Effect of Exchange Rate, Interest Rate and Return on Asset on Stock Return

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| Article Information:	Abstract
	This research aims to analyze the influence of exchange rate, interest rate, and Return on Asset (ROA) on stock return. Population in this research is Banking companies that listed on Indonesia Stock Exchange. Population in this research is 111 companies. The sample used is 32 companies. The sampling method used Purposive Sampling Method (non-probability). The method of data collection used is archive data collection techniques (documents). The data analysis method used is descriptive statistical analysis techniques, data panel regression & hypothesis test. This study proves that exchange rate has a negative impact on stock return. Interest rate has a negative impact on stock return. Return on Asset (ROA) has no effect on stock return.

INTRODUCTION

The capital market is the place for parties who have excess funds and those who need funds to trade securities which generally have a lifespan of more than a year, such as stock (Tandelin, 2017). Most of banking companies are included in the favorite index of investor, called LQ45 Index at Indonesia Stock Exchange (IDX) since they are considered to have the most liquid performance and dominate the largest market capitalization and considering the important role of the banking sector in the economy, investor are interested to trade on this sector.

Based on Table 1, For five consecutive years the movement of stock returns in the banking sub-sector was influenced by several things, such as the decrease of Indonesian Rupiah against US Dollar. This fluctuating stock return movement indicates that there are several factors that influence stock prices on IDX. These factors are macroeconomic and microeconomic factor which are responded by investor in making investment decision. The highly volatile stock movement causes investor uncertainty in getting expected return on investment, even though investors expect the maximum rate of return.

Table 1. The Movement of Stock Return in Banking Sub Sector Companies Period 2015-2020
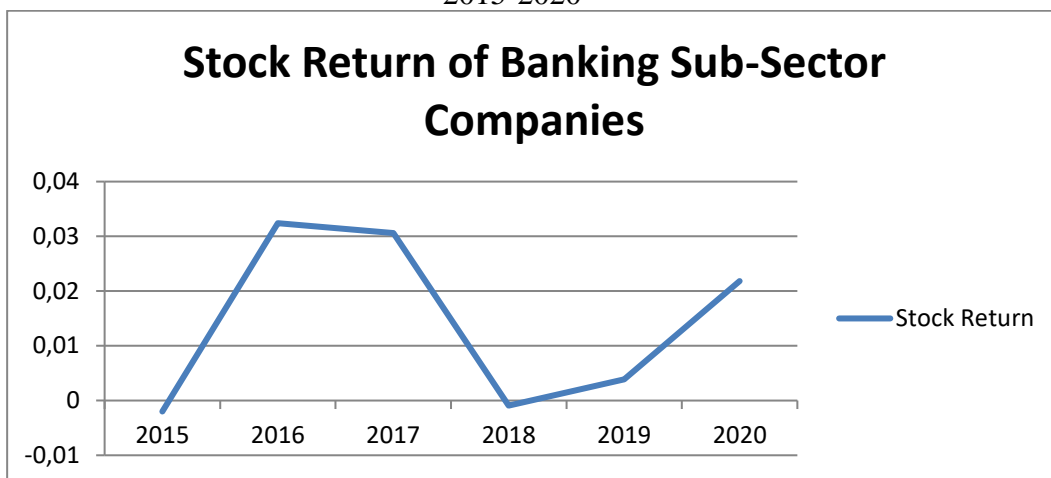
Source : Investing.com (processed data,2021)

According to Ali and Hidayat (2016) in their journal, exchange rate is one of the measuring tools used in assessing the economy stability. The effect of exchange rate on stock price can be partial, it's only effect to certain stocks or sectors. The theory that explains this non-systematic influence is "flow-oriented approach theory", this theory explains that exchange rate has an impact on international economic activities, thus affecting real economic variables and also affecting cost of export/import oriented companies that subsequently impact to their stock price (Do *et al.,* 2015, Dornbusch dan Fischer, 1980).

Interest rate is a measure of the profit from investment that can be owned by investor as owners of capital, also a measure of the cost of capital that must be issued by the company as they use the fund. Changes in interest rate will affect stock price in reverse, means that a decrease in interest rate will result in an increase in stock price. On the other hand, increasing interest rate can lead to reduced investor interest in investing on stock market so that price will decrease. Because the increase in interest rate doesn't only affect stocks but other financial instrument related to interest rate such as deposits and bonds. In this case, investor tend to shift their investment from stocks to deposits & bonds because they assume that those instrument will provide a greater benefits.

Return On Asset (ROA), is a rasio that shows the result (return) on the amount of asset used in the company (Kasmir, 2017). Meanwhile, according to Sutrisno (2013) ROA is a measure of the company's ability to generate profits with all assets companies had. This rasio is used to measure how much net profit will be generated from each rupiah of fund embedded in total assets. The following are some previous studies regarding the affect of ROA on stock return that have been carried out by many researchers, including; ROA with positive result on stock return carried out by Safira (2019), Azhar (2020), and Nurdin (2021). In addition, the result of ROA research have no effect on stock return, among others; Aldiyan Wijaya (2019) and Insani & Radianto (2019).

Several previous studies on the effect of interest rate on stock return which showed a positive effect were conducted by Erina & Aristha (2021) and research by Saputra (2019), then research conducted by Perisun & Maria (2021), Eko, Hamdana & Burhan (2021) shows that interest rate had negative effect on stock return. Several previous studies regarding the effect of exchange rate on stock return included; Puri (2019) and Erina & Aristha (2021) shows

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positive result, meanwhile research conducted by Guler (2020), perisun & Maria (2021) shows that exchange rate had negative effect on stock return. And then the research of Charles & Richard (2018), and Amalia (2019) shows that exchange rate had no effect on stock return. Based on the result of research that has been carried out by several previous researchers, it was found that there were inconsistencies in the result of each study in which a few variables studied showed positive result while others studies showed negative result or even had no effect. Therefore, research on what factor affect stock return need to be reviewed.

Based on identification of the problem above, the problem can be formulated as follows:
1. Does the exchange rate affect stock return in the banking sub-sector companies listed on Indonesia Stock Exchange (IDX) for the 2015-2020 period?
2. Does the interest rate affect stock return in the banking sub-sector companies listed on Indonesia Stock Exchange (IDX) for the 2015-2020 period?
3. Does the Return On Asset (ROA) affect stock return in the banking sub-sector companies listed on Indonesia Stock Exchange (IDX) for the 2015-2020 period?

LITERATURE REVIEW
1. Theoretical Foundation
1.1 Signaling Theory
Signaling Theory is information signals needed by investor to consider and determine whether they want to invest or not in the company (Suwardjono, 2013). According to Jogiyanto (2014), published information as an announcement will provide a signal for investor in making investment decision. When the information is being published, market will interpret and analyze the information as a good or bad signals. If the information is considered as a good signal, then investors will be interested in trading stocks, thus the market will react which is reflected through changes in stock trading volume (Suwardjono, 2010). Ross (In Douglas Akwasi, 2012) stated Arbitrage Pricing Theory is a capital asset valuation technique which assumes that the return on asset is a linier function of each number of macroeconomic factors. The factors in the APT can be interpreted as macroeconomic variables that affect stock price movements.

1.2 Stock Return
According to Tandellin (2017), stock return is one of the factor that encourage investor to invest and a rewards for investor courage to take risk for their investment. Stock return consist of two main components, yield and capital gain. Yield is an income obtained periodically from an investment that reflects the cash flow while capital gain is a return component which is an increase/decrease in the price of gain/loss. Factors that affect stock return consist of two categories, macro and micro factors. Macro factor are that originated from outside the company such as inflation, interest rate, exchange rate, etc. while micro factor come from within the company itself, the company's internal condition in the form of financial information and non-financial information.

Effect of Exchange Rate on Stock Return
According to Risman et al. (2014, 2015, 2017, 2021)), the effect of exchange rate on stock price is divided in two categories generally, that is:
a. Systematic Effect, overall or almost comprehensive on the stock price of all traded stocks. This impact is usually seen as a composite stock price index or non-sectoral stock price index, namely a stock price index whose constituents consist of various business activities.
b. Non-Systematic Effect, the impact of exchange rate can be partial, it's only affect the certain stocks or sectors. The theory that explain this non-systematic effect is the "flow-oriented approach theory"

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Exchange rate is used to bridge currency differences in each country, so that trade between two or more countries that have different currencies can conduct economic transaction. If the rupiah weakens and the dollar strengthens, this makes investor prefer to invest in dollar compare to investing in securities, this will reduce investor's interest in buying shares so that it has an impact on the company's stock returns. Then the hypothesis of this research can be formulated as follows:

H1: Exchange rate has negative effect on stock return

Effect of Interest Rate on Stock Return

Interest rate is money that given to someone because the creditor has refrained from their desire to use their own money solely to fulfill the wishes of the debtor. It's declared in percent with a certain period of time (monthly or annually). Changes in interest rate will affect stock price in reverse, means that the decrease in interest rate will increase in stock price as shareholder will hold their shares until interest rate return to level that are considered normal. On the other hand, increasing interest rate can lead to reduced investor interest in investing in the capital market so that stock price will decrease as shareholder tend to sell their shares because the sell price is high. this is in line with the empirical evidence of Risman et al. (2014, 2015, 2017) Then the hypothesis of this research can be formulated as follows:

**H2: Interest rate has negative effect on stock return**

Effect of Return On Asset (ROA) on Stock Return

ROA is a ratio that shows result (return) on the number of asset used in the company. In addition, ROA provides a better measure of the company's profitability as it shows the effectiveness of management performances in cultivate asset to earn income. The increase of ROA will increase the attractiveness of investor to invest their fund in the company. So that the company's stock price will increase, in other words ROA will have a positive impact n stock return. Then the hypothesis of this research can be formulated as follows:

H3: ROA has positive effect on stock return

Conceptual Framework

Figure 1. Conceptual Framework
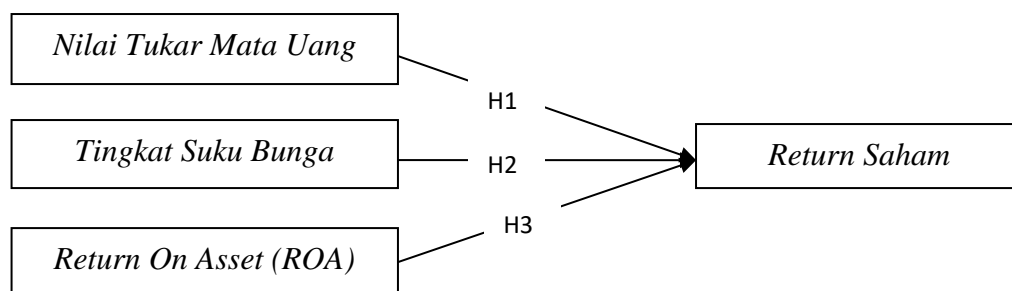
METHOD

1. **Type of Research**

The type of research used in this research is quantitative research with causal research design. Casual research design is used to proved the relationship between cause and effect of several variables. Causal research usually uses experimental methods, by controlling the independent variables that will affect the dependent variable in the planned situation. According to Sugiyono (2018), a causal relationship means consist of cause and effect. So there are independent variables (influencing variables) and dependent variables (influenced variables).

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2.   Population and Sample

The population used in this study is the banking sub-sector that registered in Indonesia for the 2015-2020 period, with a population of 111 companies. By using purposive sampling method (non-probability) the researcher selected 32 banking companies as samples with following criteria:

1. The company listed on Indonesia Stock Exchange (IDX) for the 2015-2020 period
2. The company has comprehensive and published financial data during the research period
3. The company had already IPO before 2015
4. The company did not suspend trading during 2015-2020 period

3.   Operational Definition and Measurement of Variables
3.1   Independent Variables
Exchange Rate

In this study, the exchange rate used is the exchange rate of the Indonesian rupiah against US Dollar. The data taken is data on the median exchange rate issued by Bank Indonesia for the 2015-2020 period. The calculation method of exchange rate is:

$$Q \ (real \ exchange \ rate = \ s \ (nominal \ exchange \ rate) \frac{p \ (domestic \ price \ level)}{p* (foreign \ price \ level)}$$

Interest Rate

Interest rate data used in this study is the BI Rate and BI 7 Days Reverse Repo Rate (BI7DRRR) which are determined by Bank Indonesia

Return On Asset (ROA)

Return On Asset (ROA) is a profitability ratio that measures how well a company is generating profit from its total assets.   ROA can be formulated as follows:

$$ROA \frac{Net \ Income}{Total \ assets}$$

3.2   Dependent Variables
Stock Return

Actual return is the share value obtained by finding the difference between the current price minus the previous day's stock price divided by the previous day's stock price. This historical return is useful as a basis for determining the expected return and risk in the future (Jogiyanto, 2003). Stock return can be formulated as follows :

$$Stock \ return = \frac{(P_t - P_{t-1})}{P_{t-1}}$$

Description:

P_t = Ending Price

P_{t-1} = Starting Price

4.   Data Collection Techniques and Instrument Development

The data collection method used in this research is archival data collection technique (document). Documentation according to Sugiyono (2015), is a method used to obtain data and information in the form of books, documents, written numbers, and picture n the form of reports and information that can support the research. The data is collected from 2015-2020 annual financial statements of banking companies through the IDX's official website, www.idx.co.id. Government official website such as, ojk.go.id, and bi.go.id.

5.   Data Analysis Techniques

Analysis of the data used in this study is multiple linear regression with three independent variables and one dependent variable. Multiplier linear analysis was used because the study was designed to examine the effect of independent variables on dependent variable

(Sugiyono, 2015). The study is conducted to determine the effect of exchange rate, interest rate, and ROA on the company's stock return separately and simultaneously.

RESULTS AND DISCUSSION
1. Descriptive Statistics

Table 2. Descriptive Statistics

	Stock Return (%)	Exchange Rate (Rp)	Interest Rate (%)	ROA (%)
Mean	0.013559	13856.53	5.536667	1.199479
Median	0.004500	13753.21	5.350000	1.370000
Maximum	0.278000	14656.39	7.520000	4.190000
Minimum	-0.10000	13329.63	4.400000	-10.77000
Std. Dev	0.043190	493.4835	1.044544	1.888183
Observations	192	192	192	192

Based on table 2, it can be seen that the description of the dependent variable and the independent variable is as follows:
1. Observations : 192, means the amount of data processed in this study is 192 sample consisting of 32 banking companies 5 consecutive years from 2015 to 2020
2. The highest stock return of banking companies at a value of 0.278 is owned by Bank Ina Perdana, while the lowest value is owned by Bank Negara Indonesia. Then the average stock return of 32 companies is 0.013559, which means that in general the stock return that investor get on average are 0.01% (loss).
3. The highest exchange rate occurred in 2020 with a value of 14.656,39 (Rupiah) while the lowest value is at 13.329,64 (Rupiah) on 2016
4. The interest rate reach its highest value in 2017 with a value of 7.52% while in 2020 it reach its lowest value of 4.4%
5. Overall, the average of ROA in banking companies is 1.199479 or 1.2%, this shows that during the research period the average banking company had a profit of 1.2% of total assets.

2. Selection Test for The Best Panel Model
2.1 Chow Test

Table 3. Chow Test

Effects Test	Statistic	d.f.	Prob.
Cross-section F	0.795448	(31,157)	0.7695
Cross-section Chi-square	28.009893	31	0.6207

Table 3 shows that value of Chi-square Cross Section Probability of 0.607 > 0.05, it conclude that Common Effect Model is more appropriate that Fixed Effect Model. Then proceed with the Lagrange Multiplier Test.

2.2 Lagrange Multiplier Test

Table 4. Lagrange Multiplier Test

| | Test Hypothesis | | |
	Cross-section	Time	Both
Breusch-Pagan	0.779938 (0.3772)	0.350897 (0.5536)	1.130834 (0.2876)
Honda	-0.883141 (0.8114)	0.592365 (0.2768)	-0.205609 (0.5815)
King-Wu	-0.883141 (0.8114)	0.592365 (0.2768)	0.220565 (0.4127)
Standardized Honda	-0.754874 (0.7748)	2.020791 (0.0217)	-4.561025 (1.0000)
Standardized King-Wu	-0.754874 (0.7748)	2.020791 (0.0217)	-2.939081 (0.9984)
Gourieroux, et al.	--	--	0.350897 (0.4866)

Based on table 4, Breusch-Pagan value of $0.2876 > 0.05$, it concluded that Common Effect Model is also more appropriate that the Random Effect Model.

3. Common Effect Model (CEM)

Table 5. Common Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.392603	0.112253	3.497472	0.0006
NILAI_TUKAR	-2.29E-05	7.28E-06	-3.141201	0.0020
SUKU_BUNGA	-0.011057	0.003446	-3.208835	0.0016
ROA	-0.000666	0.001614	-0.412454	0.6805

R-squared	0.066951	Mean dependent var	0.013559
Adjusted R-squared	0.052062	S.D. dependent var	0.043190
S.E. of regression	0.042051	Akaike info criterion	-3.479274
Sum squared resid	0.332431	Schwarz criterion	-3.411409
Log likelihood	338.0103	Hannan-Quinn criter.	-3.451788
F-statistic	4.496669	Durbin-Watson stat	2.235175
Prob(F-statistic)	0.004504		

3.1 Simultaneous Significance Test (f)

Based on table 5, the calculated F value is $4.496669 > 0.05$. then H0 is rejected and Ha is accepted, means that all independent variables namely exchange rate, interest rate, and ROA are simultaneously explanatory variables that are significant to the dependent variable or stock return.

3.2 Partial Statistic Test (t)

Based on table 5, the result of testing the Common Effect Method show that exchange rate variable and interest rate variable affect the stock return variable with a probability value of < 0.05. while the ROA variable doesn't affect stock return with probability value > 0.05.

The Effect of Exchange Rate on Stock Return

Based on the result of the analysis, it can be seen that the exchange rate shows a value significantly smaller than the confidence level, namely $0.002 < 0.05$ with a coefficient of -2.29E-05 and a significant level of 5%, then H0 is rejected and Ha is accepted. So it can be interpreted that the exchange rate does have negative effect on stock return.

Based on Interest Rate Parity (IRP) Theory, future expectation of currency value changes in interest rates both locally and in foreign currencies. This will affect the current value of the company's asset value or the value of company itself (Nieh and Lee, 2001). IRP Theory also explains why foreign investor immediately withdraw their funds, namely selling their stock portfolios when there's a weakening of domestic currency phenomenon marked by an increase in the forward rate of the domestic currency, this is because expected return is increasingly eroded by changes exchange rate. In addition, investor tend to invest in other forms, such as investing in foreign exchange which automatically decreases the price and return of the company's shares.

Therefore, the result of this study indicate that the exchange rate negatively affects stock return. Which when the value of currency increase, the stock return will decrease.

The Effect of Interest Rate on Stock Return

Based on the result, it can be seen that the interest rate shows a significantly smaller value than the confidence level, namely $0.0016 < 0.05$ with a coefficient of -0.011057 anf a significant level of 5%, then H0 is rejected and Ha is accepted. So it can be interpreted that interest rate have negative effect on stock return.

This indicates that when interest rate increase, stock return will decrease and vice versa. In banking companies, an increase in interest rate will increase the company's interest expense or cost of fund that need to be paid, so the company's profit will decrease. The amount of the cost of fund depends on how much interest rate is set to obtain deposit funds. The higher the interest rate changed, the higher the cost of fund. In addition, an increase in interest rate will also trigger banks to increase loan interest rate, which will result in a decrease in public interest in applying for credit. As a result, the company's performance in the annual financial statement will be considered poor by investor.

Therefore, the result of this study indicate that interest rate negatively affect stock return. Which when interest rate increase, stock return will decrease and vice versa.

The Effect of ROA on Stock Return

Based on the result, it can be seen that ROA shows a significantly greater value than the confidence level, namely $0.685 > 0.05$ with a coefficient of -0.000666 and a significant level of 5%, so H0 is accepted and Ha is rejected. It can be interpreted that ROA doesn't have a positive effect on stock return.

This means that the probability information described by the ROA published in the financial statement is less informative and meaningful for making investment decision. Asymmetric information or information inequality is a situation where managers have different (better) information about the condition or prospect of the company than investor (Brigham, 1999). Lack of outside information about the company causes investors to protect themselves by providing low prices for the company. So with the lack of good information delivery related to the company to investor, it can affect investor trust in the company. As a result, potential investor are not interested in trading the company's shares.

CONCLUSION

Based on the results of research and discussion of stock returns as the dependent or dependent variable with exchange rates, interest rates and ROA as independent or independent variables in banking sub-sector companies listed on the Indonesia Stock Exchange (IDX) for the 2015-2020 period and supported by the theory in the previous chapter. . So it can be concluded that the exchange rate, interest rate and ROA simultaneously affect stock returns. Partially, the exchange rate variable has a negative effect on stock returns. Where when the exchange rate of the Rupiah against the US Dollar increases (depreciates), foreign investors tend to sell their stock portfolios to avoid the potential for greater expected return losses. As a result, stock returns will continue to decline as a result of the selling action. The interest rate variable also has a negative effect on stock returns, where when interest rates increase, stock returns will decrease. Which when interest rates increase, the interest expense or the company's cost of funds that need to be paid will also increase, then the company's profit will decrease which will be reflected in the annual financial statements as a decrease which then the company's performance is considered less good by investors. In addition, investors tend to choose other more profitable investment products and sell their company shares.

ROA does not have a positive effect on stock returns and contradicts the third hypothesis. So that the increase or decrease in the ROA value of the banking sub-sector company does not affect the company's stock return. This is because investors tend to pay more attention to and consider external factors that affect stock returns, such as interest rates, political and economic conditions of the country, where these factors are beyond the company's control and can directly affect the company's performance. Another cause is the existence of asymmetric information related to internal companies owned by internal companies and investors. The lack of information obtained by investors causes them to protect themselves by providing low prices for the company.

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