THE EFFECT OF NIM, BOPO, NPL, AND CAR ON SHAREVALUE OF BANKING COMPANIES
(Empirical Study on Banking Sector Companies Listed on the IDX forthe 2015-2019 Period.)

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Abstract - *This study aims to determine the effect of NIM, BOPO, NPL dan CAR on shares value in Banking Companies are listed in the Indonesia Stock Exchange (IDX). The population of this study is the Food and Beverages Companies are listed in the Indonesia Stock Exchange in 2015-2019. The sample was determined based on the purposive sampling method, with a total sample of 20 Banking Companies in 5 years, so that the total observation in this study was 100 observations. The data used in this study are secondary data. The data collection method uses documentation through the official IDX website. Data analysis techniques using panel data regression analysis with E-views 10. The study show that the net interest margin (NIM), operating expenses on operating income (BOPO), and net performing loans (NPL) have a significant effect on the value shares of banking companies listed on the IDX for the 2015-2019. Meanwhile, the capital adequacy ratio (CAR) does not have a significant effect on the value shares of banking companies listed on the IDX for the 2015-2019 period.*

Keywords*: *Net Interest Margin (NIM), operating expenses on operating income (BOPO), Net Performing Loan (NPL), dan Capital Adequacy Ratio (CAR), Shared Value

I. PENDAHULUAN

Investment activities are generally carried out on a number of funds in real assets (land, gold, machinery, or buildings) and financial assets (deposits, stocks or bonds). The capital market is an alternative for investors to invest in financial assets. Apart from deposits and bonds, stocks are an investment in financial assets that attract investors. According to Kashmir (2016: 183), shares are securities that are ownership. This means that the share owner is the owner of the company. The bigger the shares he owns, the greater the voting rights and capital gains in the company. The advantage of investing in stocks is dividends. Dividends are the profits provided by the company to

shareholders. The amount of dividends and their distribution is determined in the General Meeting of Shareholders (GMS), while capital gains are the benefits that shareholders enjoy from the increase in the price of their shares. Apart from profit, stocks also have risks, namely liquidation risk and capital loss. The main objective of investors to invest is to make a profit. Therefore, investors must know and understand the development of the company's share price in order to avoid or minimize this risk.

According to Amanda and Wahyu (2013) in Indiani and Dewi (2016; 2758), banking stocks are the most popular sector stocks and have been reported to have outperformed the Composite Stock Price Index (IHSG), even though in mid-1997 and during the global financial crisis of 2008 In the past, the banking sector fell and experienced a decline in performance. Over time, the banking sector was able to show its existence in performance and achieving good results so that investors were interested in buying its shares. Even some banking stocks that go public on the IDX are included in the category of most active stocks in the LQ 45 Index. In addition, banking companies are increasingly active in stock trading as seen from the increase in the number of banks listed on the IDX. This will encourage investors to be more selective and careful in making investment decisions in the banking sector. Before making a decision, investors should analyze the target company. Because the results of this analysis can reduce the existing risks. In general, investors use a fundamental analysis approach or a technical analysis approach in assessing stock prices. Both analytical approaches work equally well and can be used together to select the best stock. This study prefers a fundamental analysis approach to determine the effect of financial performance on stock prices under study. The premise is that the fundamental analysis approach reflects an objective consideration in assessing stock prices compared to a subjective technical analysis approach.

The action of investors in analyzing a company's finances is to evaluate its financial condition and financial performance. Usually investors use financial ratios as a tool to measure the company's financial condition and performance. The financial ratios used by banks and non-banks are not much different. The difference lies in the type of ratio used. The ratios commonly used to measure financial performance are liquidity ratios, solvency ratios, activity ratios profitability ratios, and market value ratios. However, the risk faced by banks is far greater than that of non-bank companies, so that several ratios are specific to companies engaged in banking. The financial ratios used by the author based on the Financial Services Authority (OJK) Circular Letter Number 43 / SEOJK.03 / 2016 are NIM, BOPO, NPL, and CAR, in which the financial ratios to be examined whether they affect the value of shares of companies in the banking sector. The author chooses the NIM, BOPO, NPL and CAR ratios in this study to determine whether these ratios have an effect on stock value. The stock value in this study uses a market value approach or price to book value (PBV).

In several previous studies, there were differences in the results of research on the effect of these financial ratios on the value of the banking shares under study. Among them, research conducted by Larasati, Isynuwardhana and Muslih (2017), as well as Sudiyatno, Puspitasari, and Irsad (2018) have the same research results that NIM has a significant influence and has a positive direction on the level of stock value as seen from the PBV ratio. Research by Indiani and Dewi(2016) and Jordan et. al. (2011) have different research results related to NIM, which has a negative and significant direction towards PBV. After NIM, then BOPO was chosen by the researcher to measure its effect on PBV. Hartanto and Diansyah's research (2018) states that BOPO has a negative and insignificant effect on stock value in terms of the PBV ratio, while Jordan et. al. (2011) BOPO shown in the cost x-efficiency ratio shows a positive and significant effect on the market-price to book value ratio (PBV).

Furthermore, NPL, in the research of Hartanto and Diansyah (2018) and Radic (2014), states that NPL has apositive and significant effect on stock value as seen from the PBV ratio. Maimunah and Fathiani (2019) as well as Sudiyatno, Puspitasari, and Irsad (2018) stated that NPL had a negative and significant effect on PBV. While Niu (2016)states that NPL has a negative and insignificant effect on PBV. Finally, CAR, in Hartanto and Diansyah's research (2018)states that CAR has a negative and significant effect on stock value in terms of the PBV ratio. Jordan et. al. (2011) and Niu(2016) state that CAR has a positive and significant effect on PBV. This difference in the results of research between previous researchers has caused a gap or difference of opinion. Therefore, the authors chose the research topic " **THE EFFECT OF NIM, BOPO, NPL, AND CAR ON SHARE VALUE OF BANKING COMPANIES" (Empirical Study of Banking Companies Listed on the IDX 2015-2019 Period).**

II. LITERATURE REVIEW

2.1. Stock

In the capital market traded in the form of securities that can be bought and sold again by the owner. These securities are stocks and bonds. Where stocks are ownership and bonds are debt. According to Kashmir (2016) shares are securities that are ownership in which the share owner is the owner of the company. So that the bigger the shares he owns, the greater the voting rights in the company. Apart from voting rights, shares also provide other benefits for their owners, namely *dividends* . The distribution of *dividends is* determined at the General Meeting of Shareholders (GMS). So, shares are securities that show ownership of the company. Where the bigger the share, the greater the voting rights in the company. Apart from ownership, shares have other advantages, namely dividends which are regulated in the General Meeting of Shareholders (GMS) and *capital gains* obtained from the increase in share prices.

2.2. Value of Shares

The value of shares in this study, the authors use the market value approach or *Price to Book Value* (PBV). *Price to Book Value* (PBV) according to Tandelilin (2017) is the relationship or comparison between stock market prices and book value per share to determine the value of a share. This PBV serves to complete the *book value* analysis . If in *book value* analysis , investors only know the capacity per share from the share value, in the PBV ratio the investor can know directly how many times the *market value of* a stock has been valued from its *book value* . In the *Price to Book Value* (PBV)method , to determine the position of *undervalued* , *fair valued* , or *overvalued* stocks . The steps taken are quite simple, namely by looking at some of the values calculated by the PBV ratio. In the opinion of Tandelilin (2017), ideally the stock market price if divided by the book value of the assets will be close to 1. For example, the bank faces many bad credit problems that cannot be collected anymore, the price / book value ratio will be less than 1.But on the other hand it may happen that this ratio will be greater than 1 especially if the bank is experiencing a convincing growth or a merger target with several banks is in progress. Stocks that have a low PBV value will generate a *return* that is significantly higher than stocks with a high PBV value. So that PBV can be considered by investors if they want to expect high *returns* .

According to Darmadji and Fakhrudin (2012), PBV is calculated using the formula:

$$PBV = \frac{HARGA\,PASAR\,SAHAM}{NILAI\,BUKU\,PER\,LEMBAR\,SAHAM} \times 100\% \qquad \text{.......}(\,2.1\,)$$

2.3. Financial Ratios

Financial ratios such as NIM, BOPO, NPL and CAR affect stock prices. In Hartono's book (2016) Financial ratios are numbers obtained from the comparison of a financial statement item with other items that have a relevant and significant relationship, for example, between debt and capital, between cash and total assets, between the cost of goods manufactured and total sales. , and so on (Syafri, 2008). So it can be defined that financial ratios are the results of comparisons between two kinds of financial data that are relevant and significant in assessing the performance and financial condition of the company. So that investors can analyze and sort out which companies to buy shares after assessing the performance and financial condition through these financial ratios. In this study, the authors limit the financial ratios used to analyze the company under study. The financial ratios chosen by the author are NIM, BOPO, NPL, and CAR.

2.3.1. *Net Interest Margin* (NIM)

NIM is a variable that compares net interest income to average productive assets. According to Larasati, Isynuwardhana and Muslih (2017), NIM is used to measure the ability of bank management to manage its productive assets to generate net interest income. Where this ratio shows the bank's ability to generate income from interest by looking at the bank's performance in lending. Indiani and Dewi (2016) state that the greater the NIM ratio of a bank, the greater the benefits obtained from interest income and will have an effect on increasing investor interest in investing in banking, which is reflected in the increase in demand for bank shares and an impact on the increase in share prices.

The formula is:

$$\text{NIM} = \frac{\text{PENDAPATAN BUNGA BERSIH}}{\text{ASET PRODUKTIF}} \times 100\% \quad \text{.......} (\,2.2\,)$$

2.3.2. Operating Expenses to Operating Income (BOPO)

According to Hartanto and Diansyah (2017), BOPO is the ratio between operating costs and operating income. The lower the level of the BOPO ratio means the better the performance of the bank's management, because it is more efficient in using existing resources in the company. In Jordan's (2011) research, the *Cost X-Efficiency Ratio* (BOPO) has a positive effect on *market-price to book value* (PBV). It can be concluded that an increase in operating costs divided by operating results in an increase in stock returns so that each company needs to control their spending to stimulate an increase in efficiency associated with the return on its stock.
The formula is:

$$\text{BOPO} = \frac{\text{BEBAN OPERASIONAL}}{\text{PENDAPATAN OPERASIONAL}} \times 100\% \quad \text{.......} (\,2.3\,)$$

2.3.3. Net Performing Loan (NPL)

According to Hartanto and Diansyah (2017), NPL (*Net Performing Loan*) is the rate of return on credit given by a debt or to a bank, in other words, NPL is the level of bad credit at the bank. In addition, according to Larasati, Isynuwardhana and Muslih (2017), NPL is the ratio between the number of non-performing loans to the total credit distributed. From the above statement it can be concluded that NPL (*Net Performing Loan*) is a comparison of non-performing loans to total loans extended by banks. Where in this NPL shows the ability of the bank to manage

the problem loans it has distributed. The higher the NPL ratio, the more likely a bank is in trouble. So that investors can consider further if the NPL ratio of the bank shares analyzed is high.

The formula is: $$NPL = \frac{KREDIT\ MACET}{TOTAL\ KREDIT} \times 100\% \qquad \text{.......} (2.4)$$

2.3.4. Capital Adequacy Ratio *(CAR)*

According to Hartanto and Diansyah (2017), CAR is a capital adequacy ratio that serves to accommodate the risk of loss that a bank may face. According to Polii, Saerang, and Mandagie (2014), CAR is a bank's ability to cover the decline in its assets as a result of bank losses caused by risky assets. The conclusion from the above statement is that CAR is the capital adequacy ratio which shows the bank's ability to overcome possible losses by maintaining capital savings to face the worst. The higher the CAR of a bank, the more capable the bank is to absorb the losses that will arise so that it is less likely to be liquidated. Banking companies with high capital are able to provide security guarantees for investors to invest and generate returns on these investments.

The formula is : $$CAR = \frac{MODAL\ SENDIRI}{ATMR} \times 100\% \cdots\cdots (2.5)$$

III. RESEARCH METHOD
3.1. Object Of Research

The financial ratio data are *Net Interest Management* (NIM) , Operating Expenses to Operating Income(BOPO), *Net Performing Loan* (NPL), Capital Adequacy Ratio (CAR) and *Price to Book Value* (PBV) of each share banking companies listed on the Indonesia Stock Exchange (IDX) . In conducting this research the authors will take samples of *Net Interest Management* (NIM) , Operational Expenses to Operational Income (BOPO), *Net Performing Loans*(NPL), Capital Adequacy Ratio (CAR) , and *Price to Book Value* (PBV) . The authors took the data in a 5 year period, from 2015 to 2019 . The companies that will be the samples in this study are 20 banking companies listed on the Indonesia Stock Exchange that match the criteria set by the author.

3.2. Research Methods
To be able to obtain data and information needed in research, the following methods can be used :
1. Literature study method, which is a method used to collect data through exploration and study of various literatures such as magazines, journals, and other sources related to research.
2. Documentation method, which is the use of data derived from existing documents. The documentation method is the collection of data with documents in the form of financial reports that have been collected and published.

3.3. Types of Data and Data Sources

The data used in this research is secondary data obtained from the company's audited annual financial reports(Audited Annual Report) from 2015-2019. The data that has been collected will then be analyzed quantitatively with statistical methods to test the research hypothesis. The data source is from the official website of the Indonesia Stock Exchange (www.idx.co.id) and the website of the company concerned.

3.4. Research Variable

In this study the variables used are the financial ratios of banking sector companies listed on the Indonesian Stock Exchange (BEI), consisting of:

1. *Net interest margin* (NIM), Operating Expenses to Operating Income (BOPO), *net performing loan* (NPL), and *capital adequacy ratio* (CAR) are independent variables.
2. The value of shares through the PBV ratio is the dependent variable.

3.5. Data Analysis Method

The method of analysis used in this research is to use statistical analysis of data with E-Views 10 and *Microsoft Excel*2010 programs . Statistical analysis contains descriptions of the methods to be used in determining the independent variable on the dependent variable and its level of significance.

Analisis Statistik Deskriptif

Sugiyono (2018: 147) states that descriptive statistics are statistics used to analyze data by describing or describing the data that has been collected as it is without intending to make general conclusions or generalizations. By using descriptive statistics, it can be seen that the average value (*mean*), standard deviation, maximum value, and minimum value (Ghozali, 2017: 31). Descriptive statistics are used to analyze quantitative data that is processed using the E-Views10 program so that it can provide an explanation of the condition of banking companies during 2015-2019.

Panel Data Regression Estimation Model

The analysis method used in this study is panel data regression analysis to obtain a comprehensive picture of the relationship between one variable and another. Gujarati (2012) states that panel data techniques combine *cross-section* and *time series* data types , so as to provide more information, variety, and be more efficient.
Ghozali (2017) states that estimating the regression model using the panel data model can be done through three approaches, but researchers only use two approaches, including:

a. *Fixed Effect Model* (FEM)

The *Fixed Effect Model* assumes that the intercept of the company has different possibilities. This difference can be caused by the special characteristics of each company. The term *Fixed Effect* indicates that although the intercept is different for each individual, the individual intercept does not vary with time (*time invariant*). To make the intercept varied for each individual company, a dummy variable is required. Although panel data regression using the *Fixed Effect Model* approach requires dummy variables, with the E-Views program we can do it automatically without creating a dummy variable first. (Ghozali, 2017).

b. *Random Effect Model* (REM)

The *Random Effect Model* is a method that will estimate panel data in which the residual variables may be interrelated between individuals. This model assumes that the problems that occur, such as the *error term* in the *co section* and *time series,* can be solved by using the *Random Effect Model* (REM) *model* .

Panel Data Model Selection

In this study, the researcher chose to use the Hausman test to estimate the panel data regression. This test is used to compare the *Fixed Effect Model* (FEM) and the *Random Effect Model (* REM).

The basis for making the *Hausman* test conclusions is as follows:
- If the *probability Chi-Square* > 0.05 then H 0 is accepted, which means the *Random Effect Model* (REM)

- If the *probability Chi-Square* <0.05 then H 0 is rejected, which means *Fixed Effect Model* (F EM)

So that in testing has the following hypothesis:

H 0 : *Random Effect Model* (REM)

H a : *Fixed Effect Model* (FEM)

Classic Assumption Test

Before testing the hypothesis, a classic assumption test is carried out which aims to ensure that the research results are valid, the data used is inconsistent, consistent and the regression coefficient is estimated to be efficient. To test the feasibility of the regression model used, it must first meet the classical assumption. Testing on the classical assumption test, namely:

1. **Multicollinearity Test**

According Ghozali (2017: 71) multicolinierity test aims to test whether the mode l regression found a correlation between the independent variables. This test needs to be done when linear regression uses more than one independent variable. The correct regression model should not contain elements of multicollinearity because it will result in an incorrect interpretation of the problem.

Multicollinearity is seen from the *tolerance* value and *variance inflation factor* (VIF). *Tolerance* measures the variability of the selected independent variable that is not explained by other independent variables. The general value used to indicate multicollinearity is *tolerance* < 0.10 or VIF> 10, so there is multicollinearity and *tolerance* > 0.10 or VIF <10so there is no multicollinearity (Ghozali 2017: 72-74).

2. **Heteroskedasticity Test**

According to Hsiao (2014) the heteroscedasticity test aims to determine whether there is the same error variance cross individuals, not only due to time (t) but also between companies (i). It can be concluded that the data cross (*cross-section*) as well as time series data (*time series*) cannot escape from the error (*the error*).

According to Hsiao (2014) the heteroscedasticity test consists of two:
   a. *Cross Section Heteroskedasticity* is heteroscedasticity caused by research company data.
   b. *Period Heteroskedasticity* is heteroscedasticity caused by the year (time) of research data.

3. **Correlation Analysis**

According to Pesaran et al (2011) the correlation test aims to measure the error between companies or between times whether they influence each other or not. And to test the correlation consists of two tests, namely:
   a. *Cross Correlation* which aims to test whether the errors between companies are correlated.
   b. *Autocorrelation* which aims to test whether the errors between times are correlated using the Durbin-Watson method.

A good regression model is free from autocorrelation. If there is a correlation, then there is an autocorrelation problem in the model. One measure in detecting the presence or absence of an autocorrelation problem is the Durbin-Watson Test (DW Test). The Durbin-Watson test is only

used for *first-order autocorrelation* and requires an *intercept*(constant) in the regression model and there is no lag variable between the independent variables. The hypotheses to betested in the *Durbin Watson Test* are (Ghozali. 2017: 121)

Panel Data Regression Analysis

Multiple linear regression is testing the effect of two or more independent variables on one dependent variable(Ghozali, 2017: 195). To test the hypothesis, multiple linear regression analysis was used which was carried out with the *software E views (Economic Views)* version 10. Then the regression equation model can be systematically formulated as follows:

$$\text{PBV}_{it} = \alpha + \beta_1 \text{NIM}_{it} + \beta_2 \text{BOPO}_{it} + \beta_3 \text{NPL}_{it} + \beta_4 \text{CAR}_{it} + \varepsilon_{it} \cdots \quad (3.1)$$

Information:
PBV : Value of Shares
α : Constant
β : Regression coefficient
NIM : *Net Interest Margin*
BOPO : Operating Expenses to rational operating income
NPL : *Net Performing Loan*
CAR : *Capital Adequacy Ratio*
ε : Error (annoying)
i : Companies in the banking sector
t : 2015-2019

Hypotesis Testing

The hypothesis is a temporary answer to the formulation of the research problem, where the formulation of their search problem has been stated in the form of a question sentence. It is said temporarily, because the answers given are only based on relevant theories, not based on empirical facts obtained through data collection. So the hypothesis can also be stated as a theoretical answer to the formulation of the research problem, not an empirical answer. Hypothesis testing is used by researchers is testing the coefficient of determination (R^2) and t test.

1. **The coefficient of determination** (R^2)

    The coefficient of determination in essence measures how far the model's ability to explain the variation in the dependent variable. The fundamental weakness of using the coefficient of determination is the bias towards the number of independent variables included in the model. Each additional one independent variable, then the value of R^2 increases no matter whether these variables significantly influence the dependent variable. Therefore, many researchers advocate for the use value of *adjusted* R^2 when evaluating which best regression model, in fact the value of *adjusted* R^2 can be negative, although preferred to be positive.

2. **Significant Test for Individual Parameters (T Statistical Test)**

    The t test or t statistical test basically shows how far the influence of one independent variable on the dependent variable by assuming the other independent variables are constant. In this case, it is to determine whether the NIM, BOPO, NPL, and CAR variables partially to the Value of Banking Company Shares. The steps in testing the significant test of individual parameters (t test) are as follows:

1. Formulating Hypotheses
   - H o : β 1 = 0 means that the independent variable partially does not have a significant effect on the dependent variable
   - H o : β 1 ≠ 0 means that the independent variable partially has a significant effect on the dependent variable
2. Determining Significance Level
   The level of significance in this study was carried out with levels (α) 1% (0.01), 5% (0.05) and 10% (0.10).
3. Decision-making
   - If the *probability* (Sig t)> α then Ho is accepted, it means that there is no partially significant effect of the independent variable on the dependent variable.
   - If the *probability* (Sig t) <α then Ho is rejected, it means that there is a partially significant effect of the independent variable on the dependent variable.

IV. RESEARCH RESULT AND DISCUSSION

4.1 Descriptive Statistic

The type of data used in this study is in the form of panel data, namely a combination of *time series* and *cross section* data . Time series data (*time series*) use the data as much as 5 years ie the period 2015 up to 2019. While data cross (*cross section*) includes the banking sector companies listed on the Indonesian Stock Exchange (BEI), which publishes financial report publicly the company a research sample of 20 companies.

Below will be presented a table of descriptive statistical test results used in this study which have been processed using *E Views 10* :

Tabel 4.1.
Descriptive Statistic

	PBV	NIM	BOPO	NPL	CAR
Mean	1.50	5.07	84.77	1.96	19.79
Median	1.18	4.90	85.85	1.76	19.29
Max	4.99	9.30	150.80	6.37	29.58
Min	0.21	1.53	58.20	0.00	11.61
Std Dev	1.07	1.58	13.28	1.20	3.43
Obs	100	100	100	100	100

Source: Data Processing Using *E Views 10* (processed by researchers)

From table 4.1 on top, can we describe the variables used by researchers as follows:

1. **Share Value**

The variable value of shares through the *Price to Book Value* (PBV) observed during the study period, namely 5 (five)years period, can be seen that the maximum share value is 4.99 and the minimum is 0.21. Meanwhile, the mean (average)is 1.50 with a standard deviation of 1.07 . The value shows that the average stock of a banking company is trading 1.5 0times its book value per share. This is quite good because the market is considering the financial business prospects of banking companies well. Thus increasing the level of investor confidence to be interested in investing their funds in the stock market of banking companies. If the PBV value is below 1 times, the share price is still cheaper than the book value. Cheaper is not necessarily good , but it is not always bad . Many factors can determine how the market values a company when compared to its

book value. Value PBV lowest (minimum) is Bank Artha Graha International gained 0.2 1 and the highest (maximum) is Mayapada International Tbk obtained at 4, 99 in the year 2019 .

2. *Net Interest Margin*

Based on the data during the study period can be seen that the value of *net interest margin* to a maximum of 9.30 anda minimum of 1 , 53 . While the mean (average) is 5.07 with a standard deviation of 1.58 . This value indicates that the banking company has an average net interest income of 5.07 % during the study period. NIM shows the net interest income generated by a banking company where the operating income relies on the difference between loan interest and customer deposit interest as profit or profit. A high N IM is the advantage of banking in Indonesia that is not shared by banks in other ASEAN countries where on average they get an NIM of 3-4%. Indonesian banking companies should be proud of this, so that it has become an attraction for foreign banks to open branches in Indonesia and encourage foreign and local investors to buy national banking shares. Lowest NIM value (minimum) is Bank Victoria International Tbk obtained at 1 ,53 in 2016 and the highest (maximum) is Bank Danamon Indonesia Tbk. obtained in the amount of 9.30 in 2017.

3. **Operating Expenses to Operating Income (BOPO)**

Based on the data during the study period, it can be seen that the maximum value of operating expenses to operating income (BOPO) is 150.80 and the minimum is 58.20. While the mean (average) is 84.77 with a standard deviation of13.28. The value shows that the average BOPO value of the banking companies under study is 84.77% . This is still reasonable because it is still below 100% so it is still safe in the operational condition of the company. The high BOPO value makes investors afraid to buy the company's shares because the BOPO value shows how inefficient the company is managing its operations. Meanwhile, the small BOPO value makes investors believe that the company can manage its operations efficiently so that it can increase company profits. From the data obtained, the maximum BOPO value is 150.80by Bank Permata Tbk. 2016 and a minimum of 58.20 by Bank Central Asia Tbk. year 2018.

4. *Net Performing Loan*

Based on the data during the research period, it can be seen that the maximum *net performing loan value* is 6.37 and the minimum is 0.00 . While the mean is 1.96 with a standard deviation of 1.20 . The value shows that the average NPL of the banking companies I studied was 1.96% . This average NPL value shows that the banking company that the author studied is still within reasonable limits because it is still below 5%. This means that non-performing loans are still below5%. The NPL can still fluctuate according to current conditions. With an unstable economy, banking companies must be careful in extending credit to customers so that existing loans do not become non-performing loans (NPLs). The higher the NPL value (above 5%), the unhealthy bank will cause a decline in profits to be received by the bank. And if the NPL is below 5%, the banking company is still in a safe stage but it must be maintained by monitoring existing and future loans. From the data obtained, the maximum NPL value is 6.37 by Bank Bukopin Tbk. 2017 and a minimum of 0.00 by Bank National Nobu Tbk. in 2015.

5. *Capital Adequacy Ratio*

Based on the data during the research period, it can be seen that the maximum *capital adequacy ratio* is 29.58 and the minimum is 11.61. While the mean was 19.79 with a standard deviation of 3.43 . The value shows that the average CAR in the banking company that the author studied can provide emergency funds to overcome the risk of loss of 19.79% within safe limits. Where a minimum of 8% CAR must be available to overcome the risk of loss that may occur in the future. The higher the CAR value reflects the better banking ability to face possible risk of loss.

From the data obtained, the maximum CAR value is 29.58 by Bank Rakyat Indonesia Agroniaga in 2017 and the minimum is 11.61 by Bank Bukopin Tbk. In 2017.

Panel Data Regression Model Estimation Method
Panel data regression is a regression technique that combines *time series* and *cross section* data . This is to determine the most efficient method between the *Fixed Effects Model* (FEM) or the *Random Effects Model* (REM).

Table 4.2.
***Original Panel* Regression Result**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.066536	0.759979	0.087550	0.9304
NIM	0.089363	0.043540	2.052444	0.0429
BOPO	-0.007086	0.005964	-1.188046	0.2378
NPL	-0.211065	0.062727	-3.364834	0.0011
CAR	0.032588	0.019650	1.658410	0.1005
R-squared	0.364734	Mean dependent var		0.150900
Adjusted R-squared	0.337986	S.D. dependent var		0.742232
S.E. of regression	0.603911	Akaike info criterion		1.877928
Sum squared resid	34.64735	Schwarz criterion		2.008187
Log likelihood	-88.89640	Hannan-Quinn criter.		1.930646
F-statistic	13.63593	Durbin-Watson stat		0.655956
Prob(F-statistic)	0.000000			

Source: Data processed (2020)

Panel Data Regression Model Selection Test
The model selection to test the regression equation to be estimated in this study is the Hausman test, which is as follows:
- If the *probability Chi-Square* > a significant value of 0.05 then H_0 is accepted, then the right model is the *random effect model* (REM)
- If the *probability Chi-Square* < a significant value of 0.05 then H_0 is rejected, then the correct model is the *fixed effect model* (F EM)

So that in testing has the following hypothesis:
H_0 : *Random effect model* (REM)
H_a : *Fixed effect model* (FEM)

Table 4.3.
Hausman Test Result

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	4	1.0000

Source: Data Processing Using *E Views 10* (processed by

From the table above it is known that *p-value* (*Prob*) is equal to 1 (more than 0.05), so that the 95% confidence level, we accepted H_0 and reject H_a . Hausman test shows that the model to test the regression equation right is the method *random effects models* (REM).

Classical Assumption Test Results

1. **Multicollinearity Test**

Multicollinearity is a condition in which the regression model finds a perfect or near perfect correlation between the independent variables. If there is a high enough correlation between the independent variables (generally above 0.90)this indicates a multicollinearity problem. The absence of a high correlation between the independent variables does not mean that it is free from multicollinearity. Multicollinearity can be caused due to the effect of the combination of two or more independent variables .

Multicollinearity testing using the *Tolerance* and *Variance Inflation Factor* (VIF) method . The value a I commonly used to indicate the presence of multicollinearity is *tolerance* <0.10 or the same as VIF> 10. Following are the results of the *Variance Inflation Factor* (VIF) test :

Table 4.4.
***Variance Inflation Factor* (VIF) Test Result**

Variable	Coefficient Variance	Un centered VIF	Centered VIF
NIM	0.001896	14.66792	1.282078
BOPO	3.56E-05	71.79721	1.703488
NPL	0.003935	5.679549	1.540542
CAR	0.000386	42.70747	1.235861

Source: Data Processing Using *E Views 10* (processed by researchers)

Based on the calculation table above, it can be seen that there is no VIF value that is more than 10. So, once again it can be concluded that there is no multicollinearity between each independent variable.

1. Heteroscedasticity Test

Heteroscedasticity is a condition where in the regression model there is an inequality of variants from the residuals from one observation to another. A good regression model does not occur heteroscedasticity. According to Ghozali (2017:85) the heteroscedasticity test aims to test whether in the regression model there is an inequality of variants and residuals from one observation to another. The basis for decision making in this test is if the probability value is <0.05 then there is heteroscedasticity and if the probability value is> 0.05 then there is no heteroscedasticity.

This is the result of heteroscedasticity test:

Table 4.5.
***Cross-Section Test* Heteroscedasticity Test Results**

	Value	Df	Probability
Likelihood ratio	64.12302	20	0.0000

Source: Data Processing Using E Views 10 (processed by researchers)

Based on the results of the heteroscedasticity test in table 4.6. The *cross-section test* shows a probability value of0.0000 <0.05, these results indicate that the *error is* a symptom of heteroscedasticity.

Table 4.6.
Heteroscedasticity Test Results *Period Test*

	Value	Df	Probability
Likelihood ratio	7.680757	20	0.9938

Source: Data Processing Using *E Views 10* (processed by researchers)

Meanwhile, the *period test* shows a probability value of 0.9938> 0.05, this indicates that there are no symptoms of heteroscedasticity or an *error* is homoscedasticity. So, it can be concluded that the symptom of heteroscedasticity is the *error cross-section* .

1. ***Uji Autokorelasi dan* Cross Correlation**

There are two kinds of methods for autocorrelation that we will test, namely *first order* autocorrelation and *serialcorrelation* autocorrelation . However, this research will be tested with Durbin Watson. The following are the results of theautocorrelation test using Durbin Watson:

Tabel 4.7.
Hasil Uji Autokorelasi

N	K	Dl	d_U	D	4-dU	4-Dl	Kesimpulan
100	4	1.59	1.76	0.6559	2.24	2.41	Ada autokorelasi positif

Source: Data processed (2020)

From table 4.7. obtained the Durbin-Watson stat value of 0.6559. Meanwhile, the value of d_L is 1.59. In this case, ifit is seen from the basis of the determined decision making, the value of d is between the values 0 and d_L, namely 0<0.6559 <1.59 (0 <d <d_L), it can be concluded that there is positive autocorrelation or with the decision is that there is an autocorrelation problem in the regression model.

Tabel 4.8.
***Cross Correlation* Results**

Test	Statistic	d.f.	Prob.
Breusch-Pagan LM	255.1573	190	0.0011
Pesaran scaled LM	3.342499		0.0008
Pesaran CD	2.149514		0.0316

Source: Data processed (2019)

Based on table 4.8. It can be seen that the *Breusch-Pagan* LM value is 0.0011 <0.0500, which indicates that there is across-correlation relationship . To overcome autocorrelation in the *random effect* method , an estimate was carried outusing *white cross-section* weighting .

Panel Data Regression Results *Random Effects Model* (REM) Method

Based on the selection of the estimation model that has been made above that the *random effects model* method is most suitable for use in this study, the results of the data processing *output* for the panel data regression model are as follows:

Tabel 4.9.

Panel Data Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.039032	0.425381	2.442591	0.0164
NIM	0.096074	0.027612	3.479364	0.0008
BOPO	-0.010779	0.002644	-4.076804	0.0001
NPL	-0.150691	0.038872	-3.876558	0.0002
CAR	-0.008425	0.022977	-0.366658	0.7147

Effects Specification		
	S.D.	Rho
Cross-section random	0.520402	0.6628
Idiosyncratic random	0.371178	0.3372

Weighted Statistics			
R-squared	0.210999	Mean dependent var	0.045857
Adjusted R-squared	0.177778	S.D. dependent var	0.408679
S.E. of regression	0.370576	Sum squared resid	13.04600
F-statistic	6.351368	Durbin-Watson stat	1.526726
Prob(F-statistic)	0.000142		

Unweighted Statistics			
R-squared	0.316232	Mean dependent var	0.150900
Sum squared resid	37.29265	Durbin-Watson stat	0.534091

S ource: Sports Data Using *E Views 10* (processed researchers)

Based on the results above, the panel data regression equation data is obtained as follows:

(3.1)

$$\text{PBV}_{it} = \alpha + \beta_1 \text{NIM}_{it} + \beta_2 \text{BOPO}_{it} + \beta_3 \text{NPL}_{it} + \beta_4 \text{CAR}_{it} + \varepsilon_{it} ....$$

$\text{PBV}_{it} = 1{,}039032 + 0{,}096074\ \text{NIM}_{it} - 0{,}010779\ \text{BOPO}_{it} - 0.150691\ \text{NPL}_{it} - 0.008425\ \text{CAR}_{it} + \varepsilon_{it}$

…

From the regression equation above, it can be described as follows:

1) The constant value (a) is 1.039032, meaning that if the variables in this study are *Net Interest Margin,* operating expenses to operating income (BOPO) *, Net Performing Loan* and *Capital Adequacy Ratio* are 0, then the stock value(PBV) is 1, 039032 .

2) Value variable regression coefficient *Net Interest Margin* obtained by 0.096074 value is positive indicates a direct relationship between the variable value of the shares with *the net interest margin,* which means that if *the net interestmargin* increased by one unit then the value of the shares will shortly ingkat of 0 , 096074 assuming that the other independent variables are fixed.

3) The coefficient of the regression variable operating expenses to operating income ratio (ROA) amounted to - 0.010779negative value indicates their relationship in the opposite direction between the variable value of the stock with operating expenses to operating income ratio (ROA), which means that if the operating expenses to operating income(ROA) increased by one unit then the value of the shares will shortly urun by 0.010779 assuming that the other independent variables remain.

4) The coefficient of regression *Net-performing loans* amounted to - 0.150691 negative value indicates their relationship inthe opposite direction between the variable value of the shares at *Net-performing loans,* which means that if *Net-performing loans* increased by one unit the value of the stock will go down by 0.150691 assuming that the other independent variables remain.

5) The regression coefficient value of the *Capital Adequacy Ratio* variable is - 0.008425 negative, indicating that there isan opposite relationship between the variable stock value and the *Capital Adequacy Ratio ,* which means that if the*Capital Adequacy Ratio* increases by 1 unit then the stock value will decrease by 0.008425 assuming that the variable other independent remains.

Hypotheis testing

a) **The coefficient of determination (R $_2$)**

The coefficient of determination explains the variation in the influence of the independent variables on thedependent variable, or it can also be said as the proportion of the influence of all independent variables on the dependentvariable. The following is the test *output* for the coefficient of determination obtained from the *random effects method:*

Tabel 4.9.1.
Determination Coefficient Test Results

R-squared	0.210999
Adjusted R-squared	0.177778

Source: Data Processing Using *E Views 10* (processed by researchers)

From the table above the coefficient of determination can be seen in the *Adjusted R-Square* value of 0.177778 or17.7778 %, which means that the dependent variable (PBV) can be explained by the independent variables (NIM, BOPO,NPL, and CAR) of 17.7778 %. While the remaining 82.2222% is influenced by other variables which are not analyzed inthe regression equation model in this study.

b) **Uji Parsial (Uji t)**

The t test is used to determine the effect of each independent variable used in this study on the dependent variable.With a significance level at the 1%, 5%, and 10% levels. Based on table 4.2 it states that the results of these calculationshave the following hypothesis t test:

1. Based on table 4.9 the results of the *net interest margin* (NIM) coefficient of 0.096074 with a probability value of0.0008, where the probability value is lower than 1%. From these

results it can be concluded that H $_0$ is rejected andH $_a$ is accepted, so that NIM has a significant effect on the value of shares as measured by PBV. The results of thisstudy are in line with the hypothesis proposed by the researcher, which states that NIM has an influence on sharevalue (PBV).

2. Based on table 4.9. obtained the results of the coefficient of operating expenses on operating income (BOPO) of-0.010779 with a probability value of 0.0001 where the probability value is lower than 1%. From these results itcan be concluded that H $_0$ is rejected and H $_a$ is accepted, so that BOPO has a significant effect on the value of sharesas measured by PBV. The results of this study are in line with the hypothesis proposed by the researcher, whichstates that OEOI has an influence on share value (PBV).

3. Based on table 4.2. The results obtained are the *Net Performing Loan* (NPL) coefficient of -0.150691 with aprobability value of 0.0002, where the probability value is lower than 1%. From these results it can be concludedthat H $_0$ is rejected and H $_a$ is accepted, so that NPL has a significant effect on the value of shares as measured byPBV. The results of this study are in line with the hypothesis proposed by the researcher, which states that NPL hasan influence on share value (PBV).

4. Based on table 4.2. The results obtained are the *Capital Adequacy Ratio* (CAR) coefficient of -0.008425 with aprobability value of 0.07147 where the probability value is higher than 5%. From these results it can be concludedthat H $_0$ is rejected and H $_a$ is accepted, so that CAR does not have a significant effect on stock value as measured byPBV. The results of this study are not in line with the hypothesis proposed by the researcher, which states thatCAR has an influence on share value (PBV).

i. Research Finding

1. Effect of *Net Interest Margin* on Share Value
The results showed that the *net interest margin* (NIM) variable had a significant positive effect on stockvalue as measured by *price to book value* (PBV) in banking sector companies in 2014-2019. So the first hypothesis(H $_1$) which states that NIM has a significant effect on the value of shares is accepted, because the data is inaccordance with the expectations in the study..

2. Effect of Operational Expenses on Operating Income (BOPO) on Stock Value
The results showed that the operating expense variable on operating income (BOPO) had a negative andsignificant effect on stock value as measured by *price to book value* (PBV) in banking sector companies in 2014-2019. So the second hypothesis (H $_2$) which states that OEOI has a significant effect on the value of sharesreceived, because the data is in accordance with the expectations in the study.

3. The Effect of *Net Performing Loans* on Share Value
The results showed that the variable *net performing loan* (NPL) had a significant negative effect on stockvalue as measured by *price to book value* (PBV) in banking sector companies in

2014-2019. So the thirdhypothesis (H $_3$) which states that NPL has a significant effect on the value of shares is accepted, because the datais in accordance with the expectations in the study.

4. The Effect of *Capital Adequacy Ratio* on Stock Value

The results showed that the *capital adequacy ratio* (CAR) variable did not have a significant effect onstock value as measured by *price to book value* (PBV) in banking sector companies in 2014-2019. So the fourthhypothesis (H $_4$) which states that CAR has a significant effect on stock value is rejected, because the data doesnot match the expectations in the study.

V . CONCLUSIONS AND SUGGESTIONS

From the results of research on " The Influence of NIM, OEOI, NPL and CAR on Stock Value of EmpiricalStudies on Banking Companies Listed on the Indonesia Stock Exchange for the 2015-2019 Period", the authors can drawthe following conclusions:

1. *Net interest margin* (NIM) has a significant effect on the value of shares of banking companies in bankingcompanies listed on the IDX for the 2015-2019 period.
2. B Eban operations to operating income (ROA) has a significant influence on the Value Stock Company BankingThe Banking Companies Listed on the Stock Exchange Period 2015-2019.
3. *Net performing loans* (NPLs) have a significant effect on the value of shares of banking companies in bankingcompanies listed on the IDX for the 2015-2019 period.
4. *Capital Adequacy Ratio* (CAR) does not have a significant effect on the value of shares of banking companies inbanking companies listed on the IDX for the 2015-2019 period.

Suggestion

Based on data processing and data results in this study, the researchers provide suggestions, including:

1. For investors and potential investors who want to invest in banking companies, they can be more selective inchoosing companies to invest in. In addition, it is also expected to see the company's prospects by identifying theratio of NIM, BOPO, NPL and CAR as a reference for analysis of the value of its shares.

2. For companies in the banking sector, it is hoped that the NIM, BOPO, NPL and CAR ratios will become areference for company management in making policies as well as information that can assist management inmaking decisions that have an impact on the increase and decrease in the value of their company's shares.

3. For future researchers, it is suggested to carry out further research by expanding the sample of companies thatinclude all types of banking companies listed on the Indonesia Stock Exchange. And add financial ratio variablesor non-financial variables such as company *size* , company *age* , and other variables to the fundamental analysis ofstocks.

REFERENCES

Akbar Taufiq dan Lanjarsih Laela, 2019. "Penetapan Profitabilitas dan Nilai Perusahaan Bank di Indonesia Berdasarkan Profil Risiko, Struktur Permodalan, Tata Kelola Perusahaan dan Aset Struktur". Fakultas Ekonomi dan Bisnis, Perbanas Institute, Jurnal Manajemen Keuangan dan Akun e-ISSN: 2456-3374 Volume 4 Edisi 11 November-2019, (Halaman No.-2041-2047) DOI: 10.33826 / afmj / v4i11.01, JIKA - 4.614, Jakarta, Indonesia

Anwar, Sanusi. 2014. *Metodologi Penelitian Bisnis*. Jakarta: Salemba Empat.

Effendi, Kharisa, Ayu dan Disman, *" Liquidity Risk: Comparison Betwen Islamic and Conventional Banking". Europan Research Journal*. Vol. 2017, 20, (2017): 312.

Firdaus dan Fakhry Zamzam. *Aplikasi Metodologi Penelitian*. Yogyakarta. Deepublish, 2018.

Ghozali, I. dan Ratmono, D. 2017. *Analisis Multivariat dan Ekonometrika Teori, Konsep dan Aplikasi dengan E Views 10.* Semarang: UNDIP.

Harahap, Sofyan Syafri. 2010. *Analisa Kritis atas Laporan Keuangan*. Jakarta: Rajawali Persada

Hartanto, dan Diansyah. (2018). *Pengaruh Kinerja Keuangan Terhadap Harga Saham Bank Umum Swasta Nasional Yang Terdaftar Di Bursa Efek Indonesia. Journal Of Business Studies*, 3(1), 45-57.

Hartono, Jogiyanto. 2016. *Teori Portofolio dan Analisis Investasi*. Edisi Kesepuluh. Yogyakarta

Hsiao, Cheng, 2014, *Analysis of Panel Data, Cambridge : Cambridge Universityi Press*

Husnan, Suad. 2009. *Dasar-Dasar Teori Portofolio dan Analisis Sekuritas*. Edisi Ketiga. Yogyakarta: UPPAMP YKPN.

Indriani, Ni Putu Lilis; Dewi, Sayu Kt. Sutrisna. *Pengaruh Variabel Tingkat Kesehatan Bank Terhadap Harga Saham Perbankan di Bursa Efek Indonesia. E-Jurnal Manajemen*, [S.I.], v. 5, n.5, may 2016. ISSN 2302-8912 Available at https://ojs.unud.ac.id/index.php/Manajemen/article/view/20275

Fahmi, Irham. 2011. *Analisis Laporan Keuangan*. Bandung: CV. Alfabeta.

Jordan, Dan J. Rice, Douglas. Sanchez, Jaquez. and Wort, Donald H. 2011. " *Explaining bank market-to-book ratios: Evidence from 2006 to 2009*". Dominican University of California, USA https://www.journals.elsevier.com/journal-of-banking-and-finance

Kashmir, *Dasar-dasar Perbankan*, PT. RajaGrafindo Jakarta, 2010

Kashmir, *Bank dan Lembaga Keuangan Lainnya*, PT. RajaGrafindo Jakarta, 2016

Kashmir, *Analisis Laporan Keuangan*, PT. RajaGrafindo Jakarta, 2017

Larasati, Rizki, Deannes Isynuwardhana dan Muhammad Muslih. 2017. *Analisis Pengaruh Non Performing Loan dan Net Interest Margin terhadap Harga Saham pada 5 Bank Umum Konvensional Penyalur Kredit Terbesar di Indonesia Tahun 2010-2015. E-proceeding Of Management* Vol 4. No 1.

Maimunah, Siti dan Fahtiani, Tasya. 2019. *Pengaruh NPL, ROA, dan CAR Terhadap PBV Pada Bank BUMN. Fakultas Ekonomi, Universitas Pakuan. Jurnal Informasi Perpajakan, Akutansi, dan Keuangan Publik*. Vol 14 No. 1 Januari 2019, Hal 19-36. ISSN : 2685-6441. http://dx.doi.org/10.25105/jipak.v14i1.5086

Niu, J. 2016 "*Loan growth and bank valuations", Quarterly Review of Economics and Finance"*, Simon Fraser University https://www.sciencedirect.com/science/article/abs/pii/S1062976916000156?via%3Dihub

Nurazi, Ridwan dan Berto Usman. 2016. *"Bank Stock Returns in Responding the Contribution of Fundamental and Macroeconomic Effects". JEJAK: Jurnal Ekonomi dan Kebijakan*, 9(1), 134-149. Doi: http://dx.doi.org/10.15294/jejak.v9i1.6386

Polii, Pryanka J.V, Ivonne Saerang dan Yunita Mandagie. 2014. *Rasio Keuangan Pengaruhnya Terhadap Harga Saham Pada Bank Umum Swasta Nasional Devisa Yang Go Public Di Bursa Efek Indonesia. Jurnal EMBA*. Vol.2 No.2 Juni 2014, Hal 993-1004.

Radic, Nemanja. 2014. "*Shareholder value creation in Japanese Banking*". The Business School, Middlesex University, The Burroughs, London NW4 4BT, UK. Journal of Banking & Finance 52 (2015) 199-207. https://www.journals.elsevier.com/journal-of-banking-and-finance

Surat Edaran Otoritas Jasa keuangan (OJK) Nomor 43/SEOJK.03/2016

Sudiyatno Bambang, Puspitasari Elen, dan Irsad Moch. 2018. *Hubungan Risiko, Kinerja, Kebijakan Dividen, dan Nilai Perusahaan (Studi Empirik pada Industri Perbankan di Indonesia).* Fakultas Ekonomika dan Bisnis, Universitas Stikuban. Semarang. *Jurnal Inspirasi Bisnis dan Manajemen*. Vol 2, 2018, 15-28. e-ISSN: 2579-9401, p-ISSN: 2579-9312. http://jurnal.unswagati.ac.id/index.php/jibm

Sugiyono. 2017. *Metode Penelitian Kuantitatif, Kualitatif dan R&D.* Bandung: Alfabeta.

Tandelilin, Eduardus. *Pasar Modal Manajemen Portofolio & Investasi*. Jakarta. PT. Kanisius, 2017.

Tryfno. (2009). *Cara Cerdas Berinvestasi Saham*, Edisi 1, Transmedia Pustaka, Jakarta.

Widarjono, Agus. 2018. *Ekonometrika Pengantar dan Aplikasinya Disertai Panduan Eviews.* Yogyakarta: UPP STIM YKPN.

Widiarti, W, Astoeti. Siregar, Hermanto. Dan Andati, Trias. 2015. *The Determinants Of Bank's Efficiensy In Indonesia*. *Buletin Ekonomi Moneter dan Perbankan*. Pp. 130-156.