



Analysis of the Influence of Financial Performance on Banking Price Book Value Listed on the Indonesia Stock Exchange in the Years 2015-2019

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ABSTRACT: This research aims to explore how investors perceive the profitability of banking companies based on a company's financial performance indicators in relation to determining the purchase of a company's stocks. Data analysis will reveal how investors' decisions regarding buying or not buying a company's stocks are influenced by the information they obtain about a company's financial performance indicators. The results of the study indicate that the Capital Adequacy Ratio (CAR) and Loan to Deposit Ratio (LDR) variables do not have any influence on Return On Asset (ROA). Conversely, the Non Performing Loan (NPL) and Operational Cost to Operational Income (BOPO) variables exhibit significant and negative effects on ROA. Additionally, the NIM variable shows significant results and has a positive impact on ROA. The Path Analysis results reveal that Net Interest Margin (NIM) and BOPO indirectly affect Price Book Value (PBV) through ROA. The findings of this study are expected to provide valuable insights into the relationship between financial performance and investor assessment, particularly in the banking sector, to assist investors in making informed decisions and to enhance trust in the banking industry.

KEYWORDS: Financial Performance, Investor Assessment, Path Analysis

I. INTRODUCTION

The capital market according to the law in Indonesia No. 8 of 1995 is an activity related to the trading of securities and public offerings between investors and companies (emitters). It plays a significant role in a country's economic growth by bridging the gap between surplus and deficit parties in terms of funds. Investors, as surplus parties, can invest through ownership of various securities such

as stocks and bonds, as well as derivative instruments like rights, warrants, and options.

The development of an economy can be reflected through the growth of the capital market, particularly in the Indonesia Stock Exchange. The capital markets's growth is crucial in supporting national development to promote economic equality, growth, and stability. The development of the capital market can be reflected in the market capitalization of a company. According to capital market statistical data from 2015 to 2019, the financial sector emerged as the sector with the largest market capitalization during this period, with the sub-sector of banking having a significant market capitalization compared to other sub-sectors. This indicates that the banking industry has a considerable influence on the capital market activities.

As a financial institution listed on the Indonesia Stock Exchange and being favored by investors, the banking sector must continuously improve its financial performance so that investor evaluations can keep increasing, thus maintaining their trust. This is crucial considering the vital role of banking and its dependence on public trust. This study focuses on analyzing the financial performance's influence on the Price Book Value (PBV) of banking companies listed on the Indonesia Stock Exchange from 2015 to 2019. PBV is a key indicator used by investors to evaluate a company's performance, while financial performance is gauged through various financial ratios such as Return On Asset (ROA), Capital Adequacy Ratio (CAR), Non Performing Loan (NPL), Net Interest Margin (NIM), Operational Cost to Operational Income (BOPO) and Loan to Deposit Ratio (LDR).

The research aims to explore how investors perceive the profitability of banking companies based on their financial performance



indicators. The data analysis will shed light on how investors' decisions are influenced by the information they obtain from these indicators. The findings of this study are expected to provide valuable insight into the relationship between financial performance and investors; assessment, particularly in the banking sector, to help investors make informed decisions and to improve the trust and confidence in the banking industry.

II. LITERATURE REVIEW

The Signaling Theory

The signaling theory was first introduced by Michael Spence in 1973 in his research titled "Job Market Signaling" (Spence, 1973). This theory explains that information senders, such as companies, can provide signals or cues to receivers, such as investors. These signals serve to convey relevant information about the company's condition or prospects. By providing positive and credible signals, companies aim to enhance investors' perception of the company and result in an increase in stock prices. This is because favorable signals can reflect market confidence in the company.

The information shared by companies must be able to present various explanations and descriptions of the company's overall condition. This is crucial due to the existence of information asymmetry between internal parties within the company and external parties, such as investors and creditors. Companies are expected to provide honest and timely information, enabling stakeholders to make better investment decisions. Good, accurate, and relevant information will influence investors' perception of the company and become a significant consideration in the investment decision-making process in the capital market. Thus, the signaling theory plays a significant role in assisting companies in communicating with the market and gaining trust from stakeholders.

The Asset Portfolio Theory

The Asset Portfolio Theory, also known as Modern Portfolio Theory, was developed by economist Harry Markowitz in 1952 in his work titled "Portfolio Selection" (Nandyah, 2016). This theory aims to help investors optimize profits and reduce risk by diversifying their portfolios with various types of assets. The theory focuses on two main aspects: return and risk. Return refers to the potential gains from an asset, while risk reflects the level of uncertainty associated with the investment. Investors seek assets with high return potential and

strive to reduce risk through portfolio diversification.

In portfolio theory, liquidity is also crucial as it determines how quickly assets can be sold or exchanged for cash without causing significant price changes. Liquid assets assist investors in meeting urgent cash needs or providing flexibility in managing their portfolios. The Asset Portfolio Theory assumes that investors are rational and always seek maximum satisfaction, considering the balance between return and risk when making investment decisions (Jogiyanto, 2007). This theory provides valuable insights for financial practitioners and investors in making informed decisions to achieve their investment goals.

Behavior of Banking Investors in the Stock Market

Companies listed on the Indonesia Stock Exchange will experience fluctuations in stock prices due to the interaction between investors in the capital market. Stock prices are determined by the demand and supply among investors and can reflect the company's value. Investors tend to seek companies with good performance, but the capital market is also filled with speculation that can influence investor assessments of a company. Profitability is one of the aspects considered by investors when making decisions to buy stocks. High returns are expected by investors based on good financial performance, such as excellent stocks, good company performance, increasing profitability, and high liquidity (Farooq et al., 2015).

For rational investors, the profitability of a company, especially the Return on Assets (ROA), becomes a primary consideration when purchasing banking stocks. ROA is used to measure the bank management's ability to earn profits from all its assets. An increase in ROA can indicate an improving company performance, which can be positively responded to by the market and investors.

Apart from ROA, other indicators that are considered in assessing company profitability are the Capital Adequacy Ratio (CAR) as an indicator of capital adequacy, Non-Performing Loan (NPL) to measure credit risk, Net Interest Margin (NIM) reflecting market risk, and the Operational Cost to Operational Income (BOPO) ratio depicting company efficiency. The Loan To Deposit Ratio (LDR) is also used as a proxy to measure liquidity risk. All these indicators are essential for investors in assessing company profitability and making investment decisions. Calculating these ratios can



assist investors in understanding the overall financial performance of a company and the potential return from investing in its stocks.

Empirical Model

PBV, known as the Price-to-Book Value, plays a crucial role in how investors assess and respond to a company's performance. The rise or fall of PBV depends on the decisions made by investors. As investors aim for high returns, they primarily consider the aspect of profitability when purchasing stocks. Therefore, ROA serves as a proxy for investors' profit-focused behavior, as shown in equation 1, where an increase in ROA leads to an increase in PBV.

$$PBV = f(ROA) \dots \dots \dots (1)$$

Investors' ability to measure or evaluate profitability relies on financial performance

information obtained from banks. Purwanti (2016) highlights the essential financial performance indicators for evaluating profitability: Capital adequacy (CAR), credit risk (NPL), market risk (NIM), efficiency level (BOPO), and liquidity risk (LDR). Hence, the model is as follows:

$$ROA = f(CAR, NPL, NIM, BOPO, LDR) \dots \dots \dots (2)$$

From equations 1 and 2, it can be concluded that performance indirectly affects PBV. This can be formulated as:

$$PBV = f(CAR, NPL, NIM, BOPO, LDR) \dots \dots \dots (3)$$

The influence of performance variables like CAR, NPL, NIM, BOPO, and LDR indirectly affects PBV through the mediating variable, ROA. In this study, ROA is used as the mediating variable.

III. METHODS

The type of data used in this research is secondary data. The secondary data used in this study is in the form of panel data, which contains a combination of cross-sectional data from 38 banking companies listed on the Indonesia Stock Exchange during the time-series from 2015 to 2019. In this research, the analytical method used is

path analysis. According to Ghozali (2018), path analysis is an extension of multiple linear regression, or path analysis is the use of regression analysis to estimate causal relationships between variables (causal model) that have been established based on theory.

No.	Variable	Variable Symbol	Units of measurement	Data source
1	Price Book Value	PBV	Times.	Indonesia Stock Exchange
2	Return On Asset	ROA	Percent	Financial Service Authority
3	Capital Adequacy Ratio	CAR	Percent	Financial Service Authority
4	Non Performing Loan	NPL	Percent	Financial Service Authority
5	Net Interest Margin	NIM	Percent	Financial Service Authority
6	Loan to Deposit Ratio	LDR	Percent	Financial Service Authority
7	Operational Cost to Operational Income	BOPO	Percent	Financial Service Authority

Table 1. Data Source

This study utilizes linear regression analysis to estimate path analysis by using the panel data regression analysis model, the equatin model used for this study is :

$$ROA = \beta_0 + \beta_1 CAR_{it} + \beta_2 NPL_{it} + \beta_3 NIM_{it} + \beta_4 LDR_{it} + \beta_5 BOPO_{it} + \beta_6 Dummy + \epsilon_{it}$$

$$PBV_{it} = \beta_0 + \beta_7 ROA_{it} + \beta_8 Dummy + \epsilon_{it}$$

Information :

- PBV : Price to Book Value
- ROA : Return o Asset
- CAR : Capital Adequacy Ratio

- NPL : Non Performing Loan
- NIM : Net Interest Margin
- LDR : Loan to Deposit Ratio
- BOPO : Operational Cost to Operational Income
- β_0 : intercept
- β_{1-8} : regression coefficient
- ϵ_{it} : residual
- i* : Object type
- t* : time
- Dummy : From the average values of banking performance indicators with a value of 3 or above, it is considered healthy (1), and



if it is 2 or below, it is considered unhealthy (0).

IV. RESULTS AND DISCUSSIONS

Independent Variable	Coefficient	t-Statistic	Prob
C	3.99317	6.964991	0.0000
CAR	0.0022352	0.213515	0.8312
NPL	-0.072609	-2.033329	0.0438
NIM	0.208426	2.906833	0.0042
BOPO	-0.04311	-11.28195	0.0000
LDR	0.000984	0.364744	0.7158
Dummy	0.060378	0.308777	0.7579
F-Statistic		26.60448	
Prob (F-Statistic)		0.000000	
Adjusted R²		0.886821	

Tabel 2. FEM Regression Results (ROA as the dependent variable.)

Independent Variable	Coefficient	t-Statistic	Prob
C	1.329215	21.38628	0.0000
ROA	0.247381	5.763056	0.0000
Dummy	-0.035078	-0.228043	0.8199
F-Statistic		-0.035078	
Prob (F-Statistic)		-0.228043	
Adjusted R²		0.8199	

Tabel 3. FEM Regression Results (PBV as the dependent variable.)

The coefficient of determination (R^2) test indicates the extent to which the model can explain the variation of the ROA variable. The value of the coefficient of determination ranges from zero to one ($0 < R^2 < 1$). The coefficient of determination is obtained from the estimation results of panel data with the FEM model in the ROA equation, as shown in the table above. This means that 88.68% of the Return On Asset (ROA) can be explained by the variables CAR, NPL, NIM, BOPO, LDR, and Dummy. In other words, 11.31% is influenced by other variables outside the research model. Moving on to the PBV equation, the R^2 value of 0.786241 indicates that the variables ROA and Dummy can explain 78.62% of the variation in the dependent variable (PBV). The remaining 21.37% is explained by other variables not included in the model.

The F-test is used to determine the simultaneous or joint effect of independent variables on the dependent variable. The F-test can be observed by comparing the probability value of the F-statistic with the significance level α (0.05) and comparing the calculated F-value with the F-table. Based on the panel data regression test with

the fixed effect model-OLS as shown in Tables 2 and 3, in the ROA equation, the calculated F-value (26.60) is greater than the F-table value (2.148409577), leading to the rejection of H_0 , which means that the independent variables (CAR, NPL, NIM, BOPO, LDR, Dummy) jointly have a significant influence on the dependent variable (ROA). Similarly, in the PBV equation, the calculated F-value (14.14682) is greater than the F-table value (3.0442404), leading to the rejection of H_0 , indicating that the independent variables (ROA, Dummy) jointly have a significant influence on the dependent variable (PBV).

Path Analysis

Path Analysis is conducted using multiple regression method through Eviews 12 software to examine the influence of independent variables on the dependent variable. Based on the previously conducted Model Selection Test, it can be concluded that the best model for the ROA and PBV equations is by using the Fixed Effect Model.

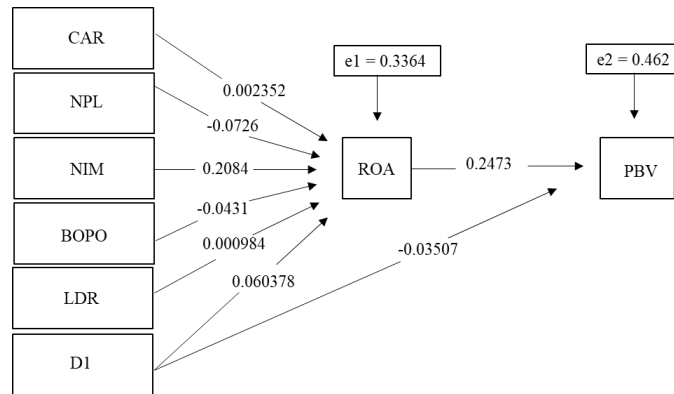


Figure 1. Path Analysis Influence Pathway

ROA = f (Performance)

The influence of Capital Adequacy Ratio, Non-Performing Loan, Net Interest Margin, Operating Expenses to Operating Income, Loan to Deposit Ratio, and Dummy on Return on Asset can be derived from Table 2, resulting in the following equation for ROA:

$$ROA = 3.99317 C + (0.002352) CAR + (-0.072609) NPL + (0.208426) NIM + (-0.04311) BOPO + (0.000984) LDR + (0.060378) Dummy + 0.3364 e_1$$

PBV = f (ROA)

The influence of ROA and Dummy on Price to Book Value can be obtained from Table 3, resulting in the following equation for PBV:

$$PBV = 1.329215 C + (0.247381) ROA + (-0.035078) Dummy + 0.462 e_2$$

Based on the above Figure 1, to find the indirect influence according to Sarwono (2007), it is as follows:

$$\text{Indirect Influence (IIP)} = P1 \times P2$$

Where:

IIP : Indirect influence of performance variables on PBV

P1 : Coefficient of direct regression of performance variables on ROA

P2 : Coefficient of direct regression of ROA on PBV

Variable	Coefficient for ROA (1)	Coefficient for PBV (2)	Indirect influence (1) x (2)
CAR	0.002352	0.247381	0.00058184
NPL	-0.072609	0.247381	-0.017962087
NIM	0.208426	0.247381	0.051560632
BOPO	-0.04311	0.247381	-0.010664595
LDR	0.000984	0.247381	0.000243423

Table 4. Results of Calculation for the Indirect Influence of Performance Variables on PBV

PBV = f (ROA + Dummy)

Return On Asset

The test results for the ROA variable indicate that the t-value is greater than the t-table value (5.763056 > 1.972731) with a coefficient value of 0.247381. Therefore, it can be concluded that ROA partially influences PBV, or in other

words, H0 is rejected, and Ha is accepted. If there is a 1 percent increase in ROA, PBV will increase by a factor of 0.247381, assuming that the other independent variables are held constant.

Dummy

The test results for the dummy variable indicate that the t-value is smaller than the t-table value (-0.228043 < 1.97273). Therefore, it can be



concluded that the dummy variable does not have a partial influence on PBV, or in other words, H₀ is accepted, and H_a is rejected. The results indicate that there is no influence of the dummy variable on PBV. In this case, the dummy variable does not provide a significant contribution to explaining the variation in PBV.

ROA = f (Performance)

Capital Adequacy Ratio (CAR)

For the variable Capital Adequacy Ratio (CAR), the obtained t-value is 0.213515. Therefore, in the t-test, it shows that the t-value is smaller than the t-table value (0.213515 < 1.973012), and it has a coefficient value of 0.0022352. These results indicate that the t-value for the Capital Adequacy Ratio variable is outside the critical region. Thus, H₀ is accepted, and H_a is rejected. Consequently, it can be concluded that the Capital Adequacy Ratio variable does not have a partial influence on the Return on Asset (ROA) variable.

Non Performing Loan (NPL)

For the Non-Performing Loan (NPL) variable, the obtained t-value is -2.033329. Since the t-value is absolute, the negative sign is ignored. Therefore, in the t-test, it shows that the absolute t-value is greater than the t-table value (-2.033329 > 1.973012), and it has a coefficient value of -0.072609. These results indicate that the t-value for the Non-Performing Loan variable is in the critical region. Thus, H₀ is rejected, and H_a is accepted. Consequently, it can be concluded that the Non-Performing Loan variable has a partial negative influence on the Return on Asset (ROA) variable. If there is a 1 percent increase in NPL, ROA will decrease by 0.072609 percent, assuming that the other independent variables are held constant.

Net Interest Margin (NIM)

For the Net Interest Margin (NIM) variable, the obtained t-value is 2.906833. Therefore, in the t-test, it shows that the t-value is greater than the t-table value (2.906833 > 1.973012), and it has a coefficient value of 0.208426. These results indicate that the t-value for the Net Interest Margin variable is in the critical region. Thus, H₀ is rejected, and H_a is accepted. Consequently, it can be concluded that the Net Interest Margin variable has a partial influence on the Return on Asset (ROA) variable. If there is a 1 percent increase in NIM, ROA will increase by 0.208426 percent.

Operational Cost to Operational Income (BOPO)

For the BOPO (Operating Expenses to Operating Income) variable, the obtained t-value is -11.28195. Since the t-value is absolute, the negative sign is ignored. Therefore, in the t-test, it shows that the absolute t-value is greater than the t-table value (-11.28195 > 1.973012), and it has a coefficient value of -0.04311. These results indicate that the t-value for the BOPO variable is in the critical region. Thus, H₀ is rejected, and H_a is accepted. Consequently, it can be concluded that the BOPO variable has a partial negative influence on the Return on Asset (ROA) variable. If there is a 1 percent increase in BOPO, ROA will decrease by 0.04311 percent, assuming that the other independent variables are held constant.

Loan To Deposit Ratio(LDR)

For the Loan to Deposit Ratio (LDR) variable, the obtained t-value is 0.364744. Therefore, in the t-test, it shows that the t-value is smaller than the t-table value (0.364744 < 1.973012), and it has a coefficient value of 0.000984. These results indicate that the t-value for the Loan to Deposit Ratio (LDR) variable is not in the critical region. Thus, H₀ is accepted, and H_a is rejected. Consequently, it can be concluded that the Loan to Deposit Ratio (LDR) variable does not have a partial influence on the Return on Asset (ROA) variable.

Dummy

The results of the dummy variable test show that the t-value is smaller than the t-table value (0.308777 < 1.97301). Therefore, it can be concluded that the dummy variable does not have a partial influence on ROA, or in other words, H₀ is accepted, and H_a is rejected.

Testing the hypothesis of indirect influence using the Sobel test.

The Sobel test is a test of the indirect influence of a path model to determine whether the relationship that goes through a mediating variable can significantly act as a mediator in that indirect relationship. For example, the influence of A on B through M. To test the extent to which the variable M mediates the influence of A on B, the Sobel test is used. The Sobel test utilizes the z-test with the following formula (Ghozali, 2018):

$$z = \frac{ab}{\sqrt{(b^2 SE_a^2) + \sqrt{(a^2 SE_b^2)}}$$



Where:

- a : Coefficient of the regression of the independent variable on the mediating variable
- b : Coefficient of the regression of the mediating variable on the dependent variable
- Sea : Standard error of the estimation of the influence of the independent variable on the mediating variable
- SEb : Standard error of the estimation of the influence of the mediating variable on the dependent variable

If the z-test value obtained is greater than 1.96 (the standard absolute z-value at a significance level of 5%), it can be said that there is a mediating effect.

Variable	Z-value	Z table	Conclusion
CAR	0.202418	1.96	Not significant
NPL	-1.917745	1.96	Not significant
NIM	2.595439	1.96	Significant
BOPO	-5.132788	1.96	Significant
LDR	0.363586	1.96	Not significant
Dummy	0.308308	1.96	Not significant

Table 5. Summary of Sobel Test Results

Based on Table 4 and Table 5, it can be concluded that performance variables such as NIM and BOPO can indirectly and significantly influence PBV through the mediating variable, which is ROA.

V. CONCLUSION

Investors' evaluation of a banking institution (PBV) is heavily influenced by their decision-making process to buy or not buy a stock. Investors determine their buying decisions based on profitability, and the results of this study show that ROA, which serves as a proxy for investors' profit-oriented behavior, significantly affects PBV. Additionally, an investor's ability to assess profitability relies on financial performance information obtained from the company. In this study, it is shown that the level of credit risk (NPL), operational burden (BOPO), and a bank's ability to generate interest (NIM) influence the profitability of a bank (ROA).

The Sobel test results indicate that only NIM and BOPO have a significant indirect influence on PBV. It can be concluded that when NIM increases and leads to higher ROA, it signals

positive information to investors, contributing to an increase in the bank's market value. Similarly, BOPO, when inefficient cost management results in decreased bank profitability, can negatively affect investor evaluation or market value (PBV) of the bank.

The policy implications of this study highlight the importance of focusing on improving financial performance for bank managers. Additionally, regulators and authorities in the banking industry should enhance supervision and regulations to ensure financial performance stability and transparency in banks. This can instill greater confidence in investors and lead to a more favorable perception of the banking sector.

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