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FUNDAMENTAL FACTOR ANALYSIS ON BANKING STOCK PRICE IN LQ45

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ABSTRACT

This study analyzes the influence of fundamental factors (inflation, exchange rates, ROA, ROE, and BOPO) on the LQ 45 Banking Stock Price. The research subjects are banks listed in LQ 45 for the quarterly period 2015-2019, using Panel Data Regression. The analysis model is the Common Effect Model (CEM). This study uses 2 models where the first model tests all variables except ROE, and the second model tests all variables except ROA. The results showed that the inflation and exchange rate variables significantly affect the LQ45 Banking Stock Price. On the other hand, the variables of ROA, ROE, and BOPO did not significantly affect the LQ45 banking financial stock price. The research results simultaneously showed that in model 1, the variables of inflation, exchange rate, ROA, and BOPO significantly affect the LQ45 banking stock price. Whereas in model 2, jointly, the variables of inflation, exchange rate, ROE, and BOPO significantly affect the LQ45 banking stock price.

KEYWORDS: BOPO; Exchange Rate; Stock Price; Inflation; ROA & ROE.

INTRODUCTION
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The capital market, as the market in general, is a place where sellers and buyers meet. The difference lies in the object being traded (Sembiring, 2019). The capital market has several strategic functions, one of them is as an investment (Nti et al., 2020; Wanjawa & Muchemi, 2014). The Indonesia Stock Exchange (IDX) is a capital market institution formed through a merger between the Surabaya Stock Exchange and the Jakarta Stock Exchange (Tjiptono & Fachrudin, 2012). In investing, the investor aims to obtain a rate of return (profit), but there is an investment uncertainty called risk, where one of the investment instruments that have a high risk is stocks (Fahmi, 2015). Stock is one of the securities among many other securities with a high level of risk. The uncertainty of future stock returns reflects a high level of risk, so investors need to analyze fundamental factors before investing (Alam et al., 2020). Investors need to pay attention to stock price fluctuations (Setiyawan & Pardiman, 2014). The stock price will tend to increase if the demand increases, on the other hand, the stock price will decrease along with the increase in the sale of shares (Martalena & Malinda, 2011). According to Sunariyah (2011) stock prices are influenced by the company's fundamental factors, including macro and micro fundamental factors.

This fluctuation in share prices can be reflected in the economic and political phenomena (Harsono & Wonokinasih, 2018). Fahmi (2015) states that when inflation occurs, investors would instead hold back from investing in listed companies so that it affects stock price fluctuations. Fakhruddin and Sopian Hadianto (2016) explained that the high inflation rate is a signal to hold or sell their shares.

Several previous studies that analyzed the effect of inflation on stock prices (Alam et al., 2020; Begawati, 2017; Mulyanto & Riyanti, 2020) showed that inflation has a negative and significant effect on stock prices. In contrast to the research conducted (Sorcerer & Sakti, 2019; Zuhroh, 2020), it states that inflation has a positive and significant effect on stock prices. Another macroeconomic factor affecting stock prices is the exchange rate (Fakhruddin & Hadianto, 2016; Zuhroh, 2020) stated that the depreciation of the rupiah exchange rate can cause import costs to rise. This causes the company's profit to fall so that its financial performance also decreases, affecting the stock price fluctuation.

Several previous studies analyzed the effect of exchange rates on stock prices, namely (Harsono & Wonokinasih, 2018; Kewal, 2012; Zuhroh, 2020) where the exchange rate has a negative and significant effect on stock prices.

Apart from assessing the macro factors, investors should also consider the company's micro fundamental factors by looking at the company's financial ratios that reflect the company's performance (Ramdhani & Maulidyati Aisyah, 2018). Financial reports can provide information about financial ratios needed to determine bank performance (Samsul, 2015). The micro-fundamental factors used by researchers to examine their effect on stock prices are Return on Assets (ROA), Return on Equity (ROE), and Operational Efficiency Ratio (BOPO).

ROA is an internal company variable that is used as a measure of the effectiveness of the company's performance in the rate of return on the use of assets owned (Rivai et al., 2013). The higher the rate of return on assets indicates how well the company's asset management is to generate profits (Atidhira & Yustina, 2017). Several previous studies regarding the effect of ROA on stock prices have had inconsistent results. Research (Begawati, 2017; Herawati & Putra, 2018) shows results that ROA has a significant positive effect on stock prices. While research (Abdulmannan & Faturohman, 2015; Febrianti, 2018; Yusfiarto, 2020) shows the results that ROA is not significant to stock prices. The ROE variable is

the ratio to measure the income achieved by company owners (both common stockholders and preferred stockholders) for the capital invested in the company (Kasmir, 2014). Research conducted by (Arkan, 2016; Febrianti, 2018) shows that the ROE variable has a significant effect on stock prices. These are not according to the results of the study (Abdulmannan & Faturohman, 2015; Ramdhani & Maulidyati Aisyah, 2018; Utami et al., 2018) ROE variable does not have a significant effect on stock prices. Furthermore, BOPO or efficiency ratio is the ratio used to measure the ability of financial institutions to manage operating costs on their operating income (Kasmir, 2014).

Research result Harahap & Hairunnisah (2017) shows that the BOPO variable does not significantly affect stock rights. This result contradicts the research Wismaryanto (2013), where the research shows that BOPO has a significant effect on stock prices.

Based on previous research, there is an evidence gap, where there are conflicting and inconsistent research results. In research conducted by Zuhroh (2020) focusing on research on the company's external factors, in this latest study, we will combine the external and internal factors of the company that affects stock prices. In this study, there are two-equation models, where the ROA and ROE variables are distinguished. We may find out better to analyze the influence of fundamental factors on stock prices. Besides, this study uses panel data regression analysis techniques that have been validated using the classical assumption test which includes the Normality Test, Multicollinearity Test, and Autocorrelation Test, which in previous studies have rarely been found.

One of the stock indexes in the capital market is the LQ-45 Index with 45 companies with high company performance. Usually, on this Index, investors will apply a buy and hold strategy to meet their investment objectives (Khajar, 2011). Five banks are always in the LQ-45 Index every year. There are many proven records the banking stocks are able to provide attractive returns for investors, meaning that these bank shares are the most attractive to investors in the Indonesian capital market and as a measure of stock price stabilization on the IDX (Wismaryanto, 2013). These banking stocks are among the most actively traded stocks (Wibowo & Mardiyanto, 2015). Therefore, prospective investors need to conduct fundamental factor analysis first to maximize the profits obtained from investing in banking stocks. This research still really needs to be done, considering that stock prices can quickly fluctuate. This research can be used as a reference to determine what fundamental factors affect stock prices, so that investors can anticipate economic phenomena that will occur.

The contribution of this research can be used as a reference for potential investors to determine what factors need to be considered that can affect the LQ45 banking stock price. Investors can analyze the company's fundamental factors so that they can make decisions about investing. In addition, this research is expected to be used as a reference for academics to conduct new and advanced research. This research is also expected to be useful in maintaining stability in capital market management by stock exchange managers.

According to Fahmi (2015) definition of shares is proof of ownership of funds / capital in a company. People who own common shares are called stockholders. The size of share ownership is determined by the amount of capital invested in the company (Tjiptono & Fachrudin, 2012). Lestari et al. (2014) states that the share price can be defined as the market price. While Tjiptono & Fachrudin (2012), argues that stock prices can change to rise or fall in a fast manner because it depends on the supply and demand that occurs between buyers and sellers of shares.

Macro factors come from outside the company and cover a wide range. This study uses inflation and exchange rates as macro fundamental factor variables. According to Sukirno (2011) an exchange rate is the currency's price against another currency. The exchange rate is considered necessary in the economy, given the enormous influence on the current account. The comparison of prices or values between currencies is called the exchange rate (Nopirin, 2012). A weakening exchange rate means that the rupiah is depreciating, the exchange rate is strengthening, so the rupiah is appreciating. Changes in exchange rates are influenced by the supply and demand of a currency.

The company's financial performance can be analyzed using financial ratios in 4 groups: liquidity ratio, activity ratio, debt ratio, and profitability ratio (Fahmi, 2015). Financial ratios are comparing the numbers in the financial statements divided by one another (Kasmir, 2014). This analysis is used to estimate the future stock price by estimating the fundamental factors that affect it.

On its essence, there are several fundamental factors studied to predict stock prices, namely intrinsic value, market value, Return on Total Assets (ROA), Return on Equity (ROE), Dividend Earning, Price Book Value (PBV), Operating Expenses on Operating Income (BOPO), Dividend Yield, Book Value (BV), Debt to Equity Ratio (DER), Earning Per Share (EPS), Price Earning Ratio (PER), Dividend Payout Ratio (DPR), and stock liquidity. The financial ratios that will be used for analysis in this research are Return on Assets (ROA), Return on Equity (ROE), and Operational Expenses to Operating Income (BOPO). Return on Asset is a financial ratio that shows the results (return) on the total assets used in the company (Kasmir, 2014). The greater the ratio, the more effective the company is in utilizing assets to generate profits. That way, the greater the ROA, the more effective the company's performance.

ROE is a ratio to measure the income achieved for company owners (both common stockholders and preferred stockholders) for the capital invested in the company (Kasmir, 2014). If the higher ROE value, the higher the income received by the company owner and his position in the company the better. Efficiency ratio is used to measure the ability of financial institutions to manage operating costs against their operating income (Kasmir, 2014). This ratio compares the operating expenses of financial institutions with the operating income of financial institutions.

Rahardja (2014) says that Inflation is a form of economic disease that affects almost all countries, namely the tendency to increase the prices of goods/services continuously. Several previous studies that analyzed the effect of inflation on stock prices (Alam et al., 2020; Antono et al., 2019; Begawati, 2017; Mulyanto & Riyanti, 2020; Šimáková et al., 2019; Utomo et al., 2019), inflation has a negative and significant effect on stock prices. In contrast to the research conducted (Bertuah & Sakti, 2019; Yusfiarto, 2020; Zuhroh, 2020), it states that inflation has a positive and significant effect on stock prices.

In times of inflation, this can make investors hold back from investing in listed companies so that this will affect stock price fluctuations (Tandelilin, 2010). Fakhrudin & Hadianto, (2016) explained that for investors, the high inflation rate is a signal to hold or sell their shares. Thus, based on previous research and the explanation above, a hypothesis can be drawn, namely:

H₁: The inflation variable has a significant negative effect on LQ45 banking stock price

The exchange rate will have an impact on the real sector. According to Alam et al. (2020) an exchange rate is the currency's price against another currency. Exchange rates are

considered important in the economy, given the large influence on the current account balance, the comparison of prices or values between currencies is called the exchange rate, a weakening exchange rate means that the rupiah is depreciating, the exchange rate is strengthening, the rupiah is appreciating (Zuhroh, 2020). Previous research that analyzed the effect of exchange rates on stock prices, namely (Antono et al., 2019; Harsono & Wonokinasih, 2018; Utomo et al., 2019; Zuhroh, 2020), the exchange rate has a negative and significant effect on stock prices.

The depreciation of the rupiah exchange rate against foreign currencies can cause the cost of importing raw materials for production to rise, which can cause corporate profits to decline. This is certainly not good for shareholders, because the rate of return received also decreases (Fakhrudin & Hadianto, 2016). This can cause the share price to decline. Thus, based on previous research, hypotheses can be drawn, namely:

H₂: The Exchange Rate variable has a significant negative effect on LQ45 banking stock prices

ROA is an internal company variable that is used as a measure of the effectiveness of the company's performance in the rate of return on the use of assets owned (Abdulmannan & Faturohman, 2015; Rivai et al., 2013). The higher the rate of return on assets indicates how well the company's asset management is to generate profits (Atidhira & Yustina, 2017). Several previous studies regarding the effect of ROA on stock prices have had inconsistent results. Research (Bayu & Sumantri, 2020; Begawati, 2017; Herawati & Putra, 2018; Mohamed et al., 2021) shows the results that ROA has a significant positive effect on stock prices. While research (Abdulmannan & Faturohman, 2015; Febrianti, 2018; Rusdiyanto et al., 2020; Yusfiarto, 2020) shows the results that ROA has no significant effect.

An increase in the ROA ratio indicates an increase in company performance; the more significant the dividends that shareholders will receive, so that this attracts investors to invest in the company, the higher the demand for shares, the share price will also increase (Hartono, 2017). Thus, based on previous research and the above explanation, the hypothesis can be drawn, namely:

H₃: The ROA variable has a significant positive effect on LQ45 banking stock prices

The ROE variable is the ratio to measure the income achieved by company owners (both common stockholders and preferred stockholders) for the capital invested in the company (Abdulmannan & Faturohman, 2015; Bertuah & Sakti, 2019; Kasmir, 2014). In the future, the performance of stock portfolios can be predicted using ROE, and historically ROE can predict trends in the stock market (Ahsan, 2013). Several previous studies regarding the effect of ROE on stock prices have inconsistent results. Research conducted by (Arkan, 2016; Bayu & Sumantri, 2020; Febrianti, 2018; Mohamed et al., 2021) shows the results that the ROE variable has a significant effect on stock prices. These results are not in accordance with the study results (Abdulmannan & Faturohman, 2015; Ramdhani & Maulidyati Aisyah, 2018; Utami et al., 2018); the ROE variable does not have a significant effect on stock prices.

Based on research Arkan (2016), if the ROE increases, the rate of return on capital in the company will also increase. This can increase the stock returns received by investors, so this ratio is very good for predicting stock returns. Based on previous research and the explanation above, a hypothesis can be drawn, namely:

H₄: The ROE variable has a significant positive effect on LQ45 banking stock prices

BOPO or efficiency ratio is the ratio used as a measure of the ability of financial institutions to manage operating costs against their operating income (Kasmir, 2014). Several previous studies regarding the effect of BOPO on stock prices have inconsistent results. Research (Bayu & Sumantri, 2020; Harahap & Hairunnisah, 2017; Renwarin, 2017), shows that the BOPO variable does not have a significant effect on stock rights. This result contradicts the research (Iskandar, 2017; Wismaryanto, 2013), where the research shows that BOPO has a significant effect on stock prices.

The BOPO ratio is inversely proportional to ROA and ROE, where if the BOPO ratio is smaller, the company's ability to manage operating costs on operating income is getting better, so the risk of problems is also small (Harahap & Hairunnisah, 2017). So that based on previous research and the explanation above, a hypothesis can be drawn, namely:

H₅: The BOPO variable has a significant negative effect on the LQ45 banking stock price

METHOD

This research is quantitative with secondary data sources. The data required includes data on stock prices, inflation, exchange rates, and bank financial ratio reports. The data source is obtained from the website www.ojk.go.id, www.bi.go.id, www.bps.go.id and www.invest-ing.com.

The research period is 2015-2019 per quarter. The selected population is Bank which during the period is included in the LQ45 category. There are 5 banks that will be studied, namely: Bank Central Asia (BBCA), Bank Nasional Indonesia (BBNI), Bank Rakyat Indonesia (BBRI), Bank Tabungan Nasional (BBTN) and Bank Mandiri (BMRI)

The technique used to analyze the data is panel data regression. Panel data is a combination of cross section data with time series. The data is processed using E-views 9. There are several model specifications in the panel data, including: Chow test, Hausman test, and LM test. In addition, a normality test and a classic assumption test were conducted to validate the regression results. In this model, the CE (Common Effect Model) model is selected which is used as the model specification.

There are two equation models to be tested, namely:

Model 1

$$\ln Y_{it} = \beta_0 - \beta_1 INF_{it} - \beta_2 ER_{it} + \beta_3 ROE_{it} - \beta_4 BOPO + \epsilon_{it} \dots \dots \dots (1)$$

Where:

Y_{it} : Stock price

β_0 : Constants

$\beta_1, \beta_2, \beta_3, \beta_4$: Coefficient

INF_{it} : Inflation

ER_{it} : Exchange rate

ROA_{it} : Return on Asset

$BOPO_{it}$: Operating Expenses to Operating Income

ϵ_{it} : Error

Model 2

$$\ln Y_{it} = \beta_0 - \beta_1 INF_{it} - \beta_2 ER_{it} + \beta_3 ROE_{it} - \beta_4 BOPO + \varepsilon_{it} \dots \dots \dots (2)$$

Where:

Y_{it} : Stock price

β_0 : Constants

$\beta_1, \beta_2, \beta_3, \beta_4$: Coefficient regression

INF_{it} : Inflation

ER_{it} : Exchange rate

ROE_{it} : Return on Equity

$BOPO_{it}$: Operating Expenses to Operating Income

ε_{it} : Error

Variable	Variable Definitions	Variable (Measurement Scale)	Indicator	Expected Sign
Stock Price (LnY)	The share price of each bank on the exchange at the end of each trading quarter	Closing price (Rupiah)	price nominal	
Inflation (INF)	The price increase is general and occurs continuously	Change in consumer price index between periods (%)	relative price index	(-)
Exchange Rate (ER)	Rupiah exchange rate against US dollar	Convert \$ 1 into Rupiah		(-)
ROA	The ratio of profit before tax to total assets	$ROA = \frac{EBT}{Total\ Asset} \times 100$ (%)		(+)
ROE	The ratio of profit after tax to total equity	$ROE = \frac{EAT}{Equity} \times 100$ (%)		(+)
BOPO	Bank operational efficiency	$BOPO = \frac{Op\ Cost}{Op\ Revenue}$		(-)

Table 1.
Variable
Measurement

RESULTS AND DISCUSSION

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Descriptive statistics of research variables

Table 1 shows the statistical values of the research variables, namely the mean, median, maximum, minimum and standard deviation. The stock price in log natural value has a mean of 9.4109 with a standard deviation of 0.635 or is in the range 8.4370 - 10.3761. The standard deviation of stock prices is lower than the mean. It can be interpreted that the movement of bank stock prices during the observation period tends to be normal or not very volatile. The normality of data distribution is essential in order to estimate the dependent variable or stock price.

	Ln (Pi)	INF	Log (ER)	ROA ROE	BOPO
Mean	9,4109	4.18	9.5170	2.85 17.42	72.48
Median	9.4947	3.50	9.5108	3.06 17.89	70.52
Maximum	10.3761	7.09	9.5945	4.19 23.64	98.12
Minimum	8,4370	2.62	9.4616	0.13 5.99	58.24
Std. Dev.	0.6235	1.40	0.0335	0.93 3.57	8.54

Table 2.
Research
Variable
Statistics

The explanatory variables in the form of inflation and exchange rate also have a normal distribution where the average value is higher than the standard deviation value. Inflation is in the interval 2.62% - 7.09%, with a mean of 4.18%. The distribution of inflation which tends to be close to normal indicates that the mean inflation can represent the conditions of inflation that occurred during the observation period. Likewise, in the Exchange rate log.

ROA as a measure of asset productivity (regardless of whether the source of funds is from third party funds, second party funds and capital), is in an average of 2.85%, a median of 3.06% and the lowest to highest ROA ranges from 0.13% -4.19%. Meanwhile, ROE as a measure of capital productivity has a ratio value between 5.99% - 23.64% or the average ROE of the banking industry in Indonesia is 17.82% with a standard deviation of 3.57%.

A broad enough range for the ROA and ROE variables shows that the ability of a bank going public to generate profits varies greatly. Banks that have succeeded in making huge profits are big cap banks. Meanwhile, banks that have a very high ROE have the ability to take advantage of the minimum capital requirement (capital adequacy ratio) to collect third party funds, which in turn, the bank is able to optimize the allocation of funds (total assets) to their core business in the form of credit.

Panel data model selection

In order to analyze the influence of fundamental factors (inflation, exchange rate, ROA, ROE and BOPO), a panel data analysis model suitability was selected between the Common Effect Model (CEM), Fixed Effect Model (FEM) and Random Effect Model (REM). Test specifications to determine the model using the Chow test. The step of testing the model selection hypothesis is as below.

The hypothesis of the chow test:

H0: Common Effect Model (CEM) is more suitable

H1: Fixed Effect Model (FEM) is more suitable

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We use a regression equation model by selecting the ROA and ROE variables in a separate panel regression equation. Based on this, the model specification testing was carried out for

2 estimation equations for the independent variable model ROA and ROE as the results are presented in Table 3 and Table 4.

Redundant Fixed Effects Tests

Equation: Chow Test ROA

Fixed effects cross-section test

Table 3.
Chow Test
Results:
Independent
variable of
ROA

Effects Test	Statistics	df	Prob.
Cross-section F	1.498753	(4.86)	0.2097
Chi-square cross-section	6.401769	4	0.1711

Based on the results of the chow test, the Prob value is obtained. Cross-Section F is 0.1711. This value is more than 0.05, so it is decided to accept Ho or it is decided that the Common Effect Model (CEM) is more suitable.

Redundant Fixed Effects Tests

Equation: Chow Test ROE

Fixed effects cross-section test

Table 4.
Chow Test
Results:
Independent
variable of
ROE

Effects Test	Statistics	df	Prob.
Cross-section F	1.713190	(4.86)	0.1544
Chi-square cross-section	7.283432	4	0.1216

As with the previous model, the results of the chow test show that the value for Prob. Cross-Section F is 0.1216. This value was more than 0.05, so it was decided to accept Ho or Common Effect Model (CEM) as more suitable.

Classic assumption test

Before we draw conclusions based on the estimation results of the panel data regression model, to avoid regression equations, classical assumption tests in the form of normality, multicollinearity and autocorrelation were carried out before using the basis of statistical tests both partially (t test) and simultaneously (F test).

Normality test

Normality test is carried out to determine whether the error is normally distributed or not, following the formulation of the hypothesis as follows:

H0: errors are normally distributed

H1: errors are not normally distributed

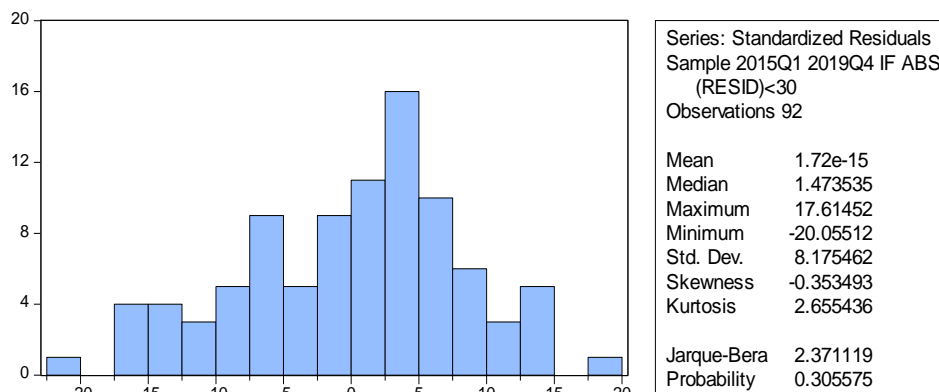


Figure 1.
Normality Test
Error term:
independent
Variable of
ROA

Based on the results of the normality test, the statistical p-value of the Jarque-bera test was 0.305575. This value is more than 0.05, so it is decided to fail to reject Ho or the error term is normally distributed.

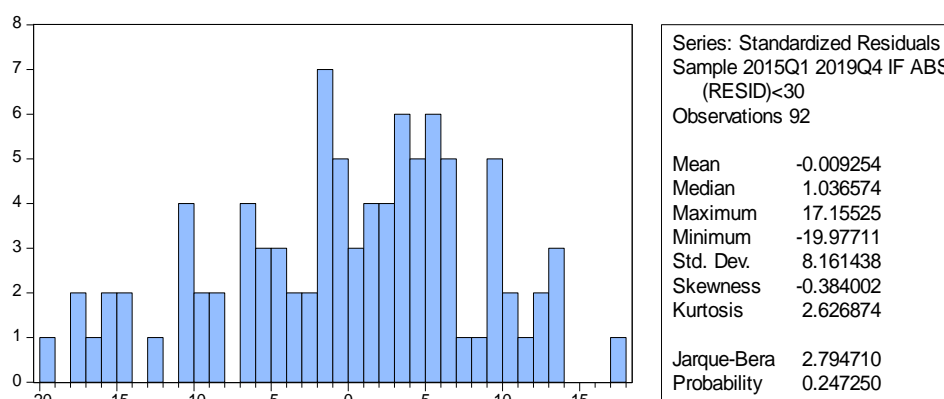


Figure 2.
Normality test
error term:
independent
variable of
ROE

Based on the results of the normality test, the statistical p-value of the Jarque-bera test was 0.247250. This value was more than 0.05, so it was decided to accept Ho or the error term was normally distributed.

Multicollinearity Test

The multicollinearity test was conducted to determine whether there was a high correlation between the independent variables. If there is a very high correlation, it will have an impact on the inability of the statistical test to reject Ho, even in the extreme, it will have an impact on the inconsistency of the sign in the regression coefficient of the results of the empirical study with general conclusions (theory). Based on this, we performed a multicollinearity test on the selected model with the results shown in the table below.

Variable	Centered VIF
INF	1.2899
ER	1.1939
ROA	8,9462
BOPO	8.9437

Table 5.
Test of
Variance
Inflation Factor
(VIF):
independent
Variable of
ROA

Based on the results of the VIF test, it shows that the Centered VIF value for each variable is less than 10, so it can be concluded that there is no multicollinearity in the data.

Table 6.
Test of
Variance
Inflation Factor
(VIF):
independent
variable of
ROE

Variable	Centered VIF
INF	1.3085
ER	1.2209
ROE	1,6455
BOPO	1.4707

Based on the results of the VIF test, it shows that the Centered VIF value for each variable is less than 10, so it is concluded that there is no multicollinearity in the model.

Autocorrelation Test

Autocorrelation test is performed to determine the correlation between error terms. The formulations of Ho and Ha are as follows:

H0: There is no autocorrelation

H1: There is Autocorrelation

Table 7. Autocorrelation test: independent Variable of ROA

Table 7.
Autocorrelation
test:
independent
Variable of
ROA

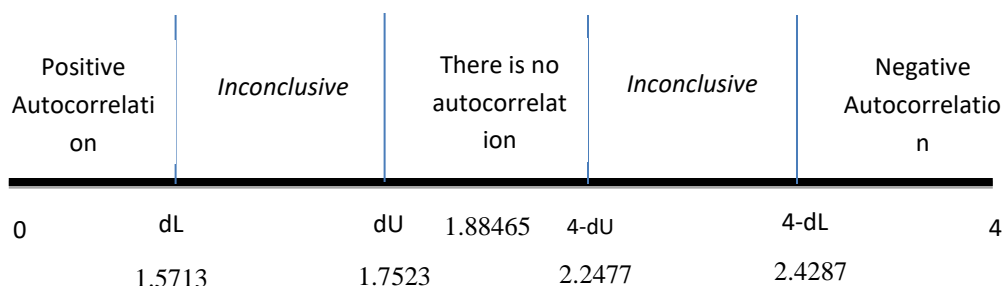
R-squared	0.263060	Mean dependent var	2,548211
Adjusted R-squared	0.229178	SD dependent var	9.523495
SE of regression	8.361292	Akaike info criterion	7.137918
Sum squared resid	6082,274	Schwarz criterion	7.274972
Log likelihood	-323.3442	Hannan-Quinn criter.	7.193234
F-statistic	7.763951	Durbin-Watson stat	1.884653
Prob (F-statistic)	0.000021		

DW = 1.884653

k = 4 ; n = 92

dL = 1.5713 ; 4-dL = 2.4287

dU = 1.7523 ; 4-dU = 2.2477



Based on the results of the autocorrelation test, it was found that the Durbin Waston value was 1.884653, in the area that received the H0 hypothesis or the model did not have autocorrelation.

R-squared	0.235598	Mean dependent var	2.538076
Adjusted R-squared	0.201243	SD dependent var	10.11584
SE of regression	9.040853	Akaike info criterion	7.293109
Sum squared resid	7274,596	Schwarz criterion	7,428390
Log likelihood	-337.7761	Hannan-Quinn criter.	7.347753
F-statistic	6.857722	Durbin-Watson stat	1.871279
Prob (F-statistic)	0.000074		

DW = 1.871279
 k = 4 ; n = 92
 dL = 1.5713 ; 4-dL = 2.4287
 dU = 1.7523 ; 4-dU = 2.2477

Table 8.
Autocorrelation test: independent variable of ROE

Based on the results of the autocorrelation test, it was found that the Durbin Waston value was 1.871279, in the area where the hypothesis was H0 or there was no autocorrelation.

Variable	Coefficient	t-Statistic	Prob.	Information
C	22.817451	2.934638	0.0043	Significant
INF	-3.415813	-4.487644	0.0000	Significant
ER	-0.007647	-3.989587	0.0001	Significant
ROA	0.417680	0.173027	0.8630	Not Significant
BOPO	-0.044339	-0.146908	0.8835	Not Significant

R-squared	0.2356
Adjusted R-squared	0.2012
F-statistic	6.8577
Prob (F-statistic)	0.0000

Table 9.
Common Effect Model (CEM) regression with ROA variable

The estimation result of panel data regression, the CE model shows that inflation and exchange rates each have a prob value. t-statistic is less than α (0.05), which is 0.0000 and 0.0001. This means that the inflation and exchange rate variables have a significant negative effect on the financial stock price of banks LQ 45. The regression coefficient of inflation on bank stock prices is -3,415. This means that every 1% increase in inflation will have a very elastic impact on the decline in banking stock prices by 3.5%.

The exchange rate has a negative effect on the LQ45 bank share price indicated by the regression coefficient value of -0.0076. The results of this study reveal that the effect of ER is much lower than inflation. A 1% increase in the dollar (depreciation of the rupiah) will only reduce the stock price by 0.0076%. An explanation of why the ER inelasticity is so much lower than inflation still requires further study.

ROA does not have a significant effect on the bank share price of the LQ45 Index. The t statistic test proved unable to reject H_0 because the probability of rejecting H_0 was much higher than tolerated, namely 5%. Investors also pay less attention to information on efficiency achieved by banks. BOPO is unable to explain changes in stock prices even though the regression coefficient is consistent with general or theoretical conclusions, which is negative. The t test is not strong enough to reject H_0 .

Test simultaneous the above model shows the Prob value. The F-statistic is 0.000, where this value is less than α (0.05), it is decided that H_0 is rejected. So it is concluded that simultaneously the independent variables (inflation, exchange rates, ROA, and BOPO) have a significant effect on Banking Stock Prices in LQ45.

The estimation model of the banking stock price regression equation using the company's fundamental variable, namely ROA, is able to explain the change in stock prices by 20% (adjusted R^2). This means that there is still a large opportunity (80%) to study changes in bank share prices because the explanation still reaches that number.

Variable	Coefficient	t-Statistic	Prob.	Information
C	28.181869	3.819163	0.0002	Significant
INF	-3.376081	-4.116806	0.0001	Significant
ER	-0.008082	-3.886211	0.0002	Significant
ROE	0.147702	0.57285	0.5682	Not Significant
BOPO	-0.054100	-0.413696	0.6801	Not Significant

R-squared 0.449111

Adjusted R-squared 0.370412

F-statistic 6.857722

Prob (F-statistic) 0.000074

Table 10.
Common Effect
Model (CEM)
regression with
ROE variable

The table above presents the estimation results of the regression equation using the explanatory variable ROE as a measure of profit while the other fundamental variables are fixed. In the CE model selection, only macroeconomic variables are able to explain changes in bank stock prices. Meanwhile, ROE and BOPO are not significant. The regression coefficient on these two variables has a low statistical value (less than 2) so that the error probability of rejecting the correct Ho is very high, namely: Prob = 57% - 68%.

As with the estimation results of the previous equation (Table 9), the efficiency of BOPO was not responded to significantly by investors even though it had a negative sign according to the theory.

Inflation has a regression coefficient value that is almost the same as the ROA model, which is more elastic than the exchange rate variable. Meanwhile, ROE has lower elasticity than ROA in influencing changes in LQ45 bank share prices. Based on the estimation results of the regression equation, it can be stated that high inflation is not wanted by investors and is more of a consideration than the occurrence of depreciation. Likewise, the insignificant coefficient of ROA, ROE and BOPO strengthens the statement that bank stock investors pay more attention to changes in macroeconomic variables than the company's internal fundamentals.

Simultaneously, the model is able to explain stock price changes (rejecting Ho) at a 5% probability, it is proven that the F statistical value of 6.8577 has a very convincing probability (Probability 0.000) rejects Ho. The contribution of the model in explaining changes in stock prices in this model is shown by the coefficient of determination R² adjusted 37%. This figure states that 37% of LQ45 bank share price changes are explained by the inflation, exchange rate, ROE and BOPO variables, other variables explain the rest. When compared, between model 1 (ROA) and model 2 (ROE), model 2 is better at explaining changes in bank stock prices because the coefficient of determination is larger. However, both models produce unsatisfactory explanations because the adjusted R² is relatively small.

The results of the CE equation for model 1 (ROA) and model 2 (ROE) as a proxy for profit in estimating changes in the stock price of the LQ 45 index can be presented as follows:

Model 1 (Using the ROA Variable)

$$\ln Y_{it} = \alpha - \text{INF}_{it} - \text{ERS}_{it} + \text{ROA}_{it} - \text{BOPO}_{it} + \beta_1 \beta_2 \beta_3 \beta_4 \epsilon_{it}$$

$$\ln Y = 22.8175 - 3.4158 * \text{INF} - 0.0076 * \text{ER} + 0.4791 * \text{ROA} - 0.0443 * \text{BOPO}$$

Model 2 (Using the ROE Variable)

$$\ln Y_{it} = \alpha - \text{INF}_{it} - \text{NT}_{it} + \text{ROE}_{it} - \text{BOPO}_{it} + \beta_1 \beta_2 \beta_3 \beta_4 \epsilon_{it}$$

$$\ln Y = 28.1819 - 3.37601 * \text{INF} - 0.0081 * \text{ER} + 0.1477 * \text{ROE} - 0.0541 * \text{BOPO}$$

Discussion

Influence of inflation on stock prices

The test results reveal that inflation has a significant negative effect on changes in banking stock prices on the LQ45 Index. The results of this study reinforce the previous findings, namely by (Alam et al., 2020; Antono et al., 2019; Article, 2020; Begawati, 2017; Šimáková et al., 2019 and Utomo et al., 2019) although contrary to the research results of (Bertuah and Sakti, 2019; and Zuhroh, 2020).

The negative effect of inflation on stock prices is very relevant if it is related to the real economic conditions of the *ceteris paribus* assumption. When an increase in prices marks inflation, it may be profitable for the company because it is a signal of profit. However, rising prices will reduce people's purchasing power, thereby reducing demand for the industrial sector.

Banks will receive a negative impact because the economy declines. The next impact, credit decreases and even defaults so that if it occurs continuously it will interfere with bank performance. Investors expect a decline in the performance of the banking sector during times of inflation by making corrections to stock prices. The decline in share prices will continue if the authorities control inflation by raising interest rates.

We analyze the positive effect of inflation on interest rates by Zuhroh (2020) due to failure in the methodology, especially in the presentation of unbalanced data between macroeconomic variables (fixed time series), while individual stock prices fluctuate without including company-specific variables. However, positive results are still possible if during the observation period, inflation is not very high, so that it can still be tolerated by investors that the inflation that occurs is still supporting the real sector to grow and has not disturbed banking performance so that stock prices do not decline and on the contrary.

The effect of exchange rates on stock prices

The negative effect of the exchange rate on the LQ 45 index bank share price is consistent, using both model 1 and model 2. The results of this study support the findings of (Antono et al., 2019; Harsono & Wonokinasih, 2018; Kewal, 2012; Utomo et al., 2019; Zuhroh, 2020). The depreciation of the rupiah exchange rate was responded negatively by investors as indicated by the decline in bank share prices. Investors correct their shares when there is depreciation because they think that the current stock value is too high than the intrinsic value or the real value of the stock at this time or in the future.

The expectation of a decline in the performance of banking shares due to exchange rate depreciation can be explained from two aspects. First, the relationship between the financial sector and the domestic and foreign trade sectors. In terms of this aspect, import prices are increasing and have an impact on the production costs of the industrial sector and other sectors to increase. Inflation imported from other countries will also have an impact on purchasing power and have the same impact as inflation. This condition is exacerbated if the banking sector has a volatility in the exchange rate conversion. The negative reaction of bank stock investors when depreciation shows that the Indonesian stock market supports the market efficiency hypothesis.

Second, the dollar's appreciation is usually followed by the substitution of financial investment from the capital market to the money market, which results in selling stocks to avoid further decline in share prices. This condition simultaneously has a negative impact on the decline in share prices.

Effect of ROA and ROE on stock prices

Based on the test results, ROA has a positive but insignificant effect on LQ45 banking stock prices. Supposedly, the higher the profit generated by the company is a signal that the company's performance is getting better so that it will encourage an increase in stock prices. The results of this study are in line with the findings (Abdulmannan & Faturohman, 2015; Febrianti, 2018 and Rusdiyanto et al., 2020), however, contradicts research (Bayu and Sumantri, 2020; Begawati, 2017; Herawati and Putra, 2018; Mohamed et al., 2021), where the ROA variable has a significant positive effect.

There are three possible causes for an insignificant ROA. First, investors analyzing stock prices does not consider micro (internal) fundamental factors but rather considers stock price movements in the previous period Zuhroh (2020) in addition to macroeconomic variables. The second possibility is that the quarterly period used in the study does not accurately describe the bank's performance because investors pay more attention to the publication of financial reports every year, especially during dividend announcements, rather than the publication of financial reports by the Financial services authority. Finally, investors are more interested in responding to dividends than ROA. These three arguments still need further study, especially in an event study approach or using other proxies for profit such as dividends or Earning Per share (EPS).

This study also failed to prove the positive effect of ROE on stock prices. Supposedly, ROE as a measure of equity productivity received a positive response from investors as well as ROA. The negative sign in model 2 is inconsistent with the theory, although it aligns with the findings (Abdulmannan and Faturohman, 2015; Ramdhani and Maulidyati Aisyah, 2018; Utami et al., 2018).

The failure of research to prove the effect of ROE on stock prices can be explained by using the same arguments as the ROA variable. However, it can be reinforced that the role of foreign investors also needs to be studied. The influence of macroeconomic variables is more representative of information that can move LQ45 bank share prices. This is made possible by the increasingly financial solid integration that allows financial investors to substitute between markets to optimize returns.

A high ROE should reflect the success of the bank in managing capital and be a destination for stock investment. If the ROE increases, the share value will be higher even though the risks must also be examined.

The same argument for why ROA does not affect stock prices also applies to ROE, although the results of this study are not in line with several other studies by (Arkan, 2016; Bayu & Sumantri, 2020; Febrianti, 2018; Mohamed et al., 2021), but supports previous studies by (Abdulmannan & Faturohman, 2015; Ramdhani & Maulidyati Aisyah, 2018; Utami et al., 2018).

Effect of BOPO on stock prices

Based on the test results, it was found that the BOPO value had a negative but insignificant effect. BOPO is used to measure banking efficiency. The higher the BOPO ratio means that the bank has a large operating expense or the portion of income to finance bank operations is getting bigger. Supposedly, if costs can be minimized, the bank's income will become earnings that are ready to be distributed to shareholders or increase capital for the benefit of company expansion in the long term and vice versa.

In theory, BOPO has a significant effect on stock prices. The results of this study, the size of the BOPO value cannot encourage an increase or decrease in stock prices. This can occur because investors do not really consider the company's internal fundamentals, which reflects that the capital market in Indonesia does not yet have strong efficiency.

The tendency of speculative prices or moving on a technical basis often occurs. This indicates that there are still many market players who are short term oriented. This finding supports the results of several studies, among others (Bayu & Sumantri, 2020; Harahap & Hairunnisah, 2017; Renwarin, 2017). However, the results of our study contradict the research of (Iskandar, 2017; and Wismaryanto, 2013).

The inconsistency of the findings above, of course, should be interpreted carefully. The effect of BOPO and Profit (ROA and ROE) on stock prices is also possible in the panel data research model design that multicollinearity still occurs even though it has been tested with FIV. In the following study, testing the non-multicollinearity assumptions is expected to use a more thorough approach, such as regressing between independent variables included in the analysis model.

CONCLUSION

This study aims to analyze the influence of macroeconomic fundamental factors (inflation and exchange rate) and the company (ROA, ROE and BOPO) on the LQ 45 index bank stock price. The results reveal that only macro variables affect bank stock prices, while internal factors. insignificant company. The effect of inflation and the negative exchange rate is significant, but the elasticity of the effect of inflation is much higher than inflation. This result has implications for the monetary authorities to maintain monetary stability in the framework of supporting the advancement of the stock exchange, which can accelerate the economic welfare of society at a macro level. On the other hand, investors can consider macroeconomic conditions in their decision to assess the fair price of LQ 45 index bank shares.

The company's internal fundamental factors in the form of BOPO, ROA and ROE do not significantly affect the LQ45 bank share price. This result reflects that investors do not consider the company's internal variables less than their responses to macroeconomic variables. However, this study has limitations in proving the consistency of the relationship between the explanatory variables and the LQ 45 bank share price. Some of the limitations that become opportunities to expand the literature review on banking stock prices are: first, the object of bank research does not sort investor reactions in differences in bank size and investor speed. in reacting to changes in valuable information. Second, the company's fundamental data on a quarterly basis is not the focus of investor observations except for annual data. Event studies are very appropriate to be carried out to prove that events in the submission of financial reports and an increase in fundamental performance have an impact on investment decisions. Third, the company's internal fundamental variables need to be re-examined based on a stronger theoretical basis and appropriate analytical methods. It is proven that the coefficient of determination of the two models we built in this study is relatively small.

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