

## The Influence of Foreign Investment Funds on Stock Volatility and Returns on the Indonesia Stock Exchange: The Moderating Role of Bullish and Bearish Market Conditions

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### Abstract

This study examines the influence of foreign investment flow and stock volatility on stock returns of companies included in the LQ45 Index listed on the Indonesia Stock Exchange (IDX) during 2024, with market conditions (bullish–bearish) as a moderating variable. Using a quantitative approach, this research applies Partial Least Squares–Structural Equation Modeling (PLS-SEM). The results indicate that foreign investment flow has a positive and significant effect on stock return ( $\beta = 0.468$ ;  $p < 0.05$ ), while stock volatility also shows a positive and significant effect on stock return ( $\beta = 0.479$ ;  $p < 0.05$ ). The structural model demonstrates strong explanatory power, with an  $R^2$  value of 0.895, indicating that 89.5% of stock return variation can be explained by the model. The predictive relevance test further confirms the robustness of the model, with a  $Q^2$  value of 0.921. Furthermore, market condition significantly moderates the relationship between foreign investment flow and stock return, with a negative interaction coefficient ( $\beta = -0.228$ ;  $p < 0.05$ ), suggesting that the positive impact of foreign capital weakens during bearish market conditions. Market condition also significantly moderates the effect of stock volatility on stock return ( $\beta = 0.139$ ;  $p < 0.05$ ). These findings highlight the importance of considering market regimes when analyzing foreign investor behavior and stock performance in emerging markets. The study provides empirical evidence that foreign capital flows and volatility play a crucial role in shaping stock returns, particularly under different market conditions, offering valuable insights for investors, portfolio managers, and policymakers.

**Keywords:** foreign investment flow, stock return, stock volatility, bullish market, bearish market, LQ45 index, Indonesia Stock Exchange

### 1. Introduction

The Indonesia Stock Exchange (IDX) serves as a vital component of the national financial system, facilitating capital formation and reflecting the overall condition of the Indonesian economy. One of the defining features of the IDX is the significant participation of foreign investors, whose investment decisions are often influenced by global economic conditions, monetary policy changes, and international risk sentiment. In 2024, the Indonesian stock market experienced notable fluctuations amid global interest rate uncertainty, geopolitical tensions, and

shifts in international capital flows, making the role of foreign investment funds increasingly relevant. Foreign investment funds are widely recognized for their contribution to market liquidity and price efficiency. However, their presence also introduces vulnerability, as sudden capital inflows or outflows may amplify stock price volatility. This dual effect raises an important research problem: whether foreign investment funds consistently enhance stock returns or instead increase market risk, particularly during unstable market conditions. Based on the above background, the research questions are as follows:

- 1) How does foreign investment affect stock volatility on the Indonesia Stock Exchange?
- 2) How does foreign investment affect stock returns on the Indonesia Stock Exchange?
- 3) Do bullish and bearish market conditions moderate the effect of foreign investment on stock volatility?
- 4) Do bullish and bearish market conditions moderate the effect of foreign investment on stock returns?

The importance of examining foreign investment funds lies in both theoretical and practical considerations (Karolyi, 2016). From a theoretical standpoint, empirical findings regarding the impact of foreign capital on stock returns and volatility remain inconclusive, especially in emerging markets. Some studies document a positive relationship between foreign inflows and stock returns, while others find that foreign trading activity increases volatility through herding behavior and rapid capital reversals. From a practical perspective, understanding this relationship is critical for policymakers and investors. During 2024, foreign capital movements in Indonesia were highly responsive to global financial developments, potentially affecting market stability. Insight into how these capital flows interact with different market conditions can support regulatory efforts to mitigate excessive volatility and assist investors in managing risk more effectively.

Foreign investment flow has long been recognized as an important determinant of stock market performance, particularly in emerging markets. According to international capital flow theory, foreign portfolio inflows increase demand for domestic equities, enhance market liquidity, and contribute to higher stock prices and returns (Henry, 2000). Empirical evidence from emerging markets shows that foreign investors often possess superior information and analytical capabilities, allowing them to allocate capital more efficiently and drive positive return dynamics (Bekaert et al., 2007). In the context of Indonesia, several studies document a significant positive relationship between foreign net buying and stock returns, especially for liquid stocks included in major indices such as LQ45. Vo (2017) finds that foreign investor trading activity positively influences stock returns in emerging markets, including Southeast Asia. Similarly, Kim and Wei (2002) argue that foreign investors play a stabilizing role under normal market conditions by improving price discovery. These findings suggest that foreign investment flow is a key driver of return formation in the Indonesian stock market.

From a market microstructure perspective, volatility reflects the intensity of trading activity, information arrival, and investor heterogeneity (Hasbrouck, 2007). In emerging markets, volatility may be amplified by foreign investor behavior, given their sensitivity to global news

and macroeconomic shocks. Studies focusing on Indonesia show that stock volatility significantly affects returns, particularly for actively traded stocks, indicating that volatility is not merely a source of risk but also a channel through which return opportunities emerge. During bullish periods, foreign investors are more willing to increase exposure to risky assets, reinforcing positive price momentum. In contrast, bearish markets often trigger risk-off behavior, capital outflows, and flight-to-quality strategies (Forbes & Warnock, 2012). Empirical evidence indicates that foreign capital flows are more volatile and less effective in generating returns during market downturns, particularly in emerging markets with higher vulnerability to external shocks (Raddatz & Schmukler, 2012). Recent literature emphasizes that market regimes may moderate the relationship between foreign investment flow, volatility, and stock returns. The impact of foreign capital inflows on returns may weaken during bearish conditions due to heightened uncertainty and increased risk aversion. Conversely, volatility may play a stronger role in return formation during certain regimes, reflecting changes in investor expectations and trading strategies. hypothesis in this study :

H1: Foreign Investment Flow has a significant effect on Stock Return

H2: Stock Volatility has a significant effect on Stock Return

H3: Market Condition (Bullish–Bearish) moderates the effect of Foreign Investment Flow on Stock Return

H4: Market Condition (Bullish–Bearish) moderates the effect of Stock Volatility on Stock Return

## **2. Method**

This study adopts a quantitative approach with an explanatory research design, aimed at examining the causal relationships among the research variables. The primary objective is to analyze the effect of Foreign Investment Flow and Stock Volatility on Stock Return, as well as to investigate the moderating role of Market Condition (Bullish–Bearish) in strengthening or weakening these relationships. The analytical technique employed in this study is Partial Least Squares–Structural Equation Modeling (PLS-SEM). The scope of the study is limited to LQ45 constituent stocks during the year 2024. The research focuses on stocks that are actively traded throughout 2024, with particular attention to the availability of data related to foreign investment flows, stock price volatility, and stock returns. The data used include stock closing prices, trading volume, net foreign buy/sell values, and indicators of bullish–bearish market conditions for LQ45 stocks in 2024. This study involves four main variables: two independent variables, one dependent variable, and one moderating variable.

### **Foreign Investment Flow (X1)**

Foreign Investment Flow refers to the net capital inflow of foreign investors in stock market trading. It is measured using the net value of foreign transactions per observation period for LQ45 stocks in 2024, calculated as:

$$\text{Foreign Investment Flow} = \text{Net Foreign Buy} - \text{Net Foreign Sell}$$

**Stock Volatility (X2)**

Stock Volatility represents the degree of fluctuation in stock prices and reflects the level of risk associated with a stock.

It is measured using the standard deviation of stock returns (historical volatility) of LQ45 stocks during 2024:

$$\sigma = \sqrt{\frac{1}{n-1} \sum_{t=1}^n (R_t - \bar{R})^2}$$

**Market Condition (Bullish–Bearish) (Z)**

Market Condition refers to the state of the stock market, classified into bullish and bearish regimes. It is measured using a dummy variable:

- 1 = bullish market condition
- 0 = bearish market condition

**Stock Return (Y)**

Stock Return represents the rate of return earned by investors from holding a stock.

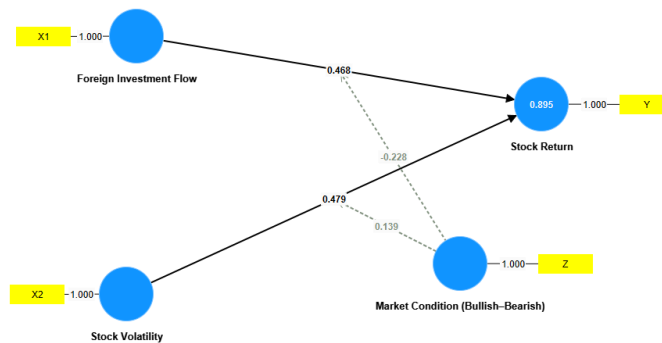
It is measured using the stock return formula for LQ45 stocks in 2024:

$$R_t = \frac{P_t - P_{t-1}}{P_{t-1}}$$

**3. Results**

*3.1. Inner Model*

Testing of the inner model or structural model is carried out to see the relationship between constructs, significance values and R-square of the research model.



Structural Model  
Source: SmartPLS Output

Evaluation of the PLS structural model begins by looking at the R-square of each dependent latent variable.

Based on the PLS-SEM structural model estimation results shown in the figure, it can be seen that Foreign Investment Flow (X1) and Stock Volatility (X2) have a direct effect on Stock Return (Y), and that this relationship is moderated by Market Condition (Bullish–Bearish) (Z). The path coefficient from Foreign Investment Flow to Stock Return is 0.468, with a positive sign, indicating that increased foreign capital inflows into the stock market tend to be followed by increased stock returns. This finding indicates that the influx of foreign funds increases demand for stocks, improves market liquidity, and drives up stock prices, thus directly impacting returns. This also reflects that the Indonesian stock market remains highly sensitive to foreign capital movements and that foreign investors act as informed investors, signaling confidence in market conditions and economic prospects. Furthermore, the estimation results also show that Stock Volatility (X2) has a positive effect on Stock Return (Y) with a coefficient of 0.479. This finding suggests that the higher the stock volatility, the higher the expected return by investors. This positive relationship is consistent with the risk-return trade-off principle, which states that investors demand greater returns for higher risks. In the context of emerging markets like Indonesia, high volatility often reflects price uncertainty and greater profit opportunities, so stocks with greater price fluctuations tend to offer higher returns to attract investors. Furthermore, the results of the moderation effect test indicate that Market Condition (Bullish–Bearish) (Z) significantly moderates the relationship between Foreign Investment Flow and Stock Returns, with a moderation coefficient of -0.228. The negative sign of this coefficient indicates that the positive effect of foreign funds on stock returns weakens when market conditions shift toward bearishness. In unfavorable market conditions, increased investor uncertainty and risk aversion mean that foreign capital inflows are not always able to significantly increase stock prices. Thus, the effectiveness of foreign investment flows in increasing stock returns is highly dependent on market sentiment and prevailing macroeconomic stability. Conversely, Market Condition (Z) also positively moderates the relationship between Stock Volatility and Stock Returns, with a coefficient of 0.139. This suggests that the positive relationship between volatility and returns is stronger in bullish market conditions. During periods of market optimism, investors tend to be more risk-tolerant and more willing to accept high volatility due to higher expected returns. Conversely, during bearish periods, volatility is more often perceived as a source of risk to be avoided, resulting in a smaller risk premium for volatility. This finding suggests that the risk premium is not constant but rather depends on the prevailing market regime.

3.2. R-Square

Table 1. R-Square Test Results

Variabel	R-Square	R-Square Adjusted
Stock Return	0,895	0,887

Source: SmartPLS Output Results

Overall, the R<sup>2</sup> value of 0.895 for the Stock Return variable indicates that approximately 89.5% of the variation in stock returns can be explained by Foreign Investment Flow, Stock Volatility, and their interaction with Market Conditions (Bullish–Bearish). This value reflects the model's very strong explanatory power and indicates that the model structure is capable of capturing the main dynamics of stock return movements in the Indonesian capital market. Thus, the results of this study confirm that stock returns are not only directly influenced by foreign capital flows and stock volatility, but are also significantly influenced by overall market conditions. Therefore, an analysis that considers bullish and bearish market regimes is crucial in understanding stock return behavior.

Table 2. hypothesis test results

Variabel	Sampel (O)	T Statistik (  O/STDEV  )	P Values
Foreign Investment Flow -> Stock Return	0,468	7,263	0,000
Stock Volatility -> Stock Return	0,479	6,695	0,000
Market Condition (Bullish–Bearish) x Foreign Investment Flow -> Stock Return	-0,228	3,101	0,002
Market Condition (Bullish–Bearish) x Stock Volatility -> Stock Return	0,139	2,080	0,038

Source: SmartPLS Output Results

In PLS, statistical testing of each hypothesized relationship is performed using simulation. In this case, the bootstrapping method is used on the sample. The following are the results of the bootstrapping PL analysis:

1. The Effect of Foreign Investment Flow on Stock Returns.

The results of the hypothesis test, namely the Effect of Foreign Investment Flow on Stock Returns, show a coefficient of 0.468, a p-value of  $0.000 < 0.05$ , and a t-statistic of 7.263  $> 1.960$ . These results indicate that Foreign Investment Flow Affects Stock Returns. Therefore, the hypothesis that "Foreign Investment Flow Has a Positive and Significant Effect on Stock Returns" is accepted.

2. The Effect of Stock Volatility on Stock Returns.

The results of the hypothesis test, namely the Effect of Stock Volatility on Stock Returns, show a coefficient of 0.479, a p-value of  $0.000 < 0.05$ , and a t-statistic of 6.695  $> 1.960$ . These results indicate that stock volatility affects stock returns. Therefore, the hypothesis stating that "stock volatility has a positive and significant effect on stock returns" is accepted.

3. The influence of market conditions (bullish–bearish) moderates the influence of foreign investment flow on stock return acquisition.

The results of the hypothesis test, namely, that market conditions (bullish–bearish) moderate the influence of foreign investment flow on stock return acquisition, show a coefficient value of -0.228, a p-value of  $0.002 < 0.05$ , and a t-statistic of 3.101  $> 1.960$ . These results indicate that "market conditions (bullish–bearish) moderate the influence of foreign investment flow on stock return acquisition." Therefore, the hypothesis is accepted.

4. The influence of market conditions (bullish–bearish) moderates the influence of stock volatility on stock return acquisition.

The results of the hypothesis testing, namely the Effect of Market Condition (Bullish–Bearish) Moderates the Effect of Stock Volatility on Stock Return Taking, show a coefficient value of 0.139, p-values of  $0.038 < 0.05$ , and t-statistics of 3.080  $> 1.960$ . These results indicate that "Market Condition (Bullish–Bearish) Moderates the Effect of Stock Volatility on Stock Return Taking". So the hypothesis is accepted.

#### **4. Discussion**

##### **Effect of Foreign Investment Flow on Stock Return**

The empirical results show that Foreign Investment Flow has a positive and significant effect on Stock Return, as indicated by a coefficient of 0.468, a p-value of  $0.000 (< 0.05)$ , and a T-statistic of 7.263 ( $> 1.960$ ). This finding confirms that increased foreign capital inflows are associated with higher stock returns. The acceptance of the hypothesis suggests that foreign investors play a crucial role in driving stock price movements and enhancing market performance. From a theoretical perspective, this result is consistent with the international asset pricing framework, which posits that foreign capital inflows increase market liquidity, improve price discovery, and reduce transaction costs, thereby contributing to higher stock returns (Bekaert et al., 2016). In emerging markets, foreign investors are often considered informed traders who bring superior information, advanced trading strategies, and better risk diversification capabilities. Their participation tends to raise market efficiency and stimulate demand for equities, leading to upward pressure on stock prices. Empirical evidence from emerging markets further supports

this finding. Vo (2020) shows that foreign investor trading significantly affects stock market returns and volatility in Asian emerging markets, highlighting the dominance of foreign capital in shaping short-term return dynamics. Similarly, studies on the Indonesian stock market indicate that net foreign buy positions are positively associated with stock index performance, particularly during periods of economic expansion (Yuliani et al., 2025). This suggests that the Indonesian market is highly sensitive to foreign investor sentiment and capital mobility. Moreover, the positive coefficient implies that foreign investment flow not only increases stock prices mechanically through demand effects but also serves as a signal of market confidence. When foreign investors increase their exposure, domestic investors may interpret this as a positive signal regarding macroeconomic stability, corporate fundamentals, or growth prospects, reinforcing herding behavior and amplifying return effects. This signaling mechanism aligns with the findings of Bekaert et al. (2016), who argue that international capital flows reflect investors' assessments of political risk, institutional quality, and economic outlook. In the context of this study, the strong effect size ( $f^2 = 0.725$ ) further indicates that Foreign Investment Flow is a dominant explanatory factor for Stock Return. This result strengthens the argument that policies aimed at attracting foreign capital—such as improving market transparency, regulatory quality, and macroeconomic stability—can have a meaningful impact on stock market performance in emerging economies.

### **Effect of Stock Volatility on Stock Return**

The hypothesis test results indicate that Stock Volatility has a positive and significant effect on Stock Return, with a coefficient of 0.479, a p-value of 0.000 ( $< 0.05$ ), and a T-statistic of 6.695 ( $> 1.960$ ). This finding confirms that higher volatility is associated with higher expected returns, consistent with the classical risk–return trade-off. From the perspective of financial theory, this result is aligned with the Capital Asset Pricing Model (CAPM) and intertemporal asset pricing theories, which posit that investors require higher expected returns as compensation for bearing higher risk. Volatility, as a proxy for total risk, reflects uncertainty in future cash flows and price movements. Therefore, stocks with higher volatility tend to offer higher returns to attract risk-averse investors. Empirical studies provide strong support for this relationship. Bali et al. (2017) demonstrate that macroeconomic risk and market volatility are significant determinants of asset returns, particularly in periods of heightened uncertainty. Ang et al. (2019) further document that volatility plays a crucial role in explaining cross-sectional differences in expected returns, especially in markets characterized by informational frictions and heterogeneous investor behavior. In emerging markets such as Indonesia, volatility is often more pronounced due to lower market depth, higher sensitivity to global shocks, and greater exposure to capital flow reversals. As a result, investors demand higher risk premia to compensate for these uncertainties. The positive relationship observed in this study supports the notion that Indonesian equity investors price volatility risk rationally and that stock returns incorporate a significant volatility premium.

Additionally, the strong effect size ( $f^2 = 0.623$ ) indicates that Stock Volatility is a major driver of Stock Return in the model. This finding implies that market participants in Indonesia place

substantial weight on risk considerations when forming return expectations, reinforcing the importance of volatility management for both portfolio optimization and policy design.

### **Moderating Effect of Market Condition (Bullish–Bearish) on the Relationship between Foreign Investment Flow and Stock Return**

The moderating effect of Market Condition (Bullish–Bearish) on the relationship between Foreign Investment Flow and Stock Return is negative and statistically significant, as indicated by a coefficient of  $-0.228$ , a p-value of  $0.002$  ( $< 0.05$ ), and a T-statistic of  $3.101$  ( $> 1.960$ ). This result confirms that market conditions significantly alter the strength and direction of the impact of foreign investment flows on stock returns. The negative moderation coefficient implies that the positive effect of Foreign Investment Flow on Stock Return weakens during certain market regimes, particularly in bearish conditions. In bearish markets, heightened uncertainty, declining investor confidence, and increased risk aversion may dampen the ability of foreign capital inflows to boost stock returns. Even when foreign investors increase their holdings, the overall market sentiment may remain pessimistic, limiting the price impact of capital inflows. This finding is consistent with regime-switching and market-state-dependent return theories, which argue that asset return dynamics differ across bullish and bearish periods (Balcilar et al., 2016). Chiang et al. (2019) further show that financial market conditions significantly influence the strength of return correlations and investor responses to new information. In bearish regimes, negative sentiment and liquidity constraints often dominate market behavior, reducing the effectiveness of capital inflows in driving price appreciation. Empirical evidence from Indonesia also supports this interpretation. Yuliani et al. (2025) find that the influence of foreign investment on stock returns is significantly stronger during bullish periods than during bearish periods, indicating that market optimism amplifies the price impact of foreign capital. Conversely, during market downturns, capital inflows may be perceived as temporary or speculative, leading to a weaker transmission to stock returns. This result highlights the importance of considering market regimes when evaluating the role of foreign capital flows. It suggests that policymakers and investors should not assume a uniform impact of foreign investment across different market conditions, as the effectiveness of foreign inflows in boosting stock returns depends critically on prevailing market sentiment and macroeconomic stability.

### **Moderating Effect of Market Condition (Bullish–Bearish) on the Relationship between Stock Volatility and Stock Return**

The moderating effect of Market Condition (Bullish–Bearish) on the relationship between Stock Volatility and Stock Return is positive and statistically significant, as indicated by a coefficient of  $0.139$ , a p-value of  $0.038$  ( $< 0.05$ ), and a T-statistic of  $2.080$  ( $> 1.960$ ). This result confirms that market conditions significantly shape the way volatility is priced in stock returns. The positive moderation coefficient implies that the positive effect of Stock Volatility on Stock Return becomes stronger during certain market regimes, particularly in bullish periods. In bullish markets, investors tend to exhibit greater risk tolerance and optimism, making them more willing to accept higher volatility in exchange for higher potential returns. As a result, the volatility premium embedded in stock returns increases when market sentiment is positive. This finding is

consistent with the notion that the risk–return trade-off is contingent on market conditions. Bali et al. (2017) argue that the pricing of risk varies across economic states, with investors demanding different risk premia depending on macroeconomic uncertainty and market sentiment. Chiang et al. (2019) further show that return dynamics and risk compensation mechanisms differ across bullish and bearish regimes, reflecting changes in investor behavior and liquidity conditions. In emerging markets, this regime-dependent pricing of volatility is particularly pronounced due to higher market fragility and stronger behavioral biases. During bullish periods, speculative behavior and momentum trading may amplify the return impact of volatility, while during bearish periods, risk aversion and flight-to-quality behavior may suppress the volatility premium. The results of this study therefore suggest that volatility is not priced uniformly over time. Instead, its effect on stock returns depends on prevailing market conditions, reinforcing the importance of incorporating regime indicators such as bullish–bearish states into asset pricing models and portfolio strategies. Taken together, these findings demonstrate that Stock Return in the Indonesian stock market is driven by a combination of foreign capital flows, market risk (volatility), and regime-dependent market conditions. The strong explanatory power of the model ( $R^2 = 0.895$ ) and high predictive relevance ( $Q^2 = 0.921$ ) further indicate that the interaction between these variables provides a robust framework for understanding return dynamics in emerging markets. The results extend previous literature by showing not only that foreign investment flow and volatility directly affect stock returns, but also that their effects are significantly moderated by market conditions. This regime-sensitive perspective adds nuance to traditional asset pricing theories and offers practical insights for investors, policymakers, and regulators seeking to enhance market stability and investment attractiveness.

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