing the appropriate stocks based on the risk and returns. LQ 45 index consists of 45 companies that fulfill some requirements, included: having highest market valuation and transaction within 13 months and have a good prospect of financial condition and growth.

There were four banks consistently listed in the LQ45 index in period of 2012-2019, namely: PT Bank Central Asia, Tbk (BBCA); PT Bank Negara Indonesia (Persero), Tbk (BBNI); PT Bank Rakyat Indonesia (Persero), Tbk (BBRI) and PT Bank Mandiri (Persero), Tbk (BMRI). Stock price of four banking companies dominate the valuation within the LQ45 index. Therefore, the volatility stock price of these banks would influence the volatility of the overall of LQ45 index.

This research had objectives to analyze the effect of dividend yield, return on asset and asset growth as internal factors toward the LQ 45 index banking stock price volatility for the period of 2012-2019. The research also considered some external factors such as interest rate and exchange rate as determinants that had influence into LQ 45 index banking stock price volatility for the period of 2012-2019.

2. LITERATURE REVIEW

2.1 Capital Market

Darmadji and Fahkruddin (2012) defined capital market as a marketplace to buy and sell any long-term equity financing such as: stocks and derivatives instruments. Capital market also referred as a place for the firm to sell and buy stock and bond to strengthen the firm's capital (Fahmi 2013). Joel G. Siegel and Jae K. Shim explained that in capital market firms could financial transaction and trading other financial derivative instruments such as:

bond, warrant, options, asset based securities and other instruments (Zainudi et al. 2016). Capital market is a market where buyers and sellers engage in trade of financial securities like bonds, stocks, etc. The buying/selling is undertaken by participants such as individuals and institutions. Capital market consists of primary markets and secondary markets. Primary markets deal with trade of new issues of stocks and other securities, whereas secondary market deals with the exchange of existing or previously-issued securities (Purnomo et al. 2013).

Capital market played an important role in supporting country's financial system. Capital market acted as intermediaries between the sellers that needed fund with the buyers as investors who had the fund. Capital market would allocate the fund efficient, transparent and accountable. Capital market provided any kind of investment instrument as an option for the investors to diversify their investments. Public had opportunity to become the owner of healthy and prospective firms.

2.2 Stocks

A stock (also known as "shares" and "equity) is a type of security that signifies ownership in a firm and represents a claim on part of the corporation's assets and earnings (Darmadji and Fahkruddin 2012). There are two main types of stocks: common and preferred stocks. Common stock entitles the owner to vote at shareholders' meetings and to receive dividends. Meanwhile, preferred stockholders generally do not have voting rights, though they have a higher claim on assets and earnings than the common stockholders. There are many kinds of stocks related with their trading performances, namely: the blue-chip stock; income stock; growth stock; speculative and cyclical stock. The blue-chip stocks referred to the stock owned by the company that had excellent financial performance. The blue-chip stocks enjoyed good reputation, had stabilized income and paid the dividend consistently. The blue-chip stocks also referred to the stocks that had actively traded in the capital market. Income stock referred to the stock owned by the firm that paid the current dividend higher than the previous year. The growth stock indicated the firm with the higher revenues in their leading industries. Speculative stock defined as stock who owned by the firm that could not be able to produce yearly income consistently but still had opportunity to get income in the future. Meanwhile, cyclical stock did not influence by any kind of macroeconomics situation.

Stock was still a favorite choice for the investors as an alternative instrument because of its liquidity and easily trading in the capital market and able to give higher returns (Purnomo et al 2013).

2.3 Stock Price Index

Stock price index could be used as guidance for investors in investing decision in the capital market. Indonesia Stock Exchange (IDX) had some stock price index, namely: Jakarta Stock Price Index (=IDX Composite); Sectoral Index; LQ 45 Index; Jakarta Islamic Index (JII); Kompas 100 Index; Business-27 Index and Sri Kehati Index. IDX Composite is a modified capitalization-weighted index of all stocks listed on the regular board of the Indonesia Stock Exchange. This index measured performance of all stocks that listed on the IDX. Sectoral index measured the performance of all stocks grouped by specific market sectors in the Jakarta Stock Industrial Classification (JASICA), including: agriculture; mining; basic industry and chemicals; miscellaneous industry; consumer goods; property, real-estate, and building construction Index; infrastructure, utilities, and transportation; finance; trade, services, and investments; and manufacturing sectors. LQ 45 Index consisted of 45 stock listed companies which was reviewed per semester. The name of the stock listed

companies were chosen by some consideration, such as: their liquidity, good corporate fundamentals and large market capitalization. JII measured performance of 30 sharia stocks with large market capitalization and high liquidity. Kompas 100 index measured performance of 100 stocks with large market capitalization, high liquidity, and good corporate fundamentals. Business-27 index measured stock performance of 27 stocks selected based on fundamental and technical criteria. Meanwhile, Sri Kehati Index showed which companies were regarded as beneficial and constantly managing sustainable development, following the standard and regulation of Sustainable and Responsible Investment (SRI).

2.4 Stock Price Volatility

Volatility of stock price is related with the unpredictability and the uncertainty of the stock price and has implications for market risk. The volatility of stock price has been a consideration for the investors in making an investment decision related with the risk that they are facing. Stock price volatility is a measure of the speed and extent of stock prices changes. Traders use volatility for a number of purposes, such as figuring out the price to pay for an option contract on a stock (Khurniaji and Raharja 2013). Stock standard deviation was used to measure of how widely stock prices are spread around their average value during certain period of time. Volatility also referred to the amount of uncertainty or risk related to the size of changes in a security's value. A higher volatility means that a security's value can potentially be spread out over a larger range of values. This means that the price of the security can change dramatically over a short time period in either direction. A lower volatility means that a security's value does not fluctuate dramatically, and tends to be more steady.

2.5 Dividend

A dividend is the distribution of reward from a portion of company's earnings and is paid to a class of its shareholders (Purnomo et al. 013). Dividends can be issued as cash payments, as shares of stock, or other property.

2.6 Dividend Yield

The dividend yield is the ratio of a company's annual dividend compared to its share price. The dividend yield is represented as a percentage and is calculated as follows (Mishkin 2018):

$$\text{Dividend Yield} = \frac{\text{Annual Dividend}}{\text{Stock Price}} \times 100$$

Ananda and Mahdy (2016) explained that this ratio measures the annual percentage cash return to the investor on the stock. It is calculated by taking the amount of dividends paid per share over the course of a year and dividing by the stock's price (Hussainey 2011; Moin 2010).

2.7 Return on Asset

Return on assets (ROA) is an indicator of how profitable a company is relative to its total assets. ROA gives a manager, investor, or analyst an idea as to how efficient a company's management is at using its assets to generate earnings. ROA is displayed as a percentage (Mishkin 2018). ROA as an indicator of profitability was determined by dividing net income for the past 12 months by total average assets. ROA can be decomposed into return on sales (net income/sales) multiplied by asset utilization (Munawir 2017). All firms would like to earn a higher return on assets, but their ability to do so is limited by competition

(Fahmi 2012). Mishkin (2018) explained that ROA gives an indication of the capital intensity of the company, which will depend on the industry; companies that require large initial investments will generally have lower return on assets. The equation of ROA was:

$$\text{ROA} = \frac{\text{Net Income}}{\text{Total Assets}}$$

2.8 Asset Growth

When buying an asset as an investment, it is critical to understand how that asset can be expected to behave in the future (Martono and Harjito 2013). Investors expected a high and stable asset growth rate (Sartono 2010). One way to estimate the expected growth of an asset is to calculate its historical growth rate; over a long period of time, an asset can be expected to behave in a consistent way, so the past growth rate is a good indicator of the future growth rate (Ananda and Mahdy 2016).

2.9 Interest Rate

Interest rate is the amount charged, expressed as a percentage of principal, by a lender to a borrower for the use of assets. Interest rates are typically noted on an annual basis, known as the annual percentage rate (APR) (Joesoef 2013). There were three ways of interest rate payment. The interest rate could be paid in the beginning of loan which was called as discounted payment. A balloon payment is a large payment due at the end of a balloon loan. A balloon loan is typically for a relatively short term, and only a portion of the loan's principal balance is amortized over that period. The remaining balance is due as a final payment at the end of the term. Furthermore, the future value of an annuity is the value of a group of recurring payments at a specified date in the future; these regularly recurring payments are known as an annuity. The future value of an annuity measures how much you would have in the future at a specified rate of return or discount rate. The annuity's future cash flows grow at the stated discount rate, so a higher discount rate results in a higher future value for the annuity (Joesoef 2013).

2.10 Exchange Rate

The exchange rate defined the value of one currency for the purpose of conversion to another. Exchange rates can be fixed or floating. If a country fixes its currency to that of another country, the exchange rate between those two currencies will not change. If a country has a floating exchange rate, the rate between its currency and any other currency will adjust to the market conditions (Azura et al. 2018; Purnomo et al. 2013).

Based on the literature explained before, this research proposed theoretical framework as follows:

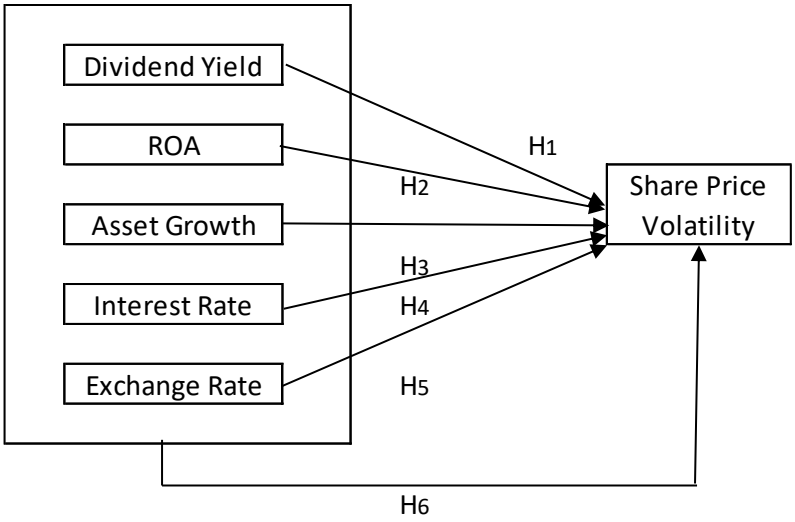


Figure 1. Research Theoretical Framework
Source: Researcher Analysis (2020)

From the theoretical framework, the research was able to develop some hypotheses as follows:

H1: Dividend yield had a positive influence into share price volatility.
H2: ROA had a positive influence into share price volatility.
H3: Asset growth had a significant influence into share price volatility.
H4: Interest rate had a positive influence into share price volatility.
H5: Exchange rate had an influence into share price volatility.
H6: Dividend yield, ROA, asset growth, interest rate and exchange rate altogether had an influence into share price volatility.

3. RESEARCH METHODOLOGY

As a quantitative research, this research used banking stock listed in the LQ 45 index for the period 2012-2019 as its research object. The objective of this research was to analyze the effect of independent variables (dividend yield, return on asset, asset growth, interest and exchange rate) into dependent variable (stock price volatility). Based on the purposive sampling method, there were 4 banking stocks that meet the requirement in terms of: listed in LQ 45 from 2012 to 2019 and consistently published their financial statement, namely: BBRI; BBCA; BBNI and BMRI. There were 32 sample being used in this research that was calculated by multiplying the number of listed banking stock with the number of years. The data collected by analyzing the quarterly financial performance of those 4 banks listed in the LQ 45 for periode 2012-2019. The sample is meet the minimum sample requirement that can be analyzed using statistical tools (Bonett, 2002).

The relationship between the dependent and independent variables was measured by multiple linear regression, in which Y (stock price volatility) as a dependent variable and X1 (dividend yield), X2 (return on asset), X3 (asset growth), X4 (interest rate) and X5 (exchange rate) as independent variables.

Ghozali (2018) said that multiple linear regression could be used to analyze the linear relationship between independent variables and dependent variables. Following was the model tested in the research:

$$Y = \boldsymbol{\alpha} + b1X1 + b2X2 + b3X3 + b4X4 + b5X5 + \varepsilon i$$

Which, Y = stock price volatility; α = constant; X1 = dividend yield; X2 = return on asset; X3 = asset growth; X4 = interest rate; X5 = exchange rate; ε = error term

Ghozali (2018) also explained that mean, standard deviation, variance, maximum, minimum, sum, range kurtosis and skewness could explain the descriptive analysis. Normality testing used to test if that regression model had a normal distribution (Ghozali, 2018). Meanwhile, statistical testing used to see the kurtosis value and skewness of the residual. Furthermore, multicollinearity was chosen to see the correlation among independent variables and heteroskedasticity was chosen to see the similarity of the observation (Ghozali, 2018). There are some autocorrelation testing to understand the correlation among variables (Chozali 2018), such as: Durbin – Watson test; Lagrange Multiplier test; Q statistics test: Box-Fierce and Ljung Box and Run test. Meanwhile, the hypotheses testing was done by simultaneous testing (F test); partial test (t test) and coefficient determination test (Ghozali 2018).

4. RESULT AND DISCUSSION

4.1 Descriptive Result

Dividend yield is a ratio related with the dividend paid with the stock price. The result of dividend yield calculation was shown in the following table:

Table 1. Dividend Yield

Company	2012	2013	2014	2015	2016	2017	2018	2019
BBCA	0,0176	0,0196	0,0126	0,0172	0,0151	0,0041	0,0045	0,0037
BBNI	0,017	0,0164	0,0306	0,0369	0,0237	0,0246	0,0385	0,0215
BBRI	0,0437	0,0181	0,0324	0,0355	0,0253	0,0273	0,0367	0,0293
BMRI	0,0377	0,0156	0,0246	0,0298	0,0198	0,0283	0,023	0,0166

Source: www.idx.co.id (2020)

The table 1 showed that in the year 2012, BBRI had the highest dividend yield of 0.0437 and BBNI had the lowest dividend yield of 0.017. In the year 2013, BBCA had the highest dividend yield of 0.0196 and BMRI had the lowest yield of 0.0156. BBRI had the highest dividend yield of 0.0324 and BBCA had the lowest dividend yield of 0.0126 in the year 2014. Meanwhile, in the year 2015, the highest dividend yield was experienced by BBNI of 0.0369 and BBCA experienced the lowest dividend yield of 0.0172. In 2016, BBRI had the highest dividend yield of 0.0253 and BBCA had the lowest dividend yield of 0.0151. Highest dividend yield in 2017 was experienced by BMRI of 0.0283 and the lowest dividend yield was experience by BBCA (0.0041). BBNI had the highest dividend yield in the year 2018 (0.0385) and BBCA had the lowest dividend yield (0.0045). The latest research showed that in the 2019, BBRI had the highest dividend yield (0.0293) and BBCA had the lowest dividend yield (0.0037).

Return on asset (ROA) showed the company's financial ratio related with the company's profitability in terms of revenues, assets and stock capital. The result of ROA calculation of the four banks in the period of 2012-2019 as follows:

Table 2. Return on Assets (ROA)

Company	2012	2013	2014	2015	2016	2017	2018	2019
BBCA	0,0261	0.0283	0,0332	0,0287	0,0299	0,0303	0,0305	0,0228
BBNI	0,0165	0.0194	0,0211	0,0234	0,026	0,018	0,0189	0,0194
BBRI	0,0284	0.0321	0,0339	0,0341	0,0302	0,0289	0,0261	0,0258
BMRI	0,0208	0.0230	0,0252	0,0257	0,0242	0,0232	0,0141	0,0191

Source: www.idx.co.id (2020)

The table of ROA above showed that BBRI had the highest ROA in five years in a row since 2012, 2013, 2014, 2015 and 2016, with the value of 0.0284; 0.0321; 0.0339; 0.0341 and 0.0302 respectively. BBCA took over BBRI dominance in having the highest ROA in the year 2017 and 2018 with the value of 0.0303 and 0.0305. In the year 2019, BBRI had become the bank with the highest ROA of 0.0258. BBNI had the lowest ROA in four years in a row starting in the year 2012, 2013, 2014 and 2015 with the value of 0.016; 0.0194, 0.0211 and 0.0234. In the year 2016 BMRI had the lowest ROA of 0.0242, and in the year 2017 BBNI became the bank with lowest ROA (0.018). Again in the year 2018 and 2019, BMRI became a bank with the lowest ROA with the value of 0.014 and 0.0191 respectively.

The calculation of the asset growth to support the company's operational activities from the four Banks as the sample of the research was shown below:

Table 3 Asset Growth

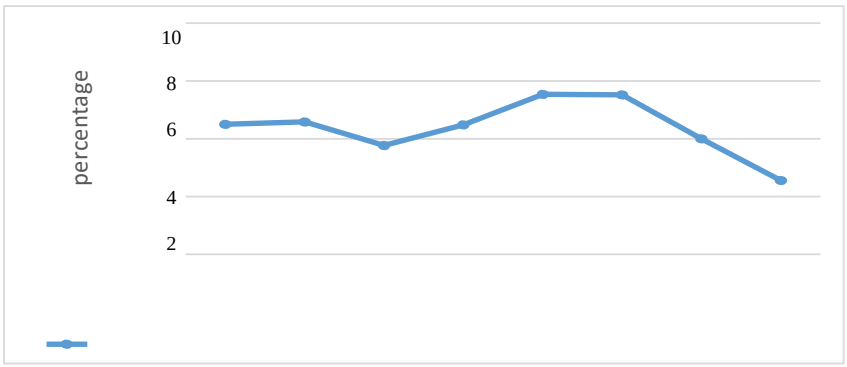
Company	2012	2013	2014	2015	2016	2017	2018	2019
BBCA	0,1488	0,1772	0,1599	0,1203	0,1131	0,759	0,1386	0,1087
BBNI	0,0927	0,2031	0,1145	0,1601	0,774	0,2209	0,1857	0,1763
BBRI	0,2756	0,1623	0,1733	0,1358	0,2807	0,954	0,1425	0,1222
BMRI	0,1398	0,227	0,1517	0,1534	0,1663	0,644	0,1414	0,828

Source: www.idx.co.id (2020)

BBRI had the highest asset growth in the year 2012, 2014, and 2016 (0.2756, 0.1733, 0.2807) and the lowest asset growth in year 2013 (0.1623). Meanwhile, BBNI had the highest asset growth in the year 2015, 2017, 2018, and 2019 (0.1601, 0.2209, 0.1857, 0.1763) and the lowest asset growth in year 2012, 2014, 2016 (0.0927, 0.1145, 0.0774). BMRI only had the highest asset growth in the year 2013 (0.2756), but also had the lowest highest asset growth in the year 2017 and 2019 (0.0644 and 0.0828). Compare with the three other banks, BCA experienced the lowest asset growth in the year 2015 and 2018 with the value of 0.1203 and 0.1386 respectively.

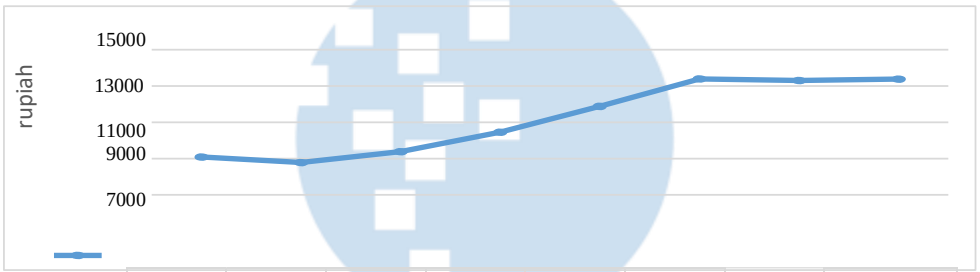
Interest rate referred to the sum of money that should be paid by the lender to the borrower in the period of time. Bank Indonesia data (in the figure 2) shown that the lowest interest rate in Indonesia was achieved in the year 2019, and the highest interest rate was

peaked in the 2016 (7.54%). The lower interest rate showed the government ability to maintain the economic stability in Indonesia.



	2012	2013	2014	2015	2016	2017	2018	2019
Interest rate	6.5	6.58	5.77	6.48	7.54	7.52	6	4.56

Figure 2. Indonesia's Interest Rate (for period 2012-2019)
Source: www.bi.go.id (2020)



	2012	2013	2014	2015	2016	2017	2018	2019
exch	9083.93	8779.47	9380.39	10451.3	11878.3	13391.9	13307.3	13384.1

Figure 2. Fluctuation of ID Rupiah into US Dollar (for period 2012-2019)
Source: www.bi.go.id (2020)

The figure 3 showed that Indonesian Rupiah (IDR) weakened into US Dolar (US$) in the year 2017, in which 1 US$ equivalent into Rp 13.392,-. Meanwhile, IDR strengthened into US$ in the year 2013, in which 1 US$ equivalent into Rp 8.779,-. The strengthening of IDR meant that the Indonesia government was be able to maintain the country's balance of payment.

Stock price volatility was a statistical measured the fluctuation of the stock price during a period of time. The volatility of stock price for each bank showed in the following table:

Table 4. Stock Price Volatility

Company	2012	2013	2014	2015	2016	2017	2018	2019
BBCA	0,034	0,0303	0,0231	0,0314	0,0217	0,0237	0,018	0,0185
BBNI	0,0364	0,0358	0,0221	0,0369	0,0273	0,0312	0,0271	0,0223
BBRI	0,032	0,0358	0,0251	0,001	0,0253	0,0279	0,0233	0,02
BMRI	0,0348	0,0371	0,0244	0,0356	0,0235	0,0263	0,0252	0,0211

Source: www.idx.co.id (2020)

The data showed that BBNI stock price was more volatile than other bank's stock price, in which BBNI stock price had the highest volatility in the year 2012, 2015, 2016, 2017, 2018 and 2019 respectively. In the year 2012 itself, the volatility of BNI stock price reached 3.64%. But, BBNI stock price enjoyed the lowest stock price volatility in the year 2014 (only 2.21%). BMRI stock price also had the highest volatility in the year 2013 that reached 3.71%. BBRI had the lowest stock price volatility in the year 2012 and 2015. BBCA stock price had less volatile compare with three other banks, in which BBCA price showed the lowest stock price volatility in the year 2013, 2016, 2017, 2018 and 2019. This result was aligned with the current market situation since long-term investors chose to buy and invest in stocks with the less volatile. BBCA was one of the most favorite stock chosen by investors and had strong position with the largest market capitalization in the banking industry.

Table 5. Statistical Descriptive Analysis

Variable	N	Minimum	Maximum	Mean	Std. Deviation
YIELD	32	0,0037	0,0437	0,023353	0,0102173
ROA	32	0,0141	0,0341	0,025228	0,0052862
GROWTH	32	0,0644	0,2807	0,149619	0,0526486
INTEREST	32	0,0456	0,0754	0,063688	0,0091845
EXCHANGE	32	8779,47	13391,97	11207,1175	1923,84151
PVOL	32	0,0010	0,0371	0,026819	0,0075265
Valid N (listwise)	32				

Source: SPSS (2020)

The minimum value of dividend yield was 0.0037, the maximum value of dividend yield was 0.0437 with mean of 0.0234 and standard deviation of 0.0102. Since the mean value is greater than standard deviation (0.0234 > 0.0102), it showed that there was a good distribution of the dividend yield value. The ROA of four banks in the 8-year period showed the minimum value of 0.0141, the maximum value of 0.0341 with mean of 0.0252 and standard deviation of 0.0053. The mean value also showed the greater value of standard deviation (0.0252 > 0.0053). Therefore, there was a good distribution of ROA value. Asset growth had a minimum value of 0.0644 and maximum value of 0.2807, with the mean of 0.1496 and standard deviation value of 0.0526. Asset growth mean was also greater than its standard deviation (0.1496 > 0.0526). It meant that the distribution of asset growth value was good. The statistical data also showed that the interest rate had a minimum value of 0.0456, maximum value of 0.0754, with the mean value of 0.0637 and standard deviation 0.0092. The mean of interest rate was greater than standard deviation (0.0637 > 0.0092) and there was a good distribution value of interest rate. IDR exchange rate toward US$ had the minimum value of Rp 8.779,-, maximum value of Rp 13.392,-, mean value of Rp 11.207,-, the standard deviation of Rp 1.924,-. The mean value of exchange rate was greater than standard deviation (11.207,12 > 1.923,84) which showed great distribution value of exchange rate. The volatility of stock price had a minimum value of 0.0010, maximum value of 0.0371, mean value of 0.0268 and standard deviation of 0.0075. The mean value showed the higher value than the standard deviation (0.0268 > 0.0075), with the good distribution of the stock price volatility.

The normality testing of Kolmogorov-Smirnov showed that the p-value (0.16) is greater than 0.05. It meant that all data was normally distributed. The multicollinearity test

showed that dividend yield, return on asset, asset growth, interest and exchange rate altogether had the tolerance value greater than 0.10 and VIF value smaller than 10. Therefore, there wasn't any multicollinearity happened in this regression model. The scatterplot testing also showed that there was not any heteroscedasticity happened in this regression model (shown in the following figure)

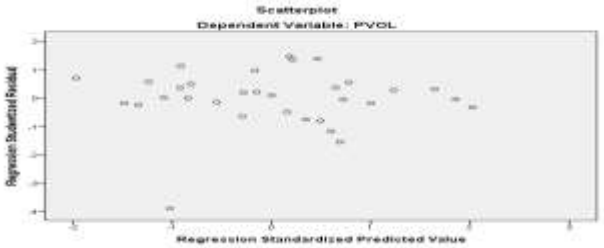


Figure 4. Heteroscedasticity Testing using Scatterplot
Source: Data Analysis (2020)

The autocorrelation in this model was measured using Durbin-Watson (DW test). The data analysis showed that the DW test value was 2.271 which greater than the limit value 4 – 1.819 (4 – du) and less than 4 –1.109 (4 – dl). Therefore, there was no autocorrelation in this regression model.

F test was used to know the effect of dividend yield, return on asset, asset growth, interest and exchange rate all together into stock price volatility. It showed that F test value was 5.093 with 0.002 significance level less than 0.05. Therefore, the research showed that all variables of dividend yield, return on asset, asset growth, interest and exchange rate had positive effect into stock price volatility.

Table 6 The Result of t Coefficients Testing[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0,047	0,012		3,777	0,001
YIELD	-0,057	0,108	-0,078	-0,532	0,599
ROA	-0,700	0,208	-0,492	-3,360	0,002
GROWTH	0,019	0,022	0,133	0,868	0,393
INTEREST	0,275	0,117	0,336	2,345	0,027
EXCHANGE	-1,914E-06	0,000	-0,489	-3,247	0,003

[a] Dependent Variable: PVOL
Source: Data Analysis (2020)

The two-tailed table was used to know the value of t table with the 5% significance level, total sample of n=32 and 5 independent variables (k), with finally came up with the t table value of 2.0518. Based on the table 6, the t test value of dividend yield was less than t table value (-0.532 < 2.0518) with significance level more than 5% (0.599). Therefore, dividend yield did not have partial significant effect into stock price volatility. Since ROA had a t test value less than t table (-3.360 < 2.0518) with the significance level less than 0.05 (0.002), it meant that ROA had a partial significant level toward volatility of stock price. The t test value of asset growth was also higher that t table value 0.868 < 2.0518 with the significance level of 0.393 (more than 5%). Therefore, asset growth did not have any partial

significance effect into stock price volatility. Interest rate t test value was also greater than the t table value (2.345 > 2.0518) with the significance level less than 5% (0.027 < 0.05). The result showed that interest rate had partial significance effect into stock price volatility. Meanwhile, the t test of exchange rate variable had a smaller value than t table -3.247 < 2.0518, with the significance value less than 5% (0.003 < 0.05. It can be concluded that exchange rate variable had a partial significance level into stock price volatility.

Table 7. The Result of Regression Analysis Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	P value
	B	Std. Error	Beta		
(Constant)	0,047	0,012		3,777	0,001
YIELD (X1)	-0,057	0,108	-0,078	-0,532	0,599
ROA (X2)	-0,700	0,208	-0,492	-3,360	0,002
GROWTH (X3)	0,019	0,022	0,133	0,868	0,393
INTEREST (X4)	0,275	0,117	0,336	2,345	0,027
EXCHANGE (X5)	-1,914E-06	0,000	-0,489	-3,247	0,003

[a] Dependent Variable: PVOL
Source: Data Analysis (2020)

Based on the table 7, there was an equation to explain the effect of dividend yield, return on asset, asset growth, interest and exchange rate into stock price volatility as follows:

$$Y = 0{,}047 - 0{,}057X1 - 0{,}700X2 + 0{,}019X3 + 0{,}275X4 - 0{,}0000019X5 + \varepsilon$$

From the regression equation above, it stated that asset growth and interest rate had a positive relationship into stock price volatility. The one point increasing of asset growth would increase the stock price volatility of 0.019.

If there was one point increasing of interest rate, it would make also an increasing stock price volatility of 0.275. Investors would sell their stock price if the interest rate was higher. They preferred to invest their money in form of deposit or saving in banks that could give higher return.

Meanwhile, dividend yield, ROA and exchange rate had a negative relationship into stock price volatility. If there was one point increasing of the dividend yield (with the assumption of other independent variables remained the same), it would decrease the stock price volatility 0.057. Investors would hold the stock that could give higher dividend yield.

The one point increasing of ROA would make a decreasing stock price volatility of 0.700. Investors would hold the stock that had a higher ROA with the higher yield of return expectation.

Furthermore, if there was one point decreasing of exchange rate value, it would make an increasing stock price volatility of 0.0000019. If IDR weakened against US$, the investors would keep the stock. The investors would only get a little gain if they decided to sell the stock in that condition.

5. CONCLUSION

It concluded that during the period of 2012-2019, BBRI had the highest dividend yield in the year 2012 (4.37%) and BBCA had the lowest dividend yield in the year 2019 (with the value of (0.37%). BBRI became a bank with the highest ROA in the year 2014 (3.39%). On the contrary, BMRI had become the lowest ROA in the year 2018 (1.41%).

During the period of the year 2012-2019, the highest asset growth was achieved by BBRI (28,07%) in the year 2016 and the lowest of asset growth was experienced by BMRI on the year of 2017 (6.44%). The Indonesia interest rate reached its highest value in the year 2016 (7.54%) and the lowest value in the year 2019 (4.56%).

For the 10 year period research, the Central Government (BI) data showed that IDR lowest exchange rate into US$ was happened in the year 2013, and the highest exchange rate was happened in the year of 2019 (1US$ = Rp 13.392,-). Based on the research data during period of 2012-2019, BMRI had the highest volatility of stock price in the year 2013 (3.71%) and BBRI had the lowest stock price volatility in the year 2015 (0.1%).

Return on asset, interest and exchange rate had a partial effect into stock price volatility. On the contrary, dividend yield and asset growth did not have partial effect into stock price volatility.

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