The Influence of Inflation, Exchange Rate, Interest Rate, and Composite Stock Price Index (CSPI) on Foreign Portfolio Investment in Indonesia

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Abstract. This study aims to examine the impact of Inflation, Exchange Rate, Interest Rate, and the Composite Stock Price Index (CSPI) on Foreign Portfolio Investment (FPI) in Indonesia from 2014 to 2023. Given Indonesia's growing integration into global financial markets, understanding the drivers of FPI is critical for policymakers seeking to attract stable and long-term foreign investment. Using a quantitative approach and secondary data, the analysis is conducted through multiple linear regression to assess the relationship between these key macroeconomic variables and FPI. The results indicate that Inflation has a negative but statistically insignificant effect on FPI, suggesting limited influence on investor decisions. The Exchange Rate, however, exerts a significant negative impact, highlighting its role in foreign investors sensitivity to currency fluctuations. The Interest Rate shows a significant positive effect, underscoring its importance in attracting foreign capital. Meanwhile, the CSPI has a negative yet statistically insignificant influence on FPI. Importantly, when analyzed together, Inflation, Exchange Rate, Interest Rate, and CSPI collectively have a positive and significant impact on Foreign Portfolio Investment in Indonesia. These findings offer valuable insights for policymakers aiming to manage macroeconomic stability and foster a conducive environment for Foreign Portfolio Investments.

Keywords: Inflation, Exchange Rate, Interest Rate, Composite Stock Price Index, and Foreign Portfolio Investment.

1 Introduction

Economic development refers to the long-term growth of per capita income and is measured not only by the annual increase in goods and services production but also by broader transformations in economic activities. It involves raising both total and per capita income by channeling the economy's potential into the real sector through capital investments [1]. Economic development, especially in developing countries, often faces funding limitations. Investment, particularly foreign capital, is essential to overcoming these barriers, as domestic capital alone is insufficient to meet the large-scale financing required [2].

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Indonesia requires substantial financial resources to support its development and improve various sectors, aiming to enhance the quality of life for its citizens. Due to insufficient domestic savings, foreign financing becomes essential to sustain progress, which can be obtained through foreign investments or international loans [3]. Foreign investment is categorized into direct and indirect or portfolio investments, with portfolio investments involving ownership of transferable shares or bonds by individuals from different countries [1]. These investments benefit domestic companies by fostering capital growth, while a healthy stock and bond market allows investors to diversify and boosts financial sector efficiency.

Countries that depend on portfolio investments to cover structural deficits often face long-term consequences due to the volatile nature of capital flows. This was evident during the 1997 Asian financial crisis when massive foreign fund withdrawals severely impacted Indonesia's capital markets [4]. Mankiw's Open Macroeconomics Theory highlights two key markets in understanding an open economy: the loanable funds market, which deals with savings, investment, and international capital flows, and the foreign exchange market, which handles currency exchange. Together, these markets explain the economic balance in an open economy [5].

2 Research Method

This study utilizes a quantitative methodology rooted in positivist philosophy. The study is conducted in Indonesia, with the research period taking place in January 2024. The observation period spans the last ten years, from 2014 to 2023.

2.1 Types and Sources of Data

This research uses quantitative data, specifically secondary data sourced from the Central Statistics Agency, Bank Indonesia, and Investing.com. It includes information on Foreign Portfolio Investment, inflation, exchange rates, interest rates, and the Composite Stock Price Index (CSPI) in Indonesia.

2.2 Data Analysis Techniques

The research uses a quantitative descriptive analysis method, which examines and describes the collected data without aiming for generalized conclusions [6]. For data processing, multiple linear regression modeling is applied, following a specific set of steps:

Multiple Linear Regression Model

The research employs hypothesis testing through multiple regression analysis to assess how two or more independent variables (explanatory) influence a single dependent variable [7]. The multiple linear regression model utilized in this study is outlined as follows:

$$FPI_t = \alpha + \beta_1 INF_t + \beta_2 NTR_t + \beta_3 TSB_t + \beta_4 IHSG_t + e_t \quad (1)$$

Classical Assumption Testing

Classical assumption testing is a necessary requirement for statistical tests conducted in multiple regression analysis.

Hypothesis Testing

Hypothesis testing is a statistical method used to evaluate the validity of a statement and decide whether to accept or reject it. It involves making a preliminary assumption to verify its accuracy and aims to provide a basis for data collection to determine the validity of that assumption [6].

3 Results and Discussion

3.1 Classical Assumption Test

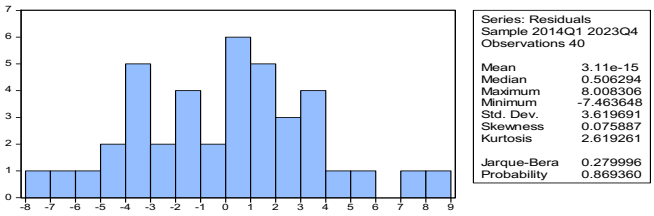

Fig. 1. Normality Test of Residuals

According to Figure 1, the probability value for the normality test is 0.869360, indicating it exceeds 0.05. Hence, we can conclude that the data in this research is normally distributed.

Table 1. The Result of Multicollinearity Test

Variable	*Centered VIF*
C	NA
INF	2.475528
LOG(NTR)	2.012384
TSB	2.777923
LOG(CSPI)	1.952093

Table 1 shows that the Centered VIF values for Inflation, Exchange Rate, Interest Rate, and CSPI are 2.475528, 2.012384, 2.777923, and 1.952093, respectively, all below 10, indicating no evidence of multicollinearity in the study.

Table 2. The Result of Autocorrelation Test

Keterangan	Nilai
Prob. Chi-Square	0.4267

Table 2 indicates that the Chi-Square probability value is 0.4267, exceeding 0.05. This signifies that the conditions for the autocorrelation test are satisfied, meaning the data has successfully passed this test.

Table 3. The Result of Heteroscedasticity Test

Keterangan	Nilai
Prob. F (4,34)	0.2869
Prob. Chi-Square (4)	0.2680
Prob. Chu-Square (4)	0.5218

Table 3 shows that the Chi-Square probability values for all variables exceed 0.05, which suggests that this study does not demonstrate heteroskedasticity.

3.2 Multiple Linear Regression Analysis

Table 4. The Result of Multiple Linear Regression Analysis

Variable	*Coefficient*	*Std. Error*	*t-Statistic*	*Prob.*
C	271.0076	100.4502	2.697929	0.0107
INF	-1.067220	0.560758	-1.903173	0.0653
LOG(NTR)	-28.05975	12.13020	-2.313214	0.0267
TSB	1.577697	0.725528	2.174550	0.0365
LOG(CSPI)	-0.573118	6.167369	-0.092927	0.9265

The analysis results from the multiple linear regression calculations are presented in Table 4. Based on the formula for the multiple linear regression equation, we derive the following equation: $Y = \alpha + \beta 1$ INF + $\beta 2$ LOGNTR + $\beta 3$ TSB + $\beta 4$ LOGCSPI + e = 271.0076 – 1.067220 INF – 28.05975 LOGNTR + 1.577697 TSB –0.573118 LOGCSPI + e.

Table 5. Results of the t-Test (Partial Test)

Variable	*Coefficient*	*Std. Error*	*t-Statistic*	*Prob.*
C	271.0076	100.4502	2.697929	0.0107
INF	-1.067220	0.560758	-1.903173	0.0653
LOG(NTR)	-28.05975	12.13020	-2.313214	0.0267
TSB	1.577697	0.725528	2.174550	0.0365
LOG(CSPI)	-0.573118	6.167369	-0.092927	0.9265

Based on Table 5 The outcomes of the t-test or individual tests for each variable can be examined as follows:

1. The calculated t_{stat} = -1.903173 It suggests that rising inflation will lead to a decline in the value of Foreign Portfolio Investment in Indonesia. The critical t_{table} at a 0.05 significance level and with degrees of freedom (df) = (n-k) or (40-5) is 2.03011. Since $t_{stat} < t_{table}$ (1.903173 < 2.03011), The null hypothesis (H_0) is upheld, while the alternative hypothesis (H_1) is dismissed. The probability value for inflation is 0.0653 > 0.05, meaning H_0 is accepted and H_1 is rejected. Inflation does not significantly or positively influence Foreign Portfolio Investment in Indonesia.
2. The calculated t_{stat} = -2.313214 indicates that an increase in the exchange rate will decrease the value of Foreign Portfolio Investment in Indonesia. b. The critical t_{table} at a 0.05 significance level and with degrees of freedom (df) = (n-k) or (40-5) is 2.03011. Since $t_{stat} > t_{table}$ (2.313214 > 2.03011), The null hypothesis (H_0) is dismissed, while the alternative hypothesis (H_2) is accepted. The exchange rate's probability value is 0.0267, which is less than 0.05. This means that H_0 is rejected while H_2 is accepted. The exchange rate negatively and significantly impacts Foreign Portfolio Investment in Indonesia.
3. The calculated t_{stat} = 2.174550 suggests that rising interest rates will enhance the value of Foreign Portfolio Investment in Indonesia. The critical t_{table} at a 0.05 significance level and with degrees of freedom (df) = (n-k) or (40-5) is 2.03011. Since $t_{stat} > t_{table}$ (2.174550 > 2.03011), we reject the null hypothesis (H_0) and accept the alternative hypothesis (H_3). The probability value for interest rates stands at 0.0365, which is less than 0.05, leading to the rejection of H_0 and acceptance of H_3. Therefore, interest rates exert a positive and significant influence on Foreign Portfolio Investment in Indonesia.
4. The calculated t_{stat} = -0.092927 indicates that an increase in the Composite Stock Price Index will elevate the value of Foreign Portfolio Investment in Indonesia. The critical t_{table} at a 0.05 significance level and with degrees of freedom (df) = (n-k) or (40-5) is 2.03011. Since $t_{stat} < t_{table}$ (0.092927 < 2.03011), we accept the null hypothesis (H_0) and reject the alternative hypothesis (H_4). The probability value for the Composite Stock Price Index is 0.9265, which is greater than 0.05, confirming the acceptance of H_0 and the rejection of H_4. The Composite Stock Price Index has a negative and insignificant effect on Foreign Portfolio Investment in Indonesia.

Table 6. Results of the f-Test (Simultaneous Test)

Keterangan	Nilai
F-Statistic	4.964963
Prob (F-Statistic)	0.002816

According to Table 6, the F-test indicates an F-statistic of 4.967894, which will be evaluated against the critical value from the F-table.

1. The calculated F_{stat} = 4.964963 suggests that rising levels of Inflation, Exchange Rate, Interest Rate, and Composite Stock Price Index will increase Foreign Portfolio Investment in Indonesia.

2. The critical F_{table} is set at a significance level of 0.05, with 4 degrees of freedom in the numerator (k-1) and 35 degrees in the denominator (n-k), yielding a critical F-value of 2.6415.
3. Since the calculated $F_{stat} > F_{table}$ (4.964963 > 2.6415), the null hypothesis (H_0) is dismissed, and the alternative hypothesis (H_5) is accepted.
4. The probability for Inflation, Exchange Rate, Interest Rate, and Composite Stock Price Index is 0.002816, which is less than 0.05, resulting in the rejection of H_0 and acceptance of H_5.
5. In summary, Inflation, Exchange Rate, Interest Rate, and Composite Stock Price Index significantly and positively impact Foreign Portfolio Investment in Indonesia.

Table 7. Results of the Coefficient of Determination Test (Simultaneous Test)

R-squared	0.362011	Mean dependent var	2.816375
Adjusted R-squared	0.289098	S.D. dependent var	4.531738

According to Table 7, the Adjusted R^2 value is 0.289098, which translates to 28.9098 percent. This means that 28.9098 percent of the variation in Foreign Portfolio Investment (FPI) can be attributed to inflation, exchange rates, interest rates, and the Composite Stock Price Index, while the remaining 71.0902 percent is affected by other factors not examined in this study.

The Influence of Inflation on Foreign Portfolio Investment in Indonesia

The study's findings support Mankiw's macroeconomic theory, which states that nominal interest rates consist of real interest rates plus expected inflation, indicating that high inflation reduces real investment returns. However, the analysis reveals that inflation insignificantly affects Foreign Portfolio Investment (FPI) in Indonesia, likely due to effective monetary policies by Bank Indonesia that mitigate inflation risks. Research by Sari and Zatira [8] confirms that inflation does not impact FPI in the short or long term, aligning with Siregar [9] findings of an insignificant effect on short-term capital flows, although Suhendra and Istikomah [10] reported a significant positive effect of inflation on portfolio investment.

The Influence of Exchange Rates on Foreign Portfolio Investment in Indonesia

This study's results support Mankiw's theory that exchanges rate fluctuations affect international capital flows, with a stronger currency attracting foreign investment. However, exchange rate instability creates uncertainty, deterring investors due to risks related to asset value fluctuations, which can lead to capital withdrawals, reduced market liquidity, and increased volatility, hindering financing and infrastructure development. This aligns with Dharmawan [11], who found a negative impact of exchange rates on foreign portfolio investment in Indonesia, while Siregar et al. [12] observed a positive effect on short-term capital flows from 2000 to 2015.

The Influence of Interest Rates on Foreign Portfolio Investment in Indonesia

This study's findings support Mankiw's macroeconomic theory that the financial system functions as a single loanable funds market, where savers and borrowers interact under one interest rate. Higher interest rates enhance borrowing capacity and attract foreign investment in Indonesia, as domestic financial instruments like government bonds and stocks offer superior yields compared to countries with lower rates, promoting foreign capital inflows that boost market liquidity and economic growth. This is corroborated by Prastiwi and Idris [13]; Yudhoyono and Yudha [14], who all found positive effects of interest rates on foreign portfolio investment in Indonesia, although Suhendra and Istikomah [10] found a significant negative impact.

The Influence of the Composite Stock Price Index (CSPI) on Foreign Portfolio Investment in Indonesia

The findings of this study support portfolio investment theory, which emphasizes diversification and optimal asset allocation for desired risk and return. Strong CSPI performance alone does not attract foreign investors if the Indonesian stock market is perceived as high risk due to political instability, policy changes, or currency fluctuations. David [15] found a positive impact of CSPI on Foreign Portfolio Investment, while Muntasir [16] reported no effect. However, Wardani et al. [17] suggest that foreign investors significantly influence the CSPI, presenting a contradiction.

4 Conclusions and Recommendations

4.1 Conclusions

1. Inflation negatively and insignificantly affects Foreign Portfolio Investment (FPI) in Indonesia, suggesting that it does not directly impact investors' decisions, especially with effective monetary policies by Bank Indonesia managing inflation risks.
2. Exchange rates significantly and negatively impact FPI in Indonesia, indicating that rising exchange rates lead to decreased foreign investment, consistent with Mankiw's macroeconomic theory on capital movement.
3. Interest rates significantly influence FPI in Indonesia, with rising rates correlating to increased foreign investment, aligning with Mankiw's theory of the loanable funds market.
4. The Composite Stock Price Index (CSPI) does not significantly affect FPI in Indonesia, as its performance is not a reliable indicator for foreign investors, who may be deterred by perceived risks despite a rising CSPI due to factors like political instability and economic policy changes.

4.2 Recommendations

1. For the Government: The study suggests that although inflation doesn't directly impact foreign portfolio investment (FPI), the government should improve macroeconomic policies to maintain economic stability, continuously monitor inflation within

a stable range, and adjust monetary policies to manage inflation and foster growth without creating investor uncertainty.

2. For Future Researchers: Future researchers should consider adding new variables that could influence FPI, particularly external factors like global or regional economic conditions not covered in this study.

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