

The Impact of Financial Ratios on Stock Returns with Labor Education Costs as Moderator in IDX Banks

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Abstract

This study aims to analyze the effect of financial performance ratios on stock returns by considering the role of labor education costs as a moderating variable in conventional banking companies listed on the Indonesia Stock Exchange (IDX) during the period 2009-2023. The financial performance ratios studied include Net Interest Margin (NIM), and Loan Deposit Ratio (LDR). The study used a quantitative approach with a moderated regression analysis method on panel data. The findings show that financial performance ratios significantly affect stock returns. In addition, labor education costs proved to be able to moderate the relationship between financial performance ratios and stock returns, indicating the importance of investing in human resource development to improve financial performance and investment attractiveness. This study provides theoretical implications on the development of microeconomic theory and practical recommendations for the management of banking companies and regulators that the cost of labor education is not only recognized as a company expense in the short term.

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However, the cost of labor education is able to increase operational efficiency which affects the profitability and securities of banking companies in the long term and is considered to be a strategic step for companies in facing future challenges.

Keywords: Financial Performance Ratio, Stock Return, Education Cost.

INTRODUCTION

Economic development involves the improvement of a country's economic system, including the growth of products and services and the prosperity of society. One important component of the economy is the capital market, where buyers and sellers of long-term financial instruments such as stocks and bonds meet (Liliana, 2019). The stock market plays a vital role in the global economy as a major investment instrument.

Investors invest capital to obtain profits (stock returns), which reflect changes in stock prices and dividends. Research (Indriastuti & Kartika, 2008) shows financial performance significantly affects stock performance, with investors considering the risk and credibility of the company. Research (Yarnest, 2012) also found a relationship between financial performance ratios and stock returns.

Data shows a significant decline in stock returns of banking companies during the COVID-19 pandemic, especially in 2021, reaching -11.99%, which is the lowest average return in the last 15 years. The pandemic has had a major impact on the financial performance of companies, especially the banking sector. Profits declined, non-performing loans increased, and returns on capital or shares (stock returns) were reduced. A (McKinsey's and Company, 2022) showed that global banking revenue in 2020 decreased by 20-25% compared to the previous year, affecting financial performance ratios.

Data analysis shows that ratios such as Net Interest Margin (NIM) experienced a significant decline in 2020 due to low interest rates and weak economic activity. Despite a recovery in NIM in 2022-2023, banking performance has not returned to pre-pandemic standards, reflecting the challenges still faced in the economic recovery process. In 2020, the Operating Expenses to Operating Income (BOPO) ratio reached its highest value, signaling inefficiency in the management of operating costs due to declining revenues, increasing bad debts, and reduced demand for credit. However, BOPO declined from 2021 to 2023, reflecting banks' efforts to streamline operating costs post-pandemic. Return on Equity (ROE) also dropped dramatically in 2020, indicating a decline in bank profitability during the pandemic. Although economic conditions have not fully stabilized,

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ROE increased gradually from 2021 to 2023, indicating banks' efforts to improve profitability. Loan Deposit Ratio (LDR) showed a significant increase in 2019, but declined sharply in 2020 below the set standard. This reflects banks' caution in lending during the pandemic. The LDR began to recover from 2021 to 2023, although bank liquidity improved, banks remained cautious in lending.

In addition to financial performance, human resources (HR) also affect the amount of stock return of a company. In a competitive business world, the quality of human capital is critical to long-term success. Companies that invest in employee training tend to have more skilled, productive and innovative employees, which leads to improved operational efficiency and financial performance. However, the cost of employee training is a significant investment that needs to be well managed. In the banking sector, where employee credibility and expertise are critical, training investments are key in balancing the relationship between financial performance and stock returns. By improving employee skills, banks can improve service quality, reduce operational risk, and increase investor confidence. Human resource is part of intellectual capital or intangible assets, which has a significant effect on the financial performance of banking companies (Muhammad et al., 2021). Good negotiation skills help in avoiding future problems and conflicts in the working arena. This skill enhances better logical solutions when we are working and dealing with complex problems in the workplace. To exchange one's ideas, thoughts, and opinions amongst their peers, effective communication is a dire need of society. Better communication leads to better negotiation with viable working space. Negotiation enhances the working environment. Further, it aids in resolving conflicts and leads to better values in the working space. It is the most essential skill for an employee.

METHODS

This study uses quantitative methods where according to (Creswell, 2016) quantitative research is a method for testing certain theories by examining the relationship between variables in research. Meanwhile, according to Sugiyono, quantitative data is a research method based on positivistic (concrete data), research data in the form of numbers to be measured using statistics as a calculation test tool, related to the problem under study to produce a conclusion (Sugiyono, 2008).

This research was conducted at conventional banking companies listed on the Indonesia Stock Exchange (IDX). The necessary data collection will be carried out in September 2024 and then processed and finalized in November 2024. The sampling technique is a method used to determine the sample. This study uses a sampling

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technique through a purposive sampling approach where the samples taken using this method are of course through certain considerations and criteria. Based on this method, 10 banking companies were obtained, namely Bank Danamon, Bank Central Asia, Bank Rakyat Indonesia, Bank Negara Indonesia, Bank Mandiri, Panin Bank, Bank Mega, Bank Niaga, Bank Mayapada, and BTPN Bank.

The data in this study is a combination of cross-sectional data (10 banking companies) and time series, namely from 2009 to 2023. The combined data is called panel data. The variables used in this study consist of dependent variables in the form of stock returns, independent variables in the form of financial performance ratios consisting of net interest margin and loan deposit ratio. And the moderating variable in this case is the cost of labor education.

In this study, the data were analyzed using moderation regression where with this moderation regression analysis we can see the relationship and interaction between the independent variable and the moderation variable where the results can determine how much this moderation variable strengthens or weakens the influence of the independent variable on the dependent variable. According to (Suliyanto, 2011) the relationship between variables is not only determined by the independent variable and the dependent variable, but often there are variables that can strengthen or weaken the relationship between the independent variable and the dependent variable, which is often called the moderating variable. The analysis model can be written as follows:

$$SR_{it} = \beta_0 + \beta_1 NIM_{it} + \beta_2 LDR_{it} + \beta_3 LEC_{it} + \beta_4 LECNIM_{it} + \beta_5 LECLDR_{it} + \varepsilon_{it}$$

Information:

SR = Stock Return (%)

a = Constanta

b = Regression Coefficient of Independent Variables

NIM = Net Interest Margin (%)

LDR = Loan Deposit Ratio (%)

LEC = Labor Education Cost (IDR)

I = region

t = time

ε = error

In panel data regression analysis, determining the right model is very important. The Common Effect model, or Pooled Least Square, is a basic method that uses the principle of least squares without regard to time and individual dimensions. In addition to Common Effect, other methods used are Fixed Effect (Fixed Effect Model (FE) This model

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assumes that differences between individuals can be accommodated from differences in intercepts) and Random Effect This model will estimate panel data where disturbance variables may be interconnected over time and between individuals (Kuncoro, 2003). However, based on the theory put forward (Gujarati et al., 2003), if the time series is greater than the crosssection, the most efficient and appropriate method is the Fix Effect Model.

RESULT

Panel Data Regression Model Estimation

Before entering the regression test, it is necessary to select the regression estimation model first, which includes the Chow Test, Hausman Test, Lagrange Multiplier Test

Chow Test

Chow test is a panel data model selection test to compare between fixed effect and common effect models. In statistical terms, if the probability value generated after the chow test is smaller than 0.05, it can be concluded that the selected model is the fixed effect model. The following are the results of the chow test in this study:

Table 1. Chow Test Result

Redundant Fixed Effect Test

Equation: Untitled

Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	10,399221	(9,116)	0,0000

Based on the above results, the model selected at the chow test stage is the fixed effect model. Next, we will conduct a hasuman test to compare the fixed effect model and the random effect model.

Hausman Test

In the model selection section, namely the Hausman test, if the resulting Chi-square probability value is smaller than 0.05, the most suitable model used in regression analysis is the fixed effect model. The following are the results of the Hausman test:

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Table 2. Hausman Test Result

Correlated Random Effects – Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-sq. Statistic	Chi-Sq. d.f	Prob.
Cross-section random	3,880765	4	0,0422

The probability value generated from the hasuman test in this study is 0.0422 which is smaller than 0.05 so it can be concluded that the most appropriate model used in the regression analysis in this study is the fixed effect model.

By considering the theory of (Gujarati et al., 2003), namely if the amount of time series data is greater than the amount of cross section data, there is a possibility that the difference in parameters estimated by Fix Effect is smaller. According to Gujarati, the Common Effect Model cannot see the difference between cross section and time series, in CEM it is assumed that the behavior of data between companies is the same at any given time. Meanwhile, the Fixed Effect Model can be assumed that all cross section data has one constant variable that can be interpreted. In this case the researcher also uses the theory for the selected panel data regression estimation model, namely the Fix Effect Model (FEM).

Panel Data Moderate Regression Analysis

The panel data regression test after the addition of moderation variables is intended to determine how much influence the cost of labor education has in moderating the financial ratio variables (NIM, LDR) of the company on stock returns. The following is a table of panel data regression test results before the addition of moderation variables:

Table 3. Moderate Regression Analysis Result

Variable	Coefficient	Std. Error	Prob	
C	-3.343,079	445,4084	0,0000	***
NIM	98,52978	14,09070	0,0000	***
LDR	23,61452	2,756978	0,0000	***
LEC	296,5691	39,08496	0,0000	***



LEC*NIM	-8,734936	1,317273	0,0000	***
LEC*LDR	-2,159407	0,246671	0,0000	***
Weighted Statistics				
R-squared	0,999315	Durbin Stat	Watson	2,065470
Adjusted R-squared	0,871366			
F-statistic	49,54690			
Prob(F-statistic)	0,000000			

From the result of the panel data regression equation using the moderating variable can be described as follows:

Constant Coefficient:

The regression constant after the addition of the moderating variable is -3,430.079 with a p-value of 0.0000, indicating a significant value at the 99% confidence level. This negative value means that without the influence of independent variables (NIM, LDR) and moderation (labor education costs), stock returns will be very low. This confirms the importance of moderating variables in the model.

Coefficient of Determination (R-squared):

The addition of moderation increases the R-squared to 0.999315 and the adjusted R-squared to 0.871366. This indicates that the independent and moderation variables explain 87.13% of the variation in stock returns, while 12.87% is influenced by other factors outside the study.

Simultaneous Test (F-test):

The simultaneous test results show an F-statistic of 49.54690 with a p-value of 0.000000. This confirms that all independent variables together with moderating variables have a significant effect on stock returns, strengthening the role of moderating variables in the model.



Partial Test (T Test)

The partial test analyzes the effect of each independent and moderating variable on stock returns (SR):

1. Net Interest Margin (NIM): The coefficient of 98.52978 shows a significant positive effect (p-value = 0.0000). Every 1 unit increase in NIM increases RS by 98.52978, and the effect is more significant after the addition of moderation variables.
2. Loan Deposit Ratio (LDR): The coefficient of 23.61452 indicates a significant positive relationship (p-value = 0.0000). A 1 unit increase in LDR increases RS by 23.61452, reflecting the positive impact of credit productivity on stock performance. Labor Education Cost
3. Labor Education Cost (LEC): The coefficient of 296.5691 indicates a huge positive impact on RS. Every 1 unit increase in LEC increases RS by 296.5691, with a p-value of 0.0000 which is significant at 99% confidence level. This indicates the importance of investment in employee training on stock performance.
4. NIM and LEC interaction: The coefficient of -8.734936 with a p-value of 0.0000 indicates a significant effect, but in a negative direction. The cost of labor education weakens the relationship between NIM and RS, possibly due to the time it takes to see the return on investment.
5. Interaction of LDR with LEC: The coefficient of -2.159407 with a p-value of 0.0000 indicates a significant effect with a negative direction. The cost of education weakens the relationship between LDR and RS, although it remains significant at the 99% confidence level.

DISCUSSION

Net Interest Margin generally describes the bank's ability to manage interest income efficiency. The higher the percentage level of the NIM ratio, the more attractive it is to investors because it reflects high and efficient interest income. In the findings this time, especially in the regression before the moderation of Net Interest Margin, it is stated that it has a significant effect on stock returns, this may occur because the higher the NIM, the greater the net income generated, thereby increasing investor confidence in the company's performance. This tends to push up the stock price. This finding is not in line with research conducted by (Saputri R, 2018) where it was found that NIM has no significant relationship to stock returns, which means that not all investors see the condition of the bank from the efficiency of interest income.



Meanwhile, after adding moderation variables including Labor Education Costs, the NIM ratio increased dramatically to be very significant, this happened because Labor Education Costs are considered a long-term investment of the company. In accordance with the theory put forward by (Huselid, 1995). Investment in labor education increases the intellectual capacity and skills of the workforce. This increase in labor productivity will improve the efficiency of the company's resource allocation. In the condition before adding labor education cost as moderating variable, NIM is only related to interest margin without any other internal efficiency consideration. Whereas in the long run, a workforce with higher education can maximize the potential of each unit of interest margin generated. Therefore, the relationship between NIM and Stock Return becomes stronger and more significant when there is a moderating variable, namely labor education costs.

LDR is a ratio that measures how much third party funds (deposits) are channeled in the form of credit. The higher the LDR, the greater the proportion of funds channeled in the form of credit, which means the company's liquidity is reduced. Liquidity that is too low can signal a higher risk for the bank, as the bank may have difficulty meeting its short-term obligations. Based on the provisions of Bank Indonesia, the LDR ratio level is in the range of 90% to 102.26%, outside of this figure the LDR ratio of a bank is considered unhealthy (Asna & Graha A, 2006)

In the regression test results before moderation LDR has a significant value on stock returns with a negative coefficient value, this reflects that the higher the percentage of the LDR ratio increases, the stock returns will also decrease. Based on the data, the LDR value of banking companies is mostly not in accordance with the standards set by Bank Indonesia, so investors see the high LDR as a liquidity risk that can reduce the company's ability to meet short-term funding needs so that stock returns tend to decline.

LDR reflects the proportion of deposits used for lending. A ratio that is too high may indicate liquidity risk, where the bank may have difficulty meeting sudden obligations to depositors. A decline in RS may occur because investors see a high LDR as a sign of potential liquidity problems or greater credit risk. This finding is irrelevant to the research conducted by (Ummah & Sijabat, 2021) where LDR has a positive and insignificant effect on stock returns, and also research by (Digdowiseiso, 2021) which states that LDR has no significant and positive effect on stock prices, which is also an important element in calculating stock returns.

After the addition of the labor education cost variable, LDR still has a significant negative effect on stock returns, in other words, labor education costs are able to moderate the relationship between LDR and stock returns. This shows that even though

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banks invest more in labor education, the negative effect of LDR on stock returns remains and becomes even more negative. . This interaction suggests that if the cost of education is too high, liquidity management through LDR may no longer be as efficient as before, potentially reducing the positive effect of LDR on stock returns. In addition, high credit risk can worsen the liquidity condition of banks. A high LDR may reflect an increased risk of default by debtors, which in turn reduces investor confidence and suppresses stock returns.

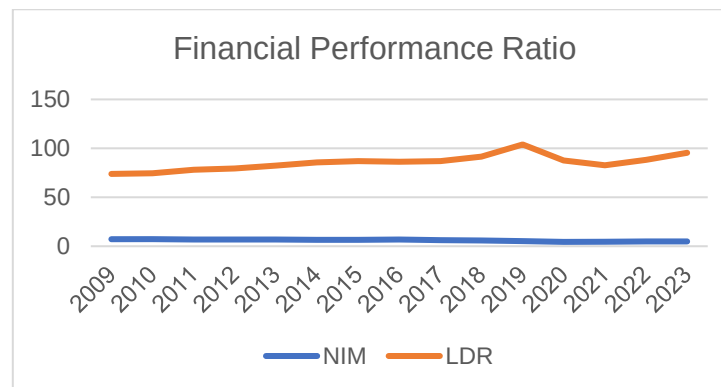


Figure 1. Financial Performance Ratio Graph

In addition to testing the independent variables through moderation analysis, this study also looks at the impact of the covid-19 pandemic crisis on company stock returns through the long-term trend of the average value of each financial performance ratio studied. Based on the financial performance trend graph, we can see that the average financial performance of banks that are the subject of research this time has decreased quite dramatically from 2019 to 2022. The results found are in accordance with the theory that reflects the pandemic has a significant negative effect on company stock returns, in other words, the pandemic causes significant disruption in global economic activities, reduces company profits and causes a lack of investor confidence because investors tend to react negatively to high uncertainty so that stock returns also experience a significant decline.

Based on Keynesian macroeconomic theory (Keynes John Maynard, 1936) explains that a crisis such as a pandemic has an impact on the demand and supply side, so that companies experience a decrease in profitability, experience obstacles in the company's operational activities, and even experience the risk of default, which of course directly affects the company's stock returns. In this case, companies that invest in

workforce education are better prepared to deal with the crisis by developing stronger adaptive capacity. this is relevant to the crisis management theory first proposed by (Charles F, 1963) where this theory explains that companies involve planning and responsive actions to reduce the negative impact of a crisis on the organization, with the aim of protecting reputation, operational sustainability, and relationships with the public.

In addition, it is also relevant to the theory of (Becker G S, 1964) where a more efficient and innovative workforce is able to adapt quickly to large impacts including in pandemic crisis conditions. Therefore, this study can be said to be able to prove that long-term investment in workforce education is considered capable of moderating the independent variables on stock returns, and is thought to be able to reduce the negative impact of crises such as the covid pandemic on stock returns.

Furthermore, this research also focuses on education where education has a strategic role in shaping individual quality and creating a competent workforce capable of influencing various aspects of the economy and financial markets. Based on research (Arham M, 2019) states that worker productivity can be built if the education sector also develops which is supported by financing, the estimation results show that education financing significantly affects labor productivity, with increasing government spending to finance the education sector both formal and informal, it will improve labor skills, so that it is more productive. While the level of education also has an influence on productivity, especially public high school students. This reflects the importance of education financing in improving labor productivity, which in turn supports company performance and overall economic conditions.

Through a high level of education, it will increase the chances of a person's population in getting a job with a decent wage. This is because increasing labor education has an impact on better employment opportunities and more decent wages, which can indirectly improve company performance and support economic conditions.(Pratiwi S, et al., 2023)

However, higher education also has an influence on company stock returns. Companies with a qualified workforce tend to show good financial performance, which attracts investors and increases the value of shares in the capital market. This is in line with the theory of market efficiency, where information about the quality of the workforce is an important factor in the valuation of company assets. Education, as part of human capital, strengthens a firm's attractiveness to investors and encourages more efficient capital allocation.



CONCLUSION

Based on the results of data analysis and discussion above, it can be concluded that this study shows that financial performance ratios, such as Net Interest Margin (NIM), and Loan to Deposit Ratio (LDR), have a significant influence on stock returns of banking companies listed on the Indonesia Stock Exchange (IDX). then when labor education costs are included as a moderating variable, the effect of Net Interest Margin on stock returns becomes stronger and the negative impact of LDR on stock returns is stronger. This indicates that investment in workforce education plays an important role in moderating the relationship between financial performance and stock returns, reinforcing the relevance of human resource development (HRD) as a long-term strategy in improving competitiveness and investor confidence.

This research emphasizes the importance of education and training in improving the quality of human resources as a strategic asset of the company. This is because HR development strategies are part of sustainable economic growth. In the context of companies, especially the banking sector, budget allocation for workforce education can be an investment that has a positive impact on operational efficiency, profitability, and capital market stability, thus contributing to the overall economy.

In addition, this study strengthens the Market Efficiency theory (Eugene Fama) by showing that non-financial information, such as workforce education strategies, can affect stock returns, approaching the concept of semi-strong market efficiency. In addition, the results also support Human Capital theory (Gary Becker) by providing empirical evidence that investment in workforce education is an important factor in improving a firm's efficiency and profitability, which impacts the firm's attractiveness in the capital market.

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