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THE EFFECT OF BANK INDONESIA CERTIFICATE INTEREST RATES AND EXCHANGE RATES ON THE SYSTEMATIC RISK OF STOCKS IN FINANCIAL SECTOR COMPANIES LISTED ON THE LQ45 INDEX OF THE INDONESIA STOCK EXCHANGE DURING THE 2019-2023 PERIOD

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Abstract

The purpose of this paper is to examine and provide empirical evidence on how the interest rate of Bank Indonesia Certificates (SBI) and the exchange rate affect the systematic risk of stocks in financial sector companies listed on the LQ45 Index of the Indonesia Stock Exchange (IDX) from 2019 to 2023. Systematic risk is measured using the beta coefficient. The sample consists of financial sector companies included in the LQ45 Index during the specified period, selected through purposive sampling. EViews 12 for Windows was used to perform panel data regression analysis. The results of the study indicate that, although the exchange rate has no significant effect, the SBI interest rate has a significant influence on systematic risk. Both independent variables have a significant impact on systematic risk when analyzed simultaneously. The adjusted R-squared value of 18.13% indicates that the model is able to explain 18.13% of the variation in systematic risk. The remaining variation is explained by other variables outside the model.

Keywords: SBI Interest Rate, Exchange Rate, Systematic Risk, LQ45

Introduction

Two key macroeconomic indicators, the exchange rate and interest rate, have a significant influence on the Indonesian capital market. The interest rate of Bank Indonesia Certificates (SBI) and the rupiah exchange rate experienced considerable fluctuations from 2019 to 2023, which also affected the performance of stocks in the financial sector. The SBI interest rate dropped from 6% at the beginning of 2019 to 3.75% by the end of 2020, then continued to fluctuate, reaching its lowest point at around 3.5% during 2021–2022, before rising again to 6% by the end of 2023.

Systematic risk and unsystematic risk are two types of stock related risks. Systematic risk refers to the risk that affects the entire market or a broad range of assets, while unsystematic risk is specific to a particular company or industry. It often affects only specific entities and does not impact the market as a whole. Examples of unsystematic risk include changes in a company's management structure, labor strikes, or other unique events directly related to business operations. On the other hand, systematic risk refers to a type of risk that affects the entire market or a large portion of investment assets. This type of risk stems from macroeconomic factors or large scale events that are inherently unavoidable through diversification. Examples of systematic risk include global conflicts (wars), fluctuations in currency exchange rates, movements in SBI interest rates, inflation levels, and economic recession conditions (Afriyeni & Marlius, 2019).

Investment decisions are highly dependent on interest rates and their future projections. Although rising interest rates may hinder investment growth, they are expected to encourage the public to deposit their funds in banks. Therefore, interest rates are utilized by national economic policies as a tool to influence savings and investment. The supply and demand for funds determine the real money market interest rate. Through this policy, it is expected that the resulting real interest rate remains positive and at a competitive level. This will encourage the accumulation of public savings and increase the availability of funds for financing investments in the real sector.

In economics, the exchange rate represents the relative price between two goods being traded. This concept becomes clear when one good is exchanged for another. Economic uncertainty can arise from high and unstable fluctuations in exchange rates. Prices are affected by this uncertainty, making them difficult to predict and potentially leading to lower stock returns.

In addition, previous studies have examined the impact of exchange rates and interest rates on systematic stock risk, however a significant number of these studies have not focused specifically on the financial sector or have used shorter time periods. As a result, this study focuses on the LQ45 Index, which includes leading

companies in the financial sector, and utilizes more recent data to gain a deeper understanding of how these two variables interact particularly considering that the financial industry is a key component in maintaining economic stability.

Overall, this study not only aims to uncover the systematic relationship between interest rates, exchange rates, and stock risk, but also to support the development of policies that are more responsive to economic changes. Therefore, from both theoretical and practical perspectives, this study is expected to make a significant contribution to the development of Indonesia's financial sector.

Capital Market

The capital market is a place where buyers and sellers come together to trade stocks, bonds, and other financial instruments. According to Indrawan & Raymond (2019) the capital market is a venue where various capital instruments are traded. These instruments may be issued by private companies, governments, or public institutions. The capital market is considered one of the most profitable investment options for investors. Investing in the capital market involves allocating funds to one or more assets over a certain period with the aim of generating income or increasing the value of the investment. Like a conventional market, the capital market functions as a place where buyers and sellers meet. However, the goods being traded are different namely long-term financial instruments such as stocks and bonds.

Stocks

According to Indrawan & Raymond (2019), a stock serves as proof that an individual owns or is involved in a company. A stock represents a certificate indicating that the holder is a partial owner of the company that issued the security. The proportion of ownership is determined by the amount of capital invested in the company. A stock is considered worth buying if its market price is lower than its intrinsic value conversely, it is not worth buying if its market price is higher than its intrinsic value.

LQ45 Index

The LQ45 Index consists of 45 highly liquid stocks selected based on various criteria. In contrast, stocks that do not meet these criteria are categorized as non-LQ45 stocks. According to Chania et al., (2021), One of the benchmarks established by the Indonesia Stock Exchange (IDX) is the LQ45 stock index, which consists of forty-five issuers with high liquidity, market capitalization, and trading activity. This index is known as "Liquid 45". The list of issuers included in the LQ45 Index may change over time as the criteria set by the IDX are updated.

Bank Indonesia Certificate Interest Rate

The interest rate of Bank Indonesia Certificates (SBI) refers to the yield obtained from the auction of short-term, rupiah-denominated debt securities issued by Bank Indonesia as a form of short-term debt acknowledgment. SBIs are one of the mechanisms used by Bank Indonesia to maintain the stability of the Rupiah. Bank Indonesia can absorb excess primary money in circulation by selling SBIs. The interest rate applied to each SBI issuance is determined by market mechanisms through an auction system.

However, according to Dewi (2022), the SBI interest rate policy is determined and publicly announced at each monthly Board of Governors meeting. SBI is a debt security issued by Bank Indonesia as a short-term debt acknowledgment, with maturities ranging from one to three months, using either a discount or interest system. In Bank Indonesia's monetary operations, the SBI interest rate is used to manage liquidity in the money market in order to achieve the operational objectives of monetary policy.

Exchange Rate

The exchange rate, which represents the price of one unit of foreign currency in terms of the domestic currency, is a term used to describe a country's currency value relative to foreign currencies. The foreign exchange market, where various currencies are traded, is the place where exchange rates are determined. According to Amin et al., (2019), rate of exchange which reflects the comparative value between two countries' currencies, can be classified as either the nominal or real exchange rate. The nominal exchange rate is used to convert domestic currency into foreign currency, while the real exchange rate is used to exchange goods and services between two countries.

Systematic Stock Risk

One type of risk that cannot be avoided or eliminated is systematic stock risk. Since this risk exists within the market and is influenced by external factors that affect the entire market such as macroeconomic factors it cannot be eliminated through diversification and will persist even when diversification is applied. According to Putri & Syaichu (2023), beta (β) it is a measure of the systematic risk of a security or portfolio in comparison to the risk of the overall market. Systematic risk, also known as market risk, is represented by beta (β), a

coefficient that indicates a positive linear relationship between market returns and stock returns. Because beta reflects the sensitivity of a security's yield to changes in market yield, it is a crucial factor influencing stock returns. The higher the beta value of a security, the more sensitive its yield is to market fluctuations.

According to Nurfadillah (2018) as cited in Putri & Syaichu (2023), a formula can be used to calculate systematic risk :

$$\beta_i = \frac{\text{Cov}\,(r_i\,, r_m)}{\text{Var}\,(r_m)}$$

Theoretical Framework

The conceptual framework developed to explain how the SBI interest rate and the exchange rate, as independent variables, are related to one another is constructed based on economic theory and findings from previous research, and systematic stock risk as the dependent variable. This framework provides a structured overview of the direction of the relationships being investigated.

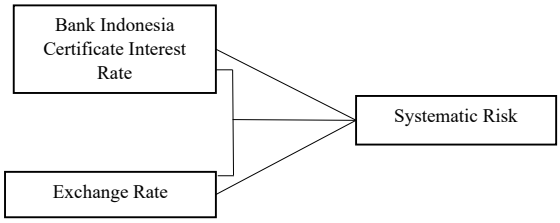

Figure 1
Conceptual Framework

Research Hypothesis

1. Hipotesis 1

   H_{01} = The proposed hypothesis is that during the period from 2019 to 2023, the interest rate of Bank Indonesia Certificates (SBI) does not have a significant effect on the systematic risk of stocks in financial sector companies included in the LQ45 index on the Indonesia Stock Exchange (IDX).

   H_{a1} = The hypothesis states that between 2019 and 2023, the interest rate of Bank Indonesia Certificates (SBI) has a significant impact on the systematic risk of stocks in financial sector companies listed on the LQ45 index of the Indonesia Stock Exchange (IDX).

2. Hipotesis 2

   H_{02} = The proposed hypothesis is that during the period from 2019 to 2023, the exchange rate does not affect the systematic risk of stocks in financial sector companies listed on the LQ45 index of the Indonesia Stock Exchange (IDX).

   H_{a2} = The hypothesis states that the exchange rate has a significant impact on the systematic stock risk of financial sector companies listed in the LQ45 index on the Indonesia Stock Exchange (IDX) during the 2019–2023 period.

3. Hipotesis 3

   H_{03} = The proposed hypothesis is that the systematic risk of stocks in financial sector companies listed on the LQ45 index of the Indonesia Stock Exchange (IDX) during the period 2019–2023 is not significantly affected by the interest rate of Bank Indonesia Certificates (SBI) and the exchange rate.

   H_{a3} = The hypothesis states that during the period from 2019 to 2023, the rupiah exchange rate and the interest rate of Bank Indonesia Certificates (SBI) influence the systematic risk of stocks in financial sector companies listed on the LQ45 index of the Indonesia Stock Exchange (IDX).

Research Methodology

For the purposes of investigation and drawing conclusions, the population is a generalization area consisting of objects or subjects that possess certain qualities and characteristics. During the period from 2019 to 2023, this study selected a sample of five companies in the financial industry that are listed on the LQ45 index of the

Indonesia Stock Exchange (IDX). A purposive sampling technique was employed to determine the sample. Panel data regression analysis was used in this study, as it combines both cross-sectional and time-series data. The research also involved classical assumption tests, including multicollinearity and heteroscedasticity tests, hypothesis testing was also conducted using the t-test, F-test, and the coefficient of determination (R^2). The EViews 12 software was used for data analysis.

Results and Discussion

Chow Test

The purpose of this test is to determine which model Common Effect Model (CEM) or Fixed Effect Model (FEM) is most suitable for panel data estimation. In this study, the following hypotheses are used:

H_0 = represents the Common Effect Model

H_1 = represents the Fixed Effect Model

Tabel 1 Chow Test Output

Effects Test	Statistic	d.f.	Prob.
Cross-section F	1.290902	(4,18)	0.3106
Cross-section Chi-square	6.305266	4	0.1775

Source: Data Processing Result, 2025

The Chow test results table above shows that the probability value of the cross-section F is 0.1775, which is greater than the significance level (α = 5%). Therefore, the null hypothesis (H_0) is accepted, indicating that the Common Effect Model (CEM) is the most appropriate for systematically evaluating the impact of the SBI interest rate and exchange rate on stock risk.

Multicollinearity Test

The multicollinearity test is carried out to determine whether the independent variables in the regression model exhibit high or perfect correlation.

Table 2 Multicollinearity Test Output

	X1	X2
X1	1.000000	-0.011326
X2	-0.011326	1.000000

Source: Data Processing Result, 2025

A correlation value is > 0.80 indicates the presence of multicollinearity, while a correlation value < 0.80 indicates the absence of multicollinearity. Based on the previously mentioned multicollinearity test results, the independent variables are not affected by multicollinearity.

Heteroscedasticity Test

The heteroscedasticity test is used to assess whether there is any variation in the research variables across observations. The following table presents the results of the heteroscedasticity test:

Table 3 Heteroscedasticity Test Output

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.913672	1.260401	2.311703	0.0305
X1	-0.111721	0.060136	-1.857807	0.0766
X2	-0.000138	8.34E-05	-1.654854	0.1122

Source: Data Processing Result, 2025

A significance value above 0.05 (sig. value > 0,05) indicates the absence of heteroscedasticity, while a significance value below 0.05 (sig. value < 0,05) indicates the presence of heteroscedasticity. Based on the previous heteroscedasticity test results, there is no indication of heteroscedasticity in the independent variables.

Regression Analysis Using Panel Data

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Table 4 Panel Data Regression Analysis.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.177946	3.643558	1.421124	0.1693
X1	-0.464894	0.173841	-2.674252	0.0139
X2	-0.000105	0.000241	-0.435044	0.6678

Source: Data Processing Result, 2025

For example, the regression equation can be written as follows:

$$Y = 5.1779 – 0.4649*X1 – 0.0001*X2$$

In the equation, the constant value is positive at 5.17794649398. For the SBI interest rate (X1), the regression coefficient is -0.4649. For the exchange rate (X2), the regression coefficient is -0.0001.

Hypothesis Testing

t-test (Partial). The following table presents the results of the t-test conducted to determine the extent to which each independent variable individually influences the dependent variable:

Table 5 t-test Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.177946	3.643558	1.421124	0.1693
X1	-0.464894	0.173841	-2.674252	0.0139
X2	-0.000105	0.000241	-0.435044	0.6678

Source: Data Processing Result, 2025

The results of the t-test indicate that the Bank Indonesia Certificate (SBI) interest rate has a significant negative effect on the systematic risk of stocks, while the exchange rate variable has no significant effect.

F-test (Simultaneous). The F-test, also known as the simultaneous test, is conducted to determine whether all independent variables in the model have an effect on the dependent variable. The results of the F-test are presented in the following table:

Tabel 6 F-Statistic Test Output

R-squared	0.249543	Mean dependent var	1.469374
Adjusted R-squared	0.181320	S.D. dependent var	0.987931
S.E. of regression	0.893890	Akaike info criterion	2.725698
Sum squared resid	17.57885	Schwarz criterion	2.871963
Log likelihood	-31.07122	Hannan-Quinn criter.	2.766265
F-statistic	3.657737	Durbin-Watson stat	1.547264
Prob(F-statistic)	0.042519		

Source: Data Processing Result, 2025

The calculated F-value in this study is 3.657737, which is greater than the F-table value of 3.443357, and the significance value is 0.042519, which is less than 0.05. Therefore, it can be concluded that the dependent variable systematic stock risk is simultaneously affected by the SBI interest rate and the exchange rate.

Test of the Coefficient of Determination

The coefficient of determination, or R-squared (R^2), is used to analyze research data in order to determine the strength of the relationship between two or more research variables. The following table presents the results of the R-squared test:

Tabel *7* Coefficient of Determination Test Output

R-squared	0.249543	Mean dependent var	1.469374
Adjusted R-squared	0.181320	S.D. dependent var	0.987931
S.E. of regression	0.893890	Akaike info criterion	2.725698
Sum squared resid	17.57885	Schwarz criterion	2.871963
Log likelihood	-31.07122	Hannan-Quinn criter.	2.766265
F-statistic	3.657737	Durbin-Watson stat	1.547264
Prob(F-statistic)	0.042519		

Source: Data Processing Result, 2025

The value of adjusted R-squared is 0.181320 suggests that the independent variables Bank Indonesia Certificate (SBI) interest rate and exchange rate have the ability to influence the dependent variable (systematic

stock risk) by 18.132%. The remaining 81.868% Is affected by additional factors that were not included in this study.

Influence of Bank Indonesia Certificate Interest Rate on Systematic Stock Risk

The regression The remaining 81.868% is affected analysis indicates that the Bank Indonesia Certificate (SBI) systematic stock risk is significantly and negatively influenced by the interest rate of companies operating in the financial sector. This can be explained by the fact that in the financial industry, an increase in interest rates typically boosts a company's interest income, thereby increasing profit margins. As a result, stocks in this sector are perceived by investors as more stable and profitable. These findings are supported by the study performed by Dianita Anas et al., (2019).

Influence of Exchange Rate on Systematic Stock Risk

This study's findings suggest that the level of systematic stock risk (beta) in the financial sector is not significantly affected by fluctuations in the Rupiah to U.S. Dollar-to-rupiah exchange rate during the research period. According to a study by Indrawan & Raymond (2019), this finding suggests that the financial industry has a strong ability to adapt to exchange rate changes. Additionally, investors may not place significant emphasis on exchange rate movements when assessing stock risk within this sector.

Impact of SBI Interest Rate and Exchange Rate on Systematic Risk of Stocks

The SBI interest rate and the rupiah exchange rate both have an impact on the dependent variable of systematic stock risk in financial sector companies listed in the LQ45 Index of the Indonesia Stock Exchange (IDX) from 2019 to 2023. However, their effect on systematic stock risk is not dominant.

Conclusion

Previous studies indicate that, during the 2019–2023 period, the SBI interest rate partially influenced the systematic stock risk of LQ45-listed financial sector companies Indonesia Stock Exchange Index (IDX). In contrast, the exchange rate variable showed that the systematic stock risk of these companies was not significantly affected by exchange rate fluctuations. However, the SBI interest rate and the exchange rate influenced the systematic stock risk of financial sector companies listed in the LQ45 Index from 2019 to 2023.

Suggestions

The output and conclusions outlined above form the basis for the following suggestions. To improve the accuracy of future research findings, subsequent studies are encouraged to include additional macroeconomic variables that are directly related to capital market fluctuations, expand the sample size, and extend the research period.

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