

The Effect Of Exchange Rate And Interest Rate To Banking Companies Stock Prices In The Period 2018-2020

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ABSTRACT

The goal of this research is to determine how exchange rates and interest rates affect stock prices. Two banking businesses listed on the Indonesian Stock Exchange between 2018 and 2020 were chosen as study items. Purposive sampling was utilized to collect data. Multiple linear regression models are used to examine the independent variable's influence on the dependent variable. According to the research findings, currency rates and interest rates have a negative and substantial influence on the stock price of PT Bank Mandiri (Persero) Tbk. However, they do not affect the stock price of PT Bank Central Asia Tbk. Simultaneously, the exchange rate and interest rate considerably influence PT Bank Mandiri (Persero) Tbk's stock price but have no significant effect on PT Bank Central Asia Tbk's stock price.

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1. INTRODUCTION

Banking is one of the investment areas that offers investors a high rate of return. The benefits of investing in banking firms are inextricably linked to dangers because banking stock values fluctuate often and are impacted by a variety of variables. The rupiah exchange rate and interest rates are two variables that affect stock values. The rupiah exchange rate, or foreign currency exchange rate, is the value difference between foreign currency and rupiah currency; this difference significantly impacts all investment sectors in Indonesia. Indonesia adopts the rupiah as its currency in place of the dollar due to the currency's relative stability in economic situations.

The interest rate is a percentage computed on the loan's principle that the debtor must pay back over a specific time and is then

collected by the creditor as a charge. Interest rates affect an investor's potential to earn profits or dividends during the investing process, and this is always a factor to consider when selecting an investment. The inverse link between stock prices and interest rates is explained, which means that when interest rates are high, stock prices are low and vice versa [1]. The stock price is the price set by a company for other parties who wish to own share ownership rights.

The value of the stock price always changes all the time. The stock price becomes one of the factors considered by investors before investing. Stock prices are different and always changing. The weakening of stock prices occurred in financial sector companies, that is banking. Based on Bloomberg data, the financial stock index weakened 23.59 points or 1.16% to the level of 1,188 since the beginning of 2020, the financial stock price

index fell 12.25%. The weakening of the financial sector index was one of the ballast for the IHSG's move because it contributed 57.61% to the index movement.

Based on the background information above regarding the exchange rate, interest rate and banking stock prices, the researchers are interested in researching with the title "The Effect of Exchange Rate and Interest Rate to Banking Companies Stock Prices in The Period 2018-2020".

2. LITERATURE REVIEW

2.1 Exchange rate

Exchange rate is the difference in value between the domestic currency and the foreign currency, this difference occurs due to differences in the type of currency used in each country. "Exchange rate is the price of a currency relative to the currencies of other countries [2].

The exchange rate plays an important role in spending decisions, because the exchange rate allows us to translate the prices from various countries into the same language." "Currency exchange rate is the price of currency against other currencies. The exchange rate is one of the most important prices in an open economy, given its enormous influence on the current account balance and other macroeconomic variables [3]."

Based on the understanding according to the experts above, it can be concluded that the exchange rate is the price of a country's currency against the currencies of another country which has a very important role in the economic activity of a country. The exchange rate that is often used is the rupiah exchange rate against the dollar. Because the dollar is a relatively stable currency in the economy.

2.2 Interest Rate

"The interest rate is the price of the loan. Interest rate is expressed as a percentage of the principal per unit of time. Interest is a measure of the price of resources used by debtors to be paid to creditors [4]." The interest rate is "the price of the use of

investment funds (loanable funds). The interest rate is an indicator in determining whether someone will invest or save [5]." Based on the understanding according to the experts above, it can be concluded that the interest rate is the price obtained from a loan for the use of either investment or savings used by the debtor to be paid to the creditor.

The interest rate in the financial sector that is commonly used as an investor's guide is called the risk-free interest rate, which includes the central bank interest rate and deposit interest rate. In Indonesia, the central bank's interest rate is at proxy right at the interest rate of Bank Indonesia Certificates (SBI) [6].

Since early July 2005, Bank Indonesia has used the BI Rate mechanism (BI interest rate). BI Rate is the policy interest rate that reflects the attitude or stance monetary policy stipulated by BI and announced to the public. Bank Indonesia generally will raise the BI Rate if future inflation is estimated to exceed the predetermined target. On the other hand, Bank Indonesia will lower the BI Rate if future inflation is estimated to be below the target set.

2.3 Stock Price

Stock are securities which are a sign of ownership of a person or entity in a company. So, investors who buy shares means owning the company [7]. Stocks are one of the most common investment instruments used by investors and companies in exercising ownership rights of assets. Companies sell shares to get funding, while investors invest in companies to get profits or dividend, because investing in the company means the benefits that will be obtained in the long term.

The stock price is the price of a share on the ongoing market on the stock exchange. If the stock exchange is closed, then the market price is the closing price [4]. "Stock price determines shareholder wealth. Maximization of shareholder wealth translates to maximizing the company's share price. The share price at any given time will depend on the closing price [8].

2.4 Bank

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 or other forms in order to improve the standard of living of the people at large. "Banks are financial institutions whose main business is to collect funds and channel them back to the public in the form of credit and provide services in payment traffic and money circulation [9].

Each quote from the book is cited in the text, and cite the source in the bibliography. In-text citations are written like this: (Author's last name, year: page) or (Author's last name, year) for the source of the book. At the same time, citations for online sources are written like this: (Last name of author/ editor/ institution, year of posting). Write quotes from sources that are directly used; Footnotes are only allowed for interviews.

3. METHODS

3.1 Population and Sample

The Population in this research are banking companies listed on the Indonesian Stock Exchange in period 2018-2020. The sample used is PT Bank Mandiri (Persero) Tbk with the issuer code BMRI and PT Bank Central Asia Tbk with the issuer code BBKA.

3.2 Sampling Method

The Sample method used in this research is purposive sampling method. By using two banks selected based on certain criteria. The criteria are state-owned and private banks that have the highest share price.

3.3 Research Object

The Object in this research is the stock prices of PT Bank Mandiri (Persero) Tbk and PT Bank Central Asia Tbk in 2018-2020, which were obtained from the yahoo finance website.

Table 1. Bank Mandiri (Persero) Tbk (BMRI) Stock Prices for the Period 2018-2020

Month	Stock Prices		
	2018	2019	2020
January	8.150	7.450	7.550

February	8.300	7.125	7.275
March	7.675	7.475	4.600
April	7.125	7.725	4.460
May	7.050	7.675	4.470
June	6.850	8.025	4.940
July	6.650	7.975	5.800
August	6.900	7.250	5.950
September	6.725	6.975	4.960
October	6,850	7.025	5.775
November	7.400	6.975	6.325
December	7.375	7.675	-

Source: www.finance.yahoo.com

Table 2. Bank Central Asia Tbk (BBKA) Stock Prices for the Period 2018-2020

Month	Stock Prices		
	2018	2019	2020
January	22.725	28.175	32.400
February	23.175	27.575	31.450
March	23.300	27.550	27.625
April	22.100	28.750	25.850
May	22.700	29.100	25.950
June	21.475	29.975	28.475
July	23.275	30.950	31.200
August	24.800	30.500	31.375
September	24.150	30.350	27.100
October	23.650	31.450	28.950
November	26.050	31.400	31.025
December	26.000	33.425	-

Source: www.finance.yahoo.com

Table 3. Rupiah Exchange Rates to US Dollars Per Month for the Period 2018-2020

Month	Exchange Rate (Kurs) in Rp		
	2018	2019	2020
January	13.413	14.072	13.662
February	13.707	14.062	14.234
March	13.756	14.244	16.367
April	13.877	12.215	15.157
May	13.951	14.385	14.733
June	14.404	14.141	14.302
July	14.413	14.026	14.653
August	14.711	14.237	14.554
September	14.929	14.174	14.918
October	15.227	14.008	14.690
November	14.339	14.102	14.196
December	14.841	13.901	-

Source: www.bi.co.id

Table 4. Interest Rate for the month in Period 2018-2020

Month	BI Rate (%)		
	2018	2019	2020
January	4,25	6,00	5,00
February	4,25	6,00	4,75
March	4,25	6,00	4,50
April	4,25	6,00	4,50
May	4,75	6,00	4,50
June	5,25	6,00	4,25
July	5,25	5,75	4,00
August	5,50	5,50	4,00
September	5,75	5,25	4,00
October	5,75	5,50	4,00
November	6,00	5,50	3,75
December	6,00	5,50	-

Source: www.bi.co.id

3.4 Data Analysis

The method used in this research is a multiple linear regression model which is used to test the effect of the independent variables (exchange rates and interest rates) on the dependent variable (stock prices).

Multiple linear analysis is an extension of simple linear regression analysis. In simple linear regression has one independent variable and one dependent variable. Meanwhile, multiple linear regression analysis has more than one independent variable and one dependent variable [10]. The regression equation can be formulated as follows: $Y = a + B_1X_1 + B_2X_2 + e$
Where:

Y : Dependent variable (stock price)

A : Constants

B : Regression coefficient

X1: Independent Variable (exchange rate)

X2: Dependent Variable (interest rate)

e : error

3.5 Classic Assumption Test

a. Multicollinearity Test

The multicollinearity test aims to test whether or not there is a correlation between independent variables. To perform a multicollinearity test in the regression model, this study will be seen from the value tolerance and Variance Inflation Factor (VIF). Tolerance measure the variable independent selected which cannot be explained by other

independent variables. A low tolerance value is the same as a high VIF value and indicates high multicollinearity, because $VIF = 1 / \text{tolerance}$. The values commonly used are tolerance values > 0.1 and VIF values.

b. Normality test

The normality test is a test that is carried out with the aim of assessing the distribution of data in a group of data or variables, whether the distribution of the data is normally distributed or not.

3.6 Hypothesis Test

Hypothesis test used in this research are:

a. T-Test

The t-test is used to determine whether individually the independent variable has a significant effect on the dependent variable. The test steps are as follows:

1) Determine the hypothesis formula

- $H_0: \beta_1 = \beta_2 = 0$ it means that the exchange rate and interest rate partially not significantly affect stock prices.
- $H_a: \beta_1 = \beta_2 \neq 0$, it means that the exchange rate and interest rate partially significantly affect stock prices.

2) Selected level of significant (α) = 0,05.

3) Testing criteria:

H_0 is accepted if $t \text{ count} < t \text{ table}$, then H_a is rejected and H_0 is rejected if $t \text{ count} > t \text{ table}$, then H_a is accepted.

b. F Test

The F test is used to determine whether the independent variable simultaneously has a significant influence on the dependent variable. The test steps are as follows:

1) Determining the formulation of the hypothesis

- $H_0: \beta_1 = \beta_2 = 0$, means that the exchange rate and interest rate simultaneously not significantly affect stock prices.
- $H_a: \beta_1 = \beta_2 \neq 0$, it means that the exchange rate and interest rate simultaneously significantly affect stock prices.

2) Selected level of significant (α) = 0,05.

3) Testing criteria:

H_0 is accepted if $f_{count} < f_{table}$, then H_a is rejected and H_0 is rejected if $f_{count} > f_{table}$, then H_a is accepted.

c. Determination Coefficient Test (R^2)

The value of R^2 indicates that the variation in the dependent variable can be explained by variations in the independent variable. The value of R^2 is close to 0 (zero), so the variation of the dependent variable cannot be explained by the independent variable. Conversely, if the value is close to 1 (one), it means that the independent variables provide almost all the information needed to predict the dependent variable.

4. RESULTS AND DISCUSSION

4.1 Multiple Linear Regression Analysis

Table 5. Multiple Linear Regression Analysis of BMRI

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	17564,889	2809,037		6,253	,000
	Exchange Rate	-,962	,180	-,593	-5,335	,000
	Interest Rate	5,944	1,538	,430	3,865	,001

Source: Processed primary data (2020)

Based on the results above, the multiple linear regression equation obtained in this research is:

$$Y = 17564,889 + (-0,962) + 5,944 \\ = 17564,889 - 0,962 + 5,944$$

From the regression equation obtained, it can be seen:

a. Constant value (α) is 17564,889, it means that if the exchange rate and interest rate are zero (0) then the stock price is worth Rp. 17564,889.

b. The value of the exchange rate regression coefficient is negative at -0.962, it means that if the exchange rate increases by one rupiah, the stock price has decreased by Rp. 0.962.

c. The value of the interest rate regression coefficient is positive at 5,944, it means that if the interest rate increases by one rupiah, the stock price will increase by Rp. 5,944.

Table 6. Multiple Linear Regression Analysis of BBKA

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	32492,654	14392,521		2,258	,031
	Exchange Rate	-,456	,924	-,088	-,493	,625
	Interest Rate	3,100	7,881	,070	,393	,697

Source: Processed primary data (2020)

Based on the results above, the multiple linear regression equation obtained in this research is:

$$Y = 32492,654 + (-0,456) + 3,100 \\ = 32492,654 - 0,456 + 3,100$$

From the regression equation obtained, it can be seen:

a. Constant value (α) is 32492,654, it means that if the exchange rate and interest rate are zero (0) then the stock price is worth Rp. 32492,654.

b. The value of the exchange rate regression coefficient is negative at -0,456, it means that if the exchange rate increases by one rupiah, the stock price has decreased by Rp. 0,456.

c. The value of the interest rate regression coefficient is positive at 3,100, it means that if the interest rate increases by one rupiah, the stock price will increase by Rp. 3,100.

Based on the results of the above analysis, it can be concluded that BMRI and BBCA are both negative in the regression coefficient of the exchange rate variable, which means that there is a negative relationship between the exchange rate with stock price. Meanwhile, the regression coefficient of the interest rate variable is positive, which means that there is a positive relationship between the interest rate with stock price.

4.2 Classic Assumption Test

a. Multicollinearity

Table 7. Multicollinearity Test of BMRI

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	17564,889	2809,037		6,253	,000	
	Exchange Rate	-,962	,180	-,593	-5,335	,000	,977
	Interest Rate	594,448	153,821	,430	3,865	,001	,977

Source: Processed primary data (2020)

From the test above, it can be seen that the tolerance value for the exchange rate and interest rate variables is $0.977 > 0.1$ and the VIF value is $1.024 < 10$. It means that the

regression analysis on exchange rate and interest rate at Mandiri Bank doesn't have a multicollinearity problem.

Table 8. Multicollinearity Test of BBCA

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	32492,654	14392,521		2,258	,031	
	Exchange Rate	-,456	,924	-,088	-,493	,625	,977
	Interest Rate	309,979	788,122	,070	,393	,697	,977

Source : Processed primary data (2020)

From the test above, it can be seen that the tolerance value for the exchange rate and interest rate variables is $0.977 > 0.1$ and the VIF value is $1.024 < 10$. It means that the regression analysis on exchange rate and interest rate at BCA Bank doesn't have a multicollinearity problem. Based on the

results of the above analysis, it can be concluded that regression analysis of the exchange rate dan interest rate on BMRI and BBCA doesn't have a multicollinearity problem.

b. Normality

Table 9. Normality Test of BMRI

	Interest Rate	Kolmogorov-Smirnov ^b			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Stock Price	400	,384	4	.	,780	4	,071

	425	,267	5	,200*	,827	5	,131
	450	,362	3	.	,803	3	,122
	475	,260	2	.			
	525	,227	3	.	,983	3	,747
	550	,272	5	,200*	,860	5	,227
	575	,353	3	.	,824	3	,174
	600	,207	8	,200*	,958	8	,793

Source : Processed primary data (2020)

From the data above, it can be seen that all df value in "Shapiro-Wilk", the number of samples of each data is less than 50. Then it is also known that all sig value > 0.05. So, it

can be concluded that the data is normally distributed.

Table 10. Normality Test of BBKA

	Interest Rate	Kolmogorov-Smirnov ^b			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Stock Price	400	,276	4	.	,887	4	,369
	425	,401	5	,009	,725	5	,017
	450	,367	3	.	,792	3	,096
	475	,260	2	.			
	525	,313	3	.	,895	3	,369
	550	,323	5	,097	,835	5	,151
	575	,363	3	.	,801	3	,117
	600	,156	8	,200*	,946	8	,672

Source: Processed primary data (2020)

4.3 Hypothesis Test

a. T Test (Partial)

Table 11. T Test (Partial) of BMRI

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	17564,889	2809,037		6,253	,000
	Exchange Rate	-,962	,180	-,593	-5,335	,000
	Interest Rate	5,944	1,538	,430	3,865	,001

Source: Processed primary data (2020)

- 1) The t test of the stock price variable (X1) obtained t count is -5.335 and t table of the probability 5% (0,05) is 6.253. So, t count < t table (-5.335 < 6.253), then Ho is accepted and Ha is rejected. With a significance value of 0.000 < 0.05, then it can be stated that partially the exchange rate variable (X1) has a negative and significant effect on stock prices.
- 2) The t test of the stock price variable (X2) obtained t count is 3.865 and t table of the probability 5% (0,05) is 6.253. So, t count < t table (3.865 < 6.253) then Ho is accepted

and Ha is rejected. With a significance value of 0,001 < 0,05, then it can be stated that partially the interest rate variable (X2) has a negative and significant effect on stock prices.

Table 12. T Test (Partial) of BBKA

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	32492,654	14392,521		2,258	,031
	Exchange Rate	-,456	,924	-,088	-,493	,625
	Interest Rate	3,100	7,881	,070	,393	,697

Source: Processed primary data (2020)

- 1) The t test of the stock price variable (X1) obtained t count is -0,493 and t table of the probability 5% (0,05) is 2,258. So, t count < t table (-0,493 < 2,258) then Ho is accepted and Ha is rejected. With a significance value of 0,625 > 0,05, then it can be stated that partially the exchange rate variable (X1) has a negative and not significant effect on stock prices.
- 2) The t test of the stock price variable (X2) obtained t count is 0,393 and t table of the probability 5% (0,05) is 2,258. So, t count < t table (0,393 < 2,258) then Ho is accepted and Ha is rejected. With a significance

value of 0,697 > 0,05 then it can be stated that partially the interest rate variable (X2) has a negative and not significant effect on stock prices.

Based on the results of the above analysis, it can be concluded that BMRI at exchange rate (X1) and interest rate (X2) partially negative and significant effect on stock prices (Y). Meanwhile, BBKA exchange rate (X1) and interest rate (X2) partially negative and not significant effect on stock prices (Y).

4.4 F Test (Simultaneous)

Table 13. T Test (Partial) of BBKA

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	32492,654	14392,521		2,258	,031
	Exchange Rate	-,456	,924	-,088	-,493	,625
	Interest Rate	3,100	7,881	,070	,393	,697

Source: Processed primary data (2020)

From the results above, it can be seen that the calculated F count is 25.426 > F table 4.10 and the sig value is 0.000 < 0.05, it means that the hypothesis is accepted. This shows

that the variables studied have a very significant effect on stock prices.

Table 14. F Test (Simultaneous) of BBKA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5734954.259	2	2867477.130	.234	.793 ^b
	Residual	392138260.027	32	12254320.626		
	Total	397873214.286	34			

Source: Processed primary data (2020)

From the results above, it can be seen that the calculated F count is 0,234 < F F table 4.10 and the sig value is 0,793 > 0,05, it means that the hypothesis is rejected This shows that the variables studied not significant effect on

stock prices. Based on the results of the above analysis, it can be concluded that at exchange rate (X1) and interest rate (X2) simultaneously affect the stock price (Y). Meanwhile, BBKA exchange rate (X1) and interest rate (X2)

simultaneously it has no effect on share prices (Y).

Table 15. Determination Coefficient Test (R²) of BMRI

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.783 ^a	.614	.590	683.227

Source: Processed primary data (2020)

The table above shows that R is 0.614. The value of determination coefficient (R²) is 0,614. This figure shows that the exchange rate and interest rate have an effect of 0,614 or

61,4% on the variable Y and the remaining 38.6% which is influenced by other variables.

Table 16. Determination Coefficient Test of BBCA

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.120 ^a	.014	-.047	3.500.617

Source: Processed primary data (2020)

5. CONCLUSION

From the data analysis and discussion, the following conclusions can be drawn. The exchange rate partially has a negative and significant effect on the stock price of PT Bank Mandiri (Persero) Tbk. This is evidenced by the t-test in which t count < t table (-5.335 < 6.253) and a significance value of 0.000 < 0.05. And then, the exchange rate partially has a negative and not significant effect on the stock price of PT Bank Central Asia Tbk, where the t-test is obtained t count < t table (-0.493 < 2.258) and a significance value of 0.625 > 0.05.

The interest rate partially has a negative and significant effect on the stock price of PT Bank Mandiri (Persero) Tbk. This is evidenced by the t-test in which t count < t table (3.865 < 6.253) and a significance value of 0,001 < 0,05. And then, the interest rate partially has a negative and not significant effect on the stock price of PT Bank Central Asia Tbk, where the t-test is obtained t count < t table (0,393 < 2,258) and a significance value of 0,697 > 0,05.

The exchange rate and interest rate simultaneously have a significant effect on the stock price of PT Bank Mandiri (Persero) Tbk as evidenced by the F test where the F count > F table (25.426 > 4.10) is obtained and a significance value of 0.000 < 0.05. However, the exchange rate and interest rates simultaneously do not significantly affect stock prices at PT Bank Central Asia Tbk. This is evidenced by the F test where the obtained F count < F table (0.234 < 4.10) and a significance value of 0.793 > 0.05.

From determination coefficient analysis (R²), it is known that exchange rate and interest rate affect the stock price of PT. Bank Mandiri (Persero) Tbk amounted to 61.4%. In comparison, other variables outside of this research influenced the remaining 38.6%. Then, it is also known that exchange rate and interest rate affect the stock price of PT. Bank Central Asia Tbk amounted to 01.4%. In comparison, other variables outside of this research influenced the remaining 98.6%

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