

Determinants of Capital Adequacy Ratio and Non-Performing Loans on Stock Price with Return on Asset as Intervening Variable in Commercial Banks Listed on the LQ45 index

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ABSTRACT :- This study aims to analyze the effect of CAR and NPL to Stock Price with ROA as an intervening variable of companies listed on the LQ45 index on the IDX in 2017-2022. The research methodology used is quantitative methods. Types and sources of data used are panel data and secondary data obtained from the IDX website. The sampling technique used was purposive sampling. The data analysis technique used is Path Analysis, Panel Regression Analysis, multiple linear regression analysis and Sobel Test Calculations. The results of this study indicate that CAR (X_1) has a significant positive effect on ROA (Z). Meanwhile, NPL (X_2) has a significant negative effect on ROA (Z). CAR (X_1) has no significant effect on Stock Price (Y). NPL (X_2) has a significant negative effect on Stock Price (Y) and ROA (Z) has a significant positive effect on Stock Price (Y). And the Sobel Test result shown that the existence of ROA as an intervening variable can mediate the effect of CAR and NPL on Share Price of companies listed on the LQ45 on the IDX in 2017-2022.

KEYWORDS – Capital Adequacy Ratio, Non-Performing Loan, Return on Asset, Stock Price

I. INTRODUCTION

In the era of globalization, especially during the COVID-19 pandemic that affected Indonesia, the capital market has a significant role in the Indonesian economy. The COVID-19 pandemic has had a massive adverse impact on the global economy, which is reflected in the overall slowdown in economic activity. Therefore, one of the sectors listed on the Indonesia Stock Exchange is the financial sector and one of its subsectors is the banking sector. (Meliana R. Sirait, 2022).

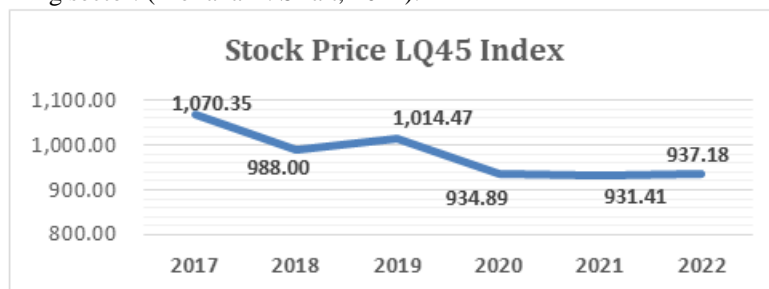


Figure 1.2 Chart of Stock Price LQ45 Index Fluctuation

Source: www.yahoo.finance.com

Based on the stock price table data above, it is shown that LQ45 shares from 2017 to 2022 have fluctuated where the position in 2017 the share price was at IDR 1,070.35 and moved down to IDR 988 in 2018 due to the increase in The FED interest by the US Central Bank (Prima Wirayani, 2018). In 2019 it increased to IDR 1,014.47 and decreased again in the following year 2020 due to the impact of the covid-19 pandemic (KEPPRES No. 12 Th. 2020 Tentang Penetapan Bencana Nonalam Penyebaran Corona Virus Disease 2019 Sebagai Bencana Nasional, 2020). And in 2021 and 2022 the share price tends to stabilize at IDR 931.41 and IDR 937.18 per share.

Ratios	Period (Year)					
	2017	2018	2019	2020	2021	2022
CAR	23.18	22.97	23.40	23.89	25.67	25.66
NPL	2.59	2.37	2.53	3.06	3.00	2.44
ROA	2.45	2.55	2.47	1.59	1.84	2.43

Figure 1.1 Financial Ratios Commercial Bank

Source: www.ojk.go.id

According to the data table financial ratios commercial bank period 2017-2022 above, the overall Capital Adequacy Ratio (CAR) ratio is quite stable with the highest number in the position of 25.66% 2022 and the lowest 22.97% in 2018. While the NPL ratio looks contracted in 2020 with a figure of 3.06% and 3.00% in 2021 due to the Covid-19 Pandemic (KEPPRES No. 12 Th. 2020 Tentang Penetapan Bencana Nonalam Penyebaran Corona Virus Disease 2019 Sebagai Bencana Nasional, 2020). However, from 2021 to 2022 it tends to decrease from 3.00% to 2.44%. On the other hand, ROA also looks fluctuating with the highest number at 2.55% in 2018 and the lowest in 2020 at 1.59%, this is because the Commercial Bank's ROA contracted due to the impact of the Covid-19 Pandemic on the customer's business but finally ROA rose again at 2.43% in 2022.

Based on previous research, it is found that there are indications of research gaps in CAR, NPL, ROA and stock prices research as follows:

1. The CAR variable on ROA researched by (P. I. Putri et al., 2022), (Handoyo et al., 2023), (Rohman et al., 2022) and (Puspitasari et al., 2021) shows that CAR has a significant positive effect on ROA. This is different from the results of CAR research by (Dewanti et al., 2022), (Maulana et al., 2021), (Tangngisalu et al., 2020), (Abdul Hadi et al., 2018) and (Nurwulandari et al., 2022) indicating that CAR has no effect on ROA.
2. Variable NPL on ROA researched by (Dewanti et al., 2022), (P. I. Putri et al., 2022), (Maulana et al., 2021), (Rohman et al., 2022) and (Tangngisalu et al., 2020) show that NPL has a significant effect on ROA. This is different from the research results from (Puspitasari et al., 2021) and (Abdul Hadi et al., 2018) which indicate that NPL has no effect on ROA.
3. Variable CAR on Stock Prices researched by (Taslim & Manda, 2021), (Santoso, 2021), (Fatma, 2021), (Alif Ray Hartono, Diva Aulia, 2022), (Vilia & Colline, 2021), (Viorentina et al., 2022), (Cholifatul Laila, 2022), (Permana et al., 2022), (Putri Marianti & Wibowo, 2020), (Erika Nur Fatihah, 2022), (Meliana R. Sirait, 2022), (Amala & Fisabilillah, 2021), (T. U. N. Putri et al., 2019) and (Phu Ha Nguyen, 2021) show that CAR has a significant effect on Stock Price. This is different from the research results from (Inka Wahyuni Latif, Sri Murni, 2021), (Guntara et al., 2023), (Asti Nur Aryanti, Palupi Permata Rahmi, 2022), (Friantin & Ratnasari, 2019) and (WIJAYA, 2021) which indicate that CAR has no effect on Stock Price.
4. Variable NPL on Stock Price researched by (Inka Wahyuni Latif, Sri Murni, 2021), (Fatma, 2021), (Putri Marianti & Wibowo, 2020), (Amala & Fisabilillah, 2021), (Phu Ha Nguyen, 2021), (Taslim & Manda, 2021), (Santoso, 2021), (Vilia & Colline, 2021), (Asti Nur Aryanti, Palupi Permata Rahmi, 2022), (Permana et al., 2022), (Erika Nur Fatihah, 2022), (Meliana R. Sirait, 2022), (Nasikin & Yuliana, 2022) and (T. U. N. Putri et al., 2019) indicate that NPL has a significant effect on Stock Price. This is different from the research results from (Inka Wahyuni Latif, Sri Murni, 2021), (Alif Ray Hartono, Diva Aulia, 2022), (Guntara et al., 2023), (Viorentina et al., 2022), (Cholifatul Laila, 2022), (Friantin & Ratnasari, 2019) and (Nugroho et al., 2020) which indicates that NPL has no effect on Stock Price.
5. Variable ROA on Stock Prices researched by (Inka Wahyuni Latif, Sri Murni, 2021), (Santoso, 2021), (Fatma, 2021), (Alif Ray Hartono, Diva Aulia, 2022), (Vilia & Colline, 2021), (Guntara et al., 2023), (Cholifatul Laila, 2022), (Permana et al., 2022), (Erika Nur Fatihah, 2022), (Meliana R. Sirait, 2022), (Amala & Fisabilillah, 2021), (Friantin & Ratnasari, 2019), (Nasikin & Yuliana, 2022) and (Phu Ha Nguyen, 2021) indicate that ROA has a significant effect on Stock Price. This is different from the research results from (Viorentina et al., 2022), (Asti Nur Aryanti, Palupi Permata Rahmi, 2022), (Putri Marianti & Wibowo, 2020) and (WIJAYA, 2021) which indicates that ROA has no effect on Stock Prices.

Based on the phenomena and research gaps revealed from previous theories and existing research results and the differences in research gaps, it appears that there is inconsistency in the results of research and gap analysis so that researchers are interested in conducting further research on the effect of Capital Adequacy Ratio (CAR), Non Performing Loan (NPL) on Stock Price with Return on Asset (ROA) as an intervening variable case study on LQ45 Commercial Banks Listed on the Indonesia Stock Exchange for the period 2017 - 2022..

II. LITERATURE REVIEW

2.1 Signalling Theory

Signalling is an action by the board to show investors how the board views the company's prospects. Signalling theory can also reduce asymmetry when managers have different information about the company's prospects. In short, providing financial information in the form of accurate and reliable company financial reports can increase investor and public interest in the company's positive prospects. In addition, the right management decisions in evaluating future profits and conveying them to investors can lead the company in a better direction. Signals can be good news or bad news. The good news is that banks are performing better year-on-year, but the bad news could mean worse (Eugene, 2013).

2.2 Bank

Banks are financial institutions whose business activities are to collect funds from the public and channel these funds back to the public and provide other bank services. Furthermore, in accordance with Law No. 10 of 1998 (Amendment to Law No. 7 of 1992 on Banking) the definition of a Bank is a business entity that collects funds from the public in the form of deposits, and distributes them to the public in the form of credit and other forms in order to improve the lives of many people. Article 1 paragraph 3 of Law Number 10 of 1998 states that Commercial Banks are banks that carry out their business activities conventionally and/or based on sharia principles which in their activities provide services in payment traffic (Kasmir, 2014)

2.3 Financial Report

Financial reports are an analytical tool for the overall financial performance of the company and identify the health of the company based on the company's performance through cash flow conditions or operational performance. Financial reports are routine reports that summarize the activities of a company and are generally used by the company itself in terms of assessing the interests of creditors, investors and management with regard to managerial interests and assessing company performance (Kasmir, 2021).

2.4 Investment

Investments, according to (Tandelilin Eduardus, 2017) are commitments of a few funds or other resources made today, with the aim of obtaining a few future profits. Someone who invests their funds for the purposes of operating activities in the company is called an investor. Investors can invest their funds in the capital market by buying stocks, bonds, mutual funds, and other derivative instruments. An investor who invests his funds in the short term (less than one year) will expect capital gains. Capital gain is the positive difference between the selling price and the purchase price of a stock. If the selling price is lower than the purchase price of the shares, the investor will incur a loss called capital loss. An investor who invests his funds in the capital market in the long term will receive dividends. Dividends are profits from the company's operations that are distributed to investors based on the number of shares owned.

2.5 Stock

Based on (Kasmir, 2014), shares are securities that are ownership in nature. This means that the owner of the shares is the owner of the company. The more shares he owns, the greater his power in the company. Meanwhile, according to (Harianto, Farid dan Sudomo, 2001) that shares are proof of ownership of a share of capital or a sign of equity participation in a company that gives rights to dividends and others according to the size of the paid-up capital. The definition of shares in general is proof or a sign of ownership of a share of capital in a limited liability company that provides benefits in the form of dividends and capital gains.

2.6 Stock Price

Stock price is the price at which shares exist in the stock market at a certain time and is determined by the following factors market participants and is influenced by the supply and demand for shares in the capital market. Every share issued by a company has a price. The nominal price of a share is the listed price at which the share is issued. This price will be used for accounting purposes, namely recording paid-in capital (Jogiyanto Hartono, 2017).

2.7 Capital Adequacy Ratio

CAR as a capital indicator is the minimum capital adequacy ratio for banks. It is a ratio that indicates the total amount of all bank assets containing risk (credit, investments, securities, bills to other banks) is financed from its own capital in addition to obtaining funds from sources outside the bank. In this study is CAR in the annual financial statements of commercial banks published during the 2017-2022 period. In this study, CAR is calculated using the ratio between total equity capital to risk-weighted assets (Kasmir, 2021).

$$\text{Capital Adequacy Ratio} = \frac{\text{Bank Capital}}{\text{Risk Weight Asset}} \times 100 \%$$

2.8 Non-Performing Loan

Non-performing loan is the ratio between non-performing loans and loans disbursed. This ratio shows the ability of bank management to manage non-performing loans granted by the bank. Loans in this case are

loans granted to third parties excluding loans to other banks. Non-performing loans are loans of poor quality, doubtful, and impaired (Kasmir, 2021)

$$\text{Non Performing Loan} = \frac{\text{NON PERFORMING LOAN}}{\text{TOTAL LOAN}} \times 100\%$$

2.9 Return on Asset

Return on assets (ROA) is a ratio that shows the company's ability to earn profits from the assets it uses. ROA is a ratio that shows the company's ability to use all its assets to generate profit after tax. If ROA increases, the company's profitability increases so that the final impact is an increase in profitability enjoyed by shareholders (Sartono, 2010).

$$\text{Return on Asset} = \frac{\text{Profit Before Tax}}{\text{Total Assets}} \times 100\%$$

2.10 Hypothesis

The hypothesis on this study is follow:

- H₁: There is a significant effect of Capital Adequacy Ratio (CAR) on Return on Asset (ROA) of Commercial Bank Listed on the LQ45 Index on the Indonesia Stock Exchange (IDX) in 2017-2022
- H₂: There is a significant effect of Non-Performing Loan (NPL) on Return on Asset (ROA) of Commercial Bank Listed on the LQ45 Index on the Indonesia Stock Exchange (IDX) in 2017-2022
- H₃: There is a significant effect of Capital Adequacy Ratio (CAR) on Stock Price of Commercial Bank Listed on the LQ45 Index on the Indonesia Stock Exchange (IDX) in 2017-2022
- H₄: There is a significant effect of Non-Performing Loan (NPL) on Stock Price of Commercial Bank Listed on the LQ45 Index on the Indonesia Stock Exchange (IDX) in 2017-2022
- H₅: There is a significant effect of Return on Asset (ROA) on Stock Price of Commercial Bank Listed on the LQ45 Index on the Indonesia Stock Exchange (IDX) in 2017-2022
- H₆: Return on Asset (ROA) can mediate the Capital Adequacy Ratio (CAR) has a significant effect on Stock Price of Commercial Bank Listed on the LQ45 Index on the Indonesia Stock Exchange (IDX) in 2017-2022
- H₇: Return on Asset (ROA) can mediate the Non-Performing Loan (NPL) has a significant effect on Stock Price of Commercial Bank Listed on the LQ45 Index on the Indonesia Stock Exchange (IDX) in 2017-2022

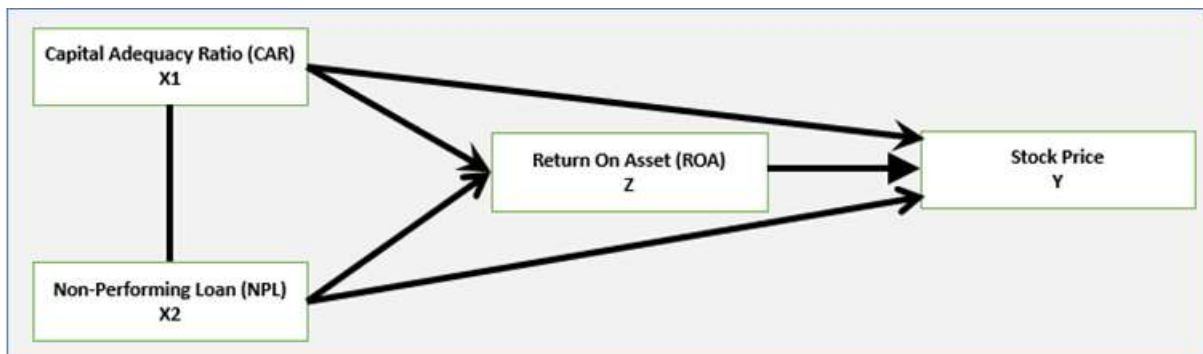


Figure 2.1 Research Framework

Note:

- Capital Adequacy Ratio (CAR) as an independent variable “X₁”
- Non-Performing Loan (NPL) as an independent variable “X₂”
- Return on Asset (ROA) as an intervening variable “Z”
- Stock Price as a dependent variable “Y”

III. RESEARCH METHOD

The research method use in this research is quantitative methods. The proxy use in this research is Capital Adequacy Ratio (CAR), Non-Performing Loan (NPL), Return on Asset (ROA) and Stock Price in Commercial Banks listed on the LQ45 index on the Indonesia Stock Exchange 2017-2022.

The type of data use in this research is Time Series and cross section data (Panel Data) during the first quarter of 2017 until the fourth quarter of 2022 from Commercial Banks Listed on the LQ45 index. The data source is come from secondary data that has been published on the Indonesia Stock Exchange. The data collection method is purposive sampling with population of 120 data samples of quarterly financial statement by download from website: www.idx.co.id.

Code	Name of Emiten	IPO Date	Market Capitalization (in IDR)
BBCA	PT Bank Central Asia Tbk	11 May 2000	1,127.966 Tio
BBNI	PT Bank Negara Indonesia (Persero) Tbk	28 October 1996	168.771 Tio
BBRI	PT Bank Rakyat Indonesia (Persero) Tbk	31 October 2003	848.829 Tio
BBTN	PT Bank Tabungan Negara (Persero) Tbk	08 December 2009	19.227 Tio
BMRI	PT Bank Mandiri (Persero) Tbk	14 July 2003	515.666 Tio

Figure 3.1 Sampling Data Commercial Banks Listed on LQ45 Index

The research in this study used the E-views version 12 program. The stages carried out in this test are as follows:

1. Path Analysis: Sub Structural I and Sub Structural II
2. Descriptive Statistical Analysis
3. Classical Assumption Test: Normality Test, Multicollinearity Test, Heteroscedasticity Test, Autocorrelation Test
4. Panel Data Regression Analysis:
 - Panel data regression model estimation: Common Effect, Fixed Effect and Random Effect
 - Selection of panel data regression model techniques: Chow Test, Hausman Test, Langrange Multiplier Test
5. Multiple linear regression analysis: Model feasibility test (F test), partial feasibility test (t test) and coefficient of determination (Adjusted R2)
6. Sobel Test

The relationship model between CAR and NPL on Stock Price with ROA as an intervening variable can be formulated in a linear equation as follows:

$$Z = a_1 + p_1 x_1 + p_2 x_2 + e_i$$

$$Y = a_2 + p_3 x_1 + p_4 x_2 + p_5 Z + e_i$$

Description:

Y = Stock Price

Z = Return on Assets (ROA) is an intervening variable

a1 - a2 = constant

p1 - p5 = regression coefficient, is the amount of change in the dependent variable due to changes in each unit of the independent variable.

x1 = Capital Adequacy Ratio (CAR)

x2 = Non-Performing Loan (NPL)

e_i = Residual error (error)

IV. DISCUSSION & RESULT

4.1 Path Analysis

Sub Structural I, discusses the effect of each independent variable; Capital Adequacy Ratio (X1) and Non-Performing Loan (X2) on the intervening variable; Return on Assets (Z). And Sub Structural II, Discusses the effect of each variable; Capital Adequacy Ratio (X1), Non-Performing Loan (X2) and Return on Assets (Z) on Stock Price (Y).

4.2 Descriptive Statistical Analysis

	HARGA_SAHAM	CAR	NPL	ROA
Mean	4466.250	20.51017	2.794333	2.553417
Median	3981.250	19.86500	2.810000	2.730000
Maximum	9900.000	26.15000	4.910000	4.020000
Minimum	840.0000	16.07000	1.340000	0.130000
Std. Dev.	2146.924	2.515218	0.824702	1.023754
Skewness	0.664322	0.446368	0.246862	-0.584336
Kurtosis	2.668901	2.188250	2.611649	2.176033
Jarque-Bera Probability	9.374618	7.279583	1.972894	10.22359
	0.009211	0.026258	0.372899	0.006025
Sum	535950.0	2461.220	335.3200	306.4100
Sum Sq. Dev.	5.49E+08	752.8320	80.93595	124.7207
Observations	120	120	120	120

Figure 4.1 Descriptive Statistical Analysis (Eviews 12 Version)

According to the above table, it shows that the Stock Price variable (Y) has a range of values ranging from 9,900 to 840. The Capital Adequacy Ratio (X1) variable has a range of values ranging from 26.15 to 16.07. The Non-Performing Loan (X2) variable has a range of values ranging from 4.91 to 1.34. In addition, the Return On Assets Variable (Z) has a range of values ranging from 4.02 to 0.13.

4.3 Classical Assumption Test

4.3.1 Normality Test

The results of the Normality Test obtained that the probability value of Sub Structural I from Jarque-Berra probability value of 0.154631 or > 0.05 and Sub Structural II of 0.098817 or > 0.05 , it means that each of the variables is normal distributed so that further testing can be conducted.

4.3.2 Multicollinearity Test

The results of the Multicollinearity Test on Sub Structural I, the correlation coefficient value between CAR and NPL is - 0.502647 or < 0.80 and Sub Structural II, the correlation coefficient value is CAR with NPL of - 0.502647 or < 0.80 , CAR with ROA of 0.707203 or < 0.80 , and ROA with NPL of - 0.769923 or < 0.80 , so for both sub-structures there are no problems or symptoms of multicollinearity.

4.3.3 Heteroscedasticity Test

The results of the Heteroscedasticity Test on Sub Structural I, the probability value of CAR (X1) is 0.4022 > 0.05 and NPL (X2) is 0.1070 > 0.05 . While Sub Structural II obtained the probability value of CAR (X1) of 0.8005 > 0.05 , NPL (X2) of 0.4907 > 0.05 and ROA (Z) of 0.3711 > 0.05 then it is found that the value is greater than α (0.05) so it can be said that the two sub structures do not occur problems or symptoms of heteroscedasticity.

4.3.4 Autocorrelation Test

The results of the autocorrelation test of Sub Structural I obtained the Durbin-Watson value with a value of 1.959191 using a significance table value of α (0.05). Then the dU value (upper limit of Durbin Watson) = 1.73608 and the dL value (lower limit of Durbin Watson) = 1.66839. Therefore, $dU < d < 4 - dU$ or $1.73608 < 1.959191 < 2.040809$. Hence, it can be assumed that there is no autocorrelation in sub-structure I.

Meanwhile, the results of the Sub Structural II Autocorrelation test obtained a Durbin-Watson value of 1.816248 found the dU value (upper limit of Durbin Watson) = 1.75361 and the dL value (lower limit of Durbin Watson) = 1.65126. Therefore, $dU < d < 4 - dU$ or $1.75361 < 1.816248 < 2.24639$. Hence, it can be assumed that there is no autocorrelation in sub-structure II.

4.4 Panel Data Regression Analysis

4.4.1 Common Effect Model (CEM)

This model combines cross section and time series data into one unit. Then the results of the Common Effect Model processing are obtained as follows:

Dependent Variable: ROA Method: Panel Least Squares Date: 07/20/23 Time: 11:19 Sample: 2017Q1 2022Q4 Periods included: 24 Cross-sections included: 5 Total panel (balanced) observations: 120					Dependent Variable: HARGA_SAHAM Method: Panel Least Squares Date: 07/20/23 Time: 11:25 Sample: 2017Q1 2022Q4 Periods included: 24 Cross-sections included: 5 Total panel (balanced) observations: 120				
Variable	Coefficient	Std. Error	t-Statistic	Prob.	Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.900275	0.587090	1.533455	0.1279	C	6843.310	2089.774	3.274665	0.0014
CAR	0.174391	0.022619	7.710008	0.0000	CAR	6.001482	97.89367	0.061306	0.9512
NPL	-0.688412	0.068984	-9.979300	0.0000	NPL	-1075.980	330.7842	-3.252815	0.0015
					ROA	198.3595	325.8225	0.608796	0.5438

Figure 4.2 Panel Data Regression Results Common Effect Model Sub Structural I & II (Eviews 12 Version)

4.4.2 Fixed Effect Model (FEM)

Estimating the Fixed Effects panel data model uses a dummy variable technique to capture intercept differences. This estimation model is also called the Least Squares Dummy Variable (LSDV) technique. Fixed Effect Model processing results are found as follows:

Dependent Variable: ROA Method: Panel Least Squares Date: 07/20/23 Time: 11:54 Sample: 2017Q1 2022Q4 Periods included: 24 Cross-sections included: 5 Total panel (balanced) observations: 120					Dependent Variable: HARGA_SAHAM Method: Panel Least Squares Date: 07/20/23 Time: 12:06 Sample: 2017Q1 2022Q4 Periods included: 24 Cross-sections included: 5 Total panel (balanced) observations: 120				
Variable	Coefficient	Std. Error	t-Statistic	Prob.	Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.935466	0.543002	3.564379	0.0005	C	3.145351	0.162302	19.37964	0.0000
CAR	0.114138	0.026551	4.298743	0.0000	CAR	0.027844	0.008116	3.430636	0.0008
NPL	-0.616616	0.057594	-10.70631	0.0000	NPL	-0.064648	0.023165	-2.790768	0.0062
					ROA	0.024427	0.026659	0.916275	0.3615

Figure 4.3 Panel Data Regression Results Fixed Effect Model Sub Structural I & II (Eviews 12 Version)

4.4.3 Random Effect Model (FEM)

This model will estimate disturbance variables that may be interconnected over time and between individuals. The results of data processing using the Random Effect Model are as follows:

Dependent Variable: ROA Method: Panel EGLS (Cross-section random effects) Date: 07/20/23 Time: 11:58 Sample: 2017Q1 2022Q4 Periods included: 24 Cross-sections included: 5 Total panel (balanced) observations: 120 Swamy and Arora estimator of component variances					Dependent Variable: HARGA_SAHAM Method: Panel EGLS (Cross-section random effects) Date: 07/20/23 Time: 16:13 Sample: 2017Q1 2022Q4 Periods included: 24 Cross-sections included: 5 Total panel (balanced) observations: 120 Swamy and Arora estimator of component variances				
Variable	Coefficient	Std. Error	t-Statistic	Prob.	Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.864421	0.600518	3.104691	0.0024	C	3.675597	0.113107	32.49671	0.0000
CAR	0.118406	0.025899	4.571751	0.0000	CAR	0.001235	0.005370	0.229924	0.8186
NPL	-0.622520	0.056946	-10.93179	0.0000	NPL	-0.091800	0.018019	-5.094766	0.0000
					ROA	0.059535	0.018066	3.295494	0.0013

Figure 4.4 Panel Data Regression Results Random Effect Model Sub Structural I & II (EViews 12 Version)

4.5 Selection of panel data regression model techniques

4.5.1 Chow Test

The chow test is used to choose which model is more appropriate between the Common Effect Model (CEM) and the Fixed Effect Model (FEM). According to the chow test results of Sub Structural I and II were found to have the probability value of the Cross-section Chi-square of 0.0000 or < 0.05 and 0.0000 or < 0.05, so that H₀ was rejected and H_a was accepted. So, the appropriate estimation model to use is the Fixed Effect Model.

4.5.2 Hausman Test

The Hausman test was conducted to determine which model was more appropriate between the Fixed Effect Model and the Random Effect Model.

The results of the Hausman sub-structural test I obtained a probability value of Cross-section random of 0.7660 or > 0.05 so that H₀ is accepted and H_a is rejected. Then the appropriate estimation model used is the Random Effect Model.

Meanwhile, the results of the Sub-Structural Hausman test obtained a probability value of Cross-section random of 0.0000 or < 0.05 so that H_a is accepted and H₀ is rejected. Then the appropriate estimation model used is the Fixed Effect Model.

4.5.3 Lagrange Multiplier Test (LM)

LM test results obtained Breusch-Pagan value of 0.0000 or > 0.05 so that H_a is accepted and H₀ is rejected. Thus, it is found that the appropriate panel data regression model for sub-structure I is the Random Effect Model. The LM test is not carried out for sub-structure II, because based on the chow test and the Hausman test the Fixed Effect Model is the best model so it does not proceed to the LM test stage.

Based on the model selection technique that has been carried out, it is found that in sub-structure I the best model is the Fixed Effect Model. So that the equation for sub-structure I can be formulated as follows:

$$ROA = 1,864421 + 0,118406 CAR - 0,622520 NPL$$

According to the model selection technique that has been applied, it is found that in sub-structure II the best model is the Fixed Effect Model. So that the equation for sub-structure II can be formulated as follows:

$$Stock Price = 3,145351 + 0,027844 CAR - 0,064648 NPL + 0,024427 ROA$$

4.6 Multiple Linear Regression Analysis

4.6.1 Model feasibility test (F test)

The F test is used to test whether all independent variables together can affect the dependent variable and can be used to test whether a regression model is feasible or not. Whether or not a regression model is feasible can be measured using the F-statistical probability value at the α (0.05) level. The following presents the results of the model feasibility test (f test) for sub-structure I and sub-structure II.

R-squared	0.884614	Mean dependent var	2.553417	R-squared	0.545260	Mean dependent var	3.281299
Adjusted R-squared	0.878487	S.D. dependent var	1.023754	Adjusted R-squared	0.528327	S.D. dependent var	0.209623
S.E. of regression	0.356867	Akaike info criterion	0.833658	S.E. of regression	0.171798	Sum squared resid	3.423690
Sum squared resid	14.39104	Schwarz criterion	0.996262	F-statistic	20.38985	Durbin-Watson stat	0.265794
Log likelihood	-43.01947	Hannan-Quinn criter.	0.899692	Prob(F-statistic)	0.000000		
F-statistic	144.3867	Durbin-Watson stat	1.132500				
Prob(F-statistic)	0.000000						

Figure 4.5 Multiple Linear Regression Analysis F-Test Result Sub Structural I & II (EViews 12 Version)

Based on the table 4.5 of Sub Structural F Test I, it is shown that the Prob (F-statistic) value is 0.000000. Because this value is smaller than 0.05, it can be said that CAR and NPL simultaneously have a significant influence on ROA. Meanwhile, the F-test of Sub Structural II obtained information that the Prob (F-statistic) value is 0.000000. Because the value is smaller than 0.05, it can be stated that CAR, NPL and ROA simultaneously have a significant influence on the Share Price. So, the researcher states that both models are feasible to study.

4.6.2 Partial feasibility test (t test)

Partial hypothesis testing (t test) is conducted to determine whether the independent variable partially affects the dependent variable. To find out whether there is an effect or not, it shows the p-value of each independent variable. Partial hypothesis testing (t test) can be measured at an α level of 0.05. The following presents the results of the partial hypothesis test (t test) for sub-structure I and sub-structure II.

Dependent Variable: ROA Method: Panel Least Squares Date: 07/20/23 Time: 11:54 Sample: 2017Q1 2022Q4 Periods included: 24 Cross-sections included: 5 Total panel (balanced) observations: 120					Dependent Variable: HARGA_SAHAM Method: Panel EGLS (Cross-section random effects) Date: 07/20/23 Time: 16:13 Sample: 2017Q1 2022Q4 Periods included: 24 Cross-sections included: 5 Total panel (balanced) observations: 120 Swamy and Arora estimator of component variances				
Variable	Coefficient	Std. Error	t-Statistic	Prob.	Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.935466	0.543002	3.564379	0.0005	C	3.675597	0.113107	32.49671	0.0000
CAR	0.114138	0.026551	4.298743	0.0000	CAR	0.001235	0.005370	0.229924	0.8186
NPL	-0.616616	0.057594	-10.70631	0.0000	NPL	-0.091800	0.018019	-5.094766	0.0000
					ROA	0.059535	0.018066	3.295494	0.0013

Figure 4.6 Multiple Linear Regression Analysis t-Test Result Sub Structural I & II (EViews 12 Version)

Based on the Sub Structural I table, the following information can be found:

1. The Capital Adequacy Ratio (X_1) variable has a probability value of 0.0000 <0.05. It can be stated that CAR (X_1) has a significant effect on ROA (Z).
2. The Non-Performing Loan (X_2) variable has a probability value of 0.0000 <0.05. It can be stated that NPL (X_2) has a significant effect on ROA (Z).

Based on the Sub Structural II table, the following information can be found:

1. The Capital Adequacy Ratio (X_1) variable has a probability value of 0.8186 > 0.05. It can be stated that CAR (X_1) has no significant effect on Stock Price (Y).
2. The Non-Performing Loan (X_2) variable has a probability value of 0.0000 <0.05. It can be stated that NPL (X_2) has a significant effect on Stock Price (Y).
3. The Return on Assets (Z) variable has a probability value of 0.0013 <0.05. It can be stated that ROA (Z) has a significant effect on Stock Price (Y).

4.6.3 Determination Coefficient Test (Adjusted R²)

The coefficient of determination test (Adjusted R²) is conducted to determine the extent to which the ability of the independent variable to explain the dependent variable in the study.

The Adjusted R-square value for Sub Structural I is 0.878487 or 87.8487 percent. This means that the Capital Adequacy Ratio and Non-Performing Loan can explain the Return on Assets variable by 87.8487 percent with the remaining 12.1513 percent being influenced by other variables.

Furthermore, Sub Structural II obtained Adjusted R-square value of 0.528327 or 52.8327 percent. This means that the Capital Adequacy Ratio, Non-Performing Loan and Return on Assets can explain the Stock Price variable by 52.8327 percent with the remaining 47.1673 percent influenced by other variables.

4.7 Sobel Test

The Sobel test is a test to determine whether the relationship through a mediating variable is significantly able to mediate the relationship.

4.7.1 Sobel Test for the Effect of Capital Adequacy Ratio on Stock Price Mediated by Return on Assets

Input:	Test statistic:	Std. Error:	p-value:
a: 0.114138	Sobel test: 2.4153654	0.00259819	0.0089132
b: 0.028535	Arisian test: 2.5719028	0.00264209	0.01011413
c ₀ : 0.026351	Goodman test: 2.46110861	0.00255332	0.00778838
d ₀ : 0.018066	Reset all	Calculate	

Figure 4.7 Sobel Test Sub Structural I (EViews 12 Version)

The p-value obtained is 0.0089132 or <0.05. So, it can be obtained information that the Capital Adequacy Ratio (X1) has a significant effect on Stock Price (Y) through Return on Assets (Z) or indirectly Return On Assets is able to mediate the effect of Capital Adequacy Ratio on Stock Price.

4.7.2 Sobel Test for the Effect of Non-Performing Loan on Stock Price Mediated by Return on Assets

Input:	Test statistic:	Std. Error:	p-value:
a: -0.616616	Sobel test: -3.14459222	0.01165555	0.00163498
b: 0.059535	Arisian test: -3.13711893	0.0117019	0.00170618
c ₀ : 0.057594	Goodman test: -3.16221795	0.01160962	0.00156573
d ₀ : 0.018066	Reset all	Calculate	

Figure 4.8 Sobel Test Sub Structural II (EViews 12 Version)

The p-value obtained is 0.00163498 or <0.05. So, it can be obtained information that Non-Performing Loan (X2) has a significant effect on Stock Price (Y) through Return on Assets (Z) or indirectly Return On Assets is able to mediate the effect of Non Performing Loan on Stock Price.

4.8 Interpretations

Based on several data tests that have been conducted in the previous discussion, it can be interpreted in the form of a recapitulation to provide an overview and make it easier to see the overall data test results in a simple form as described below:

No.	Pengaruh Variabel	Koefisien	Probabilitas	Hasil Analisis Variabel Bebas
1.	CAR → ROA	0,114138	0,0000	Berpengaruh positif signifikan
2.	NPL → ROA	- 0,616616	0,0000	Berpengaruh negatif signifikan
3.	CAR → Harga Saham	0,001235	0,8186	Tidak berpengaruh signifikan
4.	NPL → Harga Saham	- 0,091800	0,0000	Berpengaruh negatif signifikan
5.	ROA → Harga Saham	0,059535	0,0013	Berpengaruh positif signifikan

Figure 4.9 Recapitulation of Partial Hypothesis t-Test Sub Structural I and II With α Value (0.05)

Based on the t-test table data, it is obtained that CAR (X₁) has a significant positive effect on ROA (Z). Meanwhile, NPL (X₂) has a significant negative effect on ROA (Z). CAR (X₁) has no significant effect on Stock Price (Y). NPL (X₂) has a significant negative effect on Stock Price (Y) and ROA (Z) has a significant positive effect on Stock Price (Y).

No.	Pengaruh Variabel	p-value	Hasil Analisis Variabel Intervening (Z)
1.	CAR → ROA → Harga Saham	0,0089132	ROA mampu me-mediasi pengaruh CAR terhadap Harga Saham
2.	NPL → ROA → Harga Saham	0,00163498	ROA mampu me-mediasi pengaruh NPL terhadap Harga Saham

Figure 4.10 Recapitulation of Sobel Test Sub Structural I and II With α Value (0.05)

The information obtained from the sobel test table shows that the existence of ROA as an intervening variable can mediate the effect of CAR and NPL on Share Price, because the p-value is <0.05. The amount of p-value is obtained from tables 4.25 and 4.26 regarding the results of the sobel test.

V. CONCLUSION & RECOMENDATION

5.1 Conclusion

Based on the results of the research and discussion that has been conducted, it can be concluded regarding the Determination of Capital Adequacy Ratio (CAR) and Non-Performing Loan (NPL) on Stock Prices with ROA as an intervening variable at LQ45 Commercial Banks Listed on the IDX 2017-2022 period, it is found that:

1. Capital Adequacy Ratio (CAR) has a significant positive effect on Return on Asset (ROA) at LQ45

- Commercial Banks Listed on the IDX 2017-2022 Period.
2. Non-Performing Loan (NPL) has a significant negative effect on Return on Asset (ROA) at LQ45 Commercial Banks Listed on the IDX 2017-2022 Period.
 3. Capital Adequacy Ratio (CAR) has no effect on Stock Price at LQ45 Commercial Banks Listed on the IDX Period 2017 - 2022.
 4. Non-Performing Loan (NPL) has a significant negative effect on Stock Prices at LQ45 Commercial Banks Listed on the IDX Period 2017 - 2022.
 5. Return on Asset (ROA) has a significant positive effect on Stock Prices at LQ45 Commercial Banks Listed on the IDX Period 2017 - 2022.
 6. Return on Asset (ROA) can mediate the effect of Capital Adequacy Ratio (CAR) on Stock Price at LQ45 Commercial Banks Listed on the IDX Period 2017 - 2022.
 7. Return on Asset (ROA) can mediate the effect of Non-Performing Loan (NPL) on Stock Price at LQ45 Commercial Banks Listed on the IDX 2017-2022 Period.

5.2 Recommendations

5.2.1 Banking Management

Banking companies need to focus performance on increasing the Capital Adequacy Ratio (CAR) and reducing Non-Performing Loan (NPL) to increase profitability, especially Return on Asset (ROA) where these conditions will have an impact on the company's share price which can be used by management in planning long-term strategies to achieve the goals or targets of LQ45 Commercial Bank companies.

5.2.2 Investor

Investors can use profitability ratios, especially Return on Asset (ROA) to evaluate the financial performance of a bank and analyze the company's stock price movements in order to make investment decisions.

5.2.3 Future Research

This research can be used as a reference for researchers in order to conduct further research on the Share Price of a company and to find out the proxies of Capital Adequacy Ratio (CAR), Non-Performing Loan (NPL) with Return on Asset (ROA) as an intervening variable (mediation). In addition, we recommend that researchers be able to examine other proxies related to profitability such as Return on Equity (ROE) and Return on Investment (ROI). While the independent variables can use the Earning Per Share (EPS) ratio, Price to Earnings Ratio (PER) and Debt to Equity Ratio (Ratio).

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