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The Analysis of Inflation, Exchange rate, and Benchmark Interest Rate (BI rate) Influences on the Indonesia Composite Index (ICI)

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ABSTRACT

This study analyzes the correlation and influence rates of inflation, Bank Indonesia, and the Dollar Exchange (USD/IDR) on the Indonesia Composite Index(ICI) in Indonesia from 2001 to 2021. The type of study used explanatory research with quantitative approach. The research data is in the form of secondary data based on the period in the form of ICI, benchmark interest rate, inflation, and rupiah exchange rate on the US dollar (KURS) obtained from Bank Indonesia (BI), the Indonesia Stock Exchange (IDX), and the Central Statistics Agency (*BPS*). This study's data complements the latest month's data from the inflation rate, BI Rate, USD/IDR Exchange rate, and combination of the Stock Price Index(ICI) for 2001 to 2021. The analysis method in this study used multiple linear regression models and Ordinary Least Squares (OLS). The results showed that the Ordinary Least Square (OLS) relies on the overall movement of exchange rates in the interest rate based on the Composite IDX.

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1. Introduction

The development of the capital market has experienced quite good growth in Indonesia(Chasanah & Aji Prasetyo, 2020; Sugianto, 2021; Tanusdjaja, 2018) . The development of investment instruments, continues to show improvement. It is then supported by the Indonesia Stock Exchange (IDX) by issuing the Indonesian Sharia Stock Index (ISSI) which is a benchmark for the performance of sharia shares in Indonesia (Katmas & Indarningsih, 2022). Investing is a form of economic activity that involves placing money into several assets to be owned within a certain period of time (Edfa, R. A and Dwita, 2019; Hartono, 2017). Stock market trends are highly dependent on economic fundamentals and the outlook ahead. The domestic economy may also change in response to policies in other countries or global events (Hanifah, 2017; Puspitasari Gobel, 2020).

The operation of ICI is inseparable from the role of investors and stock prices (Daniswara & Daryanto, 2019; Tambunan, 2020). The investor's goal is to make a profit. However, every investment has risks, and those risks are jointly borne by the investor (Harsono & Wonokinasih, 2018; Purwaningsih, 2019; Sagantha, 2021). When the country benefits and the capital market develops, the country will become strong, because the capital market is the main driving force for development and growth (Senata, 2016; Tampi, 2017).

ICI is stock movement data that illustrates the average balance on the IDX. Through the ICI chart, investors and the public in the stock market are able to see the latest condition of IDX stocks in real time without having to check each stock one by one. Meanwhile, ICI is a performance measurement method for all stocks, both main and developmental on the IDX (Economics & Business, 2016; Khaira *et al.*, 2021; Khoiri & Arghawaty, 2020).

On the ICI chart from 2001 to 2021, it is known that the ICI data from 2001 to 2007 increased started from the level of 392,03 points to 2745,83 VIHS points (BASIT, 2020; Susanti & Adji, 2020). In 2008, it decreased to 1355,41 points. From 2009 to 2021, the ICI movement fluctuated tending to increase, the index results reached 6581,48 points in 2021. The value of a company depends on investor confidence in

the company. Investors who buy the stocks expect the price rises, and sellers of stocks expect the price to fall after selling the stock. This has caused stock price fluctuations that are clearly visible in the ICI. Moreover, ICI is used to assess market conditions or to forecast stock price movements. It also includes the size of all publicly traded stocks on the stock exchange (Tambunan, 2020).

2. Research Method

The type of study used explanatory research with quantitative approach (Sugiyono, 2019). The research data is in the form of secondary data based on the period in the form of ICI, benchmark interest rate, inflation, and rupiah exchange rate on the US dollar (KURS) obtained from Bank Indonesia (BI), the Indonesia Stock Exchange (IDX), and the Central Statistics Agency (*BPS*).The data analysis method used multiple regression analysis with an Ordinary Least Square (OLS) approach.

3. Results and Discussions

Capital market has an essential role for economy sector of a country, the indicator is used to observe the development of capital market in Indonesia is Indonesia Composite Index, (ICI) which is a combination of all types of shares that listed on Indonesia Stock Exchange (IDX). ICI movement is influenced by several macroeconomic factors. The following are the results of the OLS estimation in table 1.

Table 1. OLS Estimation Results

ICI	=	455,0822	- 30.26575 inft	+ 0.513061 kurs	- 313.4587 biratet
			(0,1206)	(0,0000)*	(0,0001)*
R^2 = 0,895; DW-Stat = 1,815092; F-Stat = 48,56085 Sig. F-Stat = 0,0000					
Test Diagnosis					
(1) Multicollinearity (VIF)					
INF = 1,281782; *RATE* = 1,498489; *BIRATE* = 1,356486					
(2) Normality (Jarque-Fallow Test)					
JB = 2,5438; Prob.JB = 0,2802					
(3) Autocorrelation (Breusch-Godfrey Test)					
X (2) = 0,262490; Prob.χ (2) = 0,8770					
(4) Heteroscedasticity (White Test)					
X (9) = 7,527927; Prob. X (9) = 0,5823					

The results of the regression explained the influence of free variables, namely the rates of inflation, BI, and the Dollar Exchange (USD/IDR) on the Indonesia Composite Index(ICI) in Indonesia as follows: (1) inflation has a negative and insignificant influence on the ICI. This is indicated by the inflation regression coefficient of (-30,26575). This means that for every increase in inflation of 1 million US$, the ICI will decrease by -30,26575 million US$. (2) the exchange rate positively and significantly influences the ICI. This is indicated by the rate regression coefficient of (0,513061). This means that every the exchange rate increases by 1 million US$, the ICI will increase by 0,513061 million US$. (3) interest rates have negative and significant influences on the ICI. This is indicated by the interest rate regression coefficient of (-313,4587). This means that every the interest rate increases of 1 million US$, the ICI will decrease by -313,4587 million US$.

The determination coefficient (R^2) has a predictive power of 0,895 which means that 89,5% of ICI volatility can be attributed to inflation, exchange rates, and interest rates. The remaining 10,5% associates with other free variables that are not part of the model.

Table 2. Autocorrelation Detection

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.094933	Prob. F(2,15)	0.9100
Obs*R-squared	0.262490	Prob. Chi-Square(2)	0.8770

Autocorrelation is detected through the Breusch-Godfrey (BG) test. H_0 indicates the absence of an Autocorrelation problem in the model, while Ha indicates the presence of an Autocorrelation problem. H_0 is accepted when the statistical probability value of the BG test is above α, and H_0 is rejected if the statistical probability number of the BG test is $\leq \alpha$. It can be seen from Table 3 that the statistical probability is 0,8770, which is above α 0.05. Then, H_0 is not rejected or accepted, then the model is beyond the Autocorrelation problem.

Table 3. Detection of Heteroscedasticity

Heteroscedasticity Test: White			
F-statistic	0.682954	Prob. F(9,11)	0.7117
Obs*R-squared	7.527927	Prob. Chi-Square(9)	0.5823
Scaled explained SS	5.991304	Prob. Chi-Square(9)	0.7408

Heteroscedasticity is determined through the White test. The probability of the White test is 0,5823, which is greater than the threshold of α0.05, so H_0 is not rejected, so the model does not have a Heteroscedasticity problem.

Table 4. Multicollinearity Detection

Variance Inflation Factors			
Date: 01/04/23 Time: 21:16			
Sample: 2001 2021			
Included observations: 21			
	Coefficient	Uncentered	Centered
Variables	Variance	VIFs	VIFs
C	1866997.	66.86359	Na
INF	343.0433	2.133776	1.281782
Exchange rate	0.009020	42.15867	1.498489
Birate	3427.808	8.553328	1.356486

Multicollinearity is detected by examining the variance inflation factor (VIF) numbers. A free variable is called multicollinearity because its VIF value exceeds 10. Tables 4-2 show the VIF values for each variable.

Table 5. Independent Variable of VIFs

Variable	VIFs	Criteria	Conclusion
INF	1,281782	< 10	Does not cause multicollinearity
Exchange rate	1,498489	< 10	Does not cause multicollinearity
Birate	1,356486	< 10	Does not cause multicollinearity

Multicollinearity obtains VIFs below 10 across all independent variables, which indicate that the model has a low level of multicollinearity. The validity test knows each variable freely affects the dependent variable. The H_0 test assumes an initial condition i=0. It means the bound variable is not affected by the *i* free variable, Hi > 0. Then, the i free variable has a positive effect on the dependent variable. The relationship between two variables is interdependent. If the statistical probability $t > \alpha$ then H_0 is not deleted, and if the statistical probability value $t \leq \alpha$, then H_0 is rejected.

Table 6. The Validity Test Results of Independent Variables Influences

Variable	Coefficient	Prob	Conclusion
INF	Δβ1 (-30,26575)	0,1206	Δβ1 Unproven
Exchange rate	Δβ2 (0,513061)	0,0000	Δβ2 Proven in α 0.01
Birate	Δβ3 (-313,4587)	0,0001	Δβ3 Proved in 0.01

The exchange rate has a positive influence on the Indonesia Composite Index(ICI), Birate has a negative influence, and inflation has no influence. The coefficients of exchange rate and Birate can be explained through such methods. In contrast, the INF coefficient (δβ1) does not need to be ignored and can be ignored. The exchange rate coefficient is 0,513061, and there is a direct correlation between the exchange rate and the Indonesia Composite Index(ICI). The increase in the exchange rate of 1 Rupiah strengthened the ICI by 0,513061 points. The Birate coefficient is -313,4587 and linearly correlates with the Composite Stock Price Index(ICI). So, when the Birate increases by 1%, the Composite Stock Price Index(ICI) will decrease by 313,4587 points.

The hypothesis above states that inflation has a negative and insignificant influence on the ICI. This is indicated by the inflation regression coefficient of (-30,26575). This means that for every increase in inflation of 1 million US$, the ICI will decrease by -30,26575 million US$. The absence of an influence between inflation on the Composite Stock Price Index indicates that the increase and decrease of inflation do not impact the movement of the Composite Stock Price Index on the Indonesia Stock Exchange.

The results of this study are inconsistent with the results of research by Anton *et al.* (2011) and Lena Shiblee (2009), which state that the higher the inflation, the more people will tend to hold their money instead of investing it in the stock market. The higher inflation will have an impact on decreasing the ICI. The results obtained are similar to the research conducted by Sangkyun (1997) and Mok (2004), which found that inflation did not significantly affect stock returns. However, the results obtained are different from the results of a study conducted by Hooker (2004), which found that the inflation rate positively and significantly affects stock prices. Serkan Yilmaz Kandir (2008) also found that the inflation rate had a significant influence on three of the twelve portfolios studied and had a positive influence.

This hypothesis states that the exchange rate has a positive and significant influence on the ICI. This is indicated by the rate regression coefficient of (0,513061). This means that every the exchange rate increases by 1 million US$, the ICI will increase by 0,513061 million US$. This study's results follow research conducted by Krisna and Wirawati (2013), which found that the rupiah exchange rate has a positive and significant influence on the ICI. The increasing dollar exchange rate has an impact on investors preferring to invest their stocks in the form of dollars rather than making long-term investments in the form of securities, with the expectation that if the Dollar Exchange rate weakens in the future, investors have more rupiah to invest in securities in the Indonesian capital market.

This hypothesis states that interest rates negatively and significantly influence the ICI. This is indicated by the interest rate regression coefficient of (-313,4587). This means that every the interest rate increases of 1 million US$, the ICI will decrease by -313,4587 million US$. The results are similar to Hooker (2004) and Chiarella and Gao (2004), who found that interest rates negatively affect market returns. Then, Gjerde and Sættem (1999) who obtained the results of changes in real interest rates negatively affected stock prices; Kandir (2008) found that interest rates negatively affect the returns of all portfolios studied; Wongbangpo and Sharma (2002) also found that there is a negative correlation between stock prices and interest rates in the Philippines, Singapore, and Thailand. Meanwhile, a positive correlation occurred in Indonesia and Malaysia. Research by Gupta *et al.* (1997) obtained interest rate results having a causal relationship with stock prices.

4. Conclusion

Based on the discussion above, it can be concluded that ICI has a positive influence and a coefficient of 455,0822. Inflation aspects show negative and insignificant influences on the ICI. This is indicated by the inflation regression coefficient of (-30,26575). Then, the exchange rate positively and significantly influences the ICI. This is indicated by the rate regression coefficient of (0,513061). Besides, the Interest rates have a negative and significant influence on ICI. This is indicated by the interest rate regression coefficient of (-313,4587). Future research should conduct research conducted to analyze and test the influence of inflation and the Indonesian Composite Index (ICI)

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