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How do Investors React Differently? Dynamic Analysis of Investor Ownership Movement: Evidence from Indonesia Listed Company

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ABSTRACT

This study aims to dynamically analyze how global macroeconomic, domestic macroeconomic, and microeconomic variables influence the movements of foreign institutional, domestic institutional, and retail investors in Company X. The analysis utilizes monthly secondary data from September 2019 to October 2024, processed using the Vector Error Correction (VEC) model. The variance decomposition result show that the exchange rate is the most significant long-term across investor types. In the short term, the remaining variables affect each investor group differently: (i) GDP primarily impacts foreign institutional investors; (ii) P/E affects both domestic institutional and retail investors. The impulse response function indicates that exchange rate shocks have the greatest influence on investors. The Granger causality test shows significant effects from: (i) exchange rate and GDP to foreign institutional investors, (ii) the exchange rate to domestic institutional investors, and (iii) the Fed rate to retail investors. These findings contribute to the understanding of investor behavior and offer practical insights for developing investor relations strategies for company X.

Keywords:
Institutional investor, macroeconomy, P/E ratio, retail investor

ABSTRAK

Penelitian ini bertujuan untuk menganalisis secara dinamis bagaimana variabel makroekonomi global, makroekonomi domestik, dan mikroekonomi memengaruhi pergerakan investor institusi asing, investor institusi domestik, dan investor ritel di Perusahaan X. Analisis dilakukan dengan menggunakan data sekunder bulanan dari bulan September 2019 sampai dengan Oktober 2024 yang diolah menggunakan model *vector error correction* (VEC). Hasil *variance decomposition* menunjukkan bahwa nilai tukar merupakan faktor paling signifikan dalam jangka panjang pada semua jenis investor. Dalam jangka pendek, variabel lainnya memengarhui masing – masing jenis investor secara berbeda: (i) PDB berdampak utama pada investor institusi asing; (ii) rasio P/E memengaruhi baik investor institusi domestik dan ritel. *Impulse function response* menunjukan bahwa guncangan nilai tukar memberikan pengaruh terbesar terhadap investor. *Granger causality* menunjukkan pengaruh signifikan dari : (i) nilai tukar dan PDB terhadap investor institusi asing, (ii) nilai tukar terhadap investor institusi domestik, dan (iii) suku bunga The Fed terhadap investor ritel. Temuan ini berkontribusi dalam pemahaman perilaku investor dan memberikan wawasan praktis untuk pengembangan strategi hubungan investor di Perusahaan X.

Kata Kunci:
Investor institutional, investor ritel, makroekonomi, P/E ratio

INTRODUCTION

Investor movements showed a critical role in shaping stock price dynamics, particularly in emerging markets where macroeconomic volatility and external shocks can significantly influence market sentiment. Understanding the relationship between macroeconomic factors and investor movements is essential for both corporate stakeholders and policymakers aiming to develop effective investment strategies and robust financial policies. This study seeks to explore the dynamic interactions between global macroeconomic variables, domestic macroeconomic indicators, and microeconomic factors, focusing on their effects on foreign institutional investors, domestic institutional investors, retail investors of Company X. This is crucial to formulate communication strategies, investor relations, strengthening business fundamentals, and the right approach for different types of investors.

Market volatility has increased in recent years due to the turbulence caused by multiple global crises, including COVID-19, supply chain disruptions, and geopolitical conflicts. This has affected the global economy, both in the real business sector and the securities market, including stocks. The impact of global economic indicators on Indonesia has become increasingly complexed. Figure 1 shows the phenomenon of the Fed Rate rising aggressively due to a period of high inflation reaching 9.1% in June 2022 from the US government's target of 2%. This sharp increase in inflation was caused by the increase in world oil and commodity prices as a result of supply chain disruption over geopolitical conflicts. The phenomenon caused the IDR/USD exchange rate to weaken sharply but was responded by the government with a policy of increasing the BI Rate which also helped stabilize the exchange rate in late 2022 to 2023

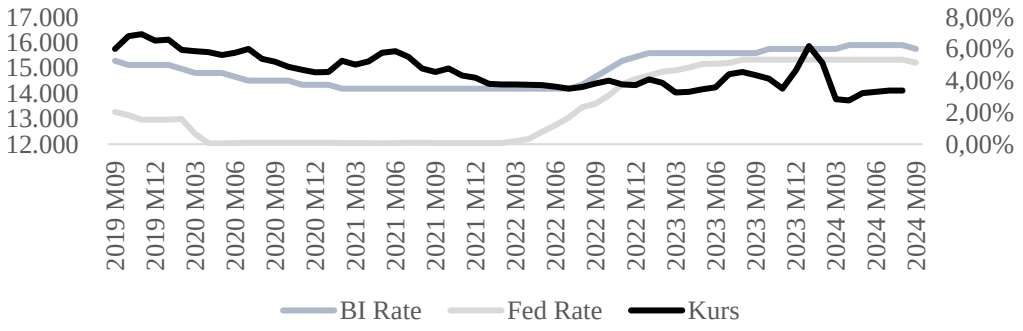


Figure 1. Exchange rate and Fed-BI Rate spread
Source: Bank Indonesia, FRED (2024)

Exchange rates can be affected by global macroeconomic factors, such as the Fed Rate. As one of the monetary policy instruments of the United States, the Fed Rate is a reference for many countries including flow in the capital market. Investors will certainly look for higher investment returns. As the Fed Rate increases, investment in the United States may become more attractive as it offers risk-free investments with higher returns. This may lead to capital outflows from developing countries and encourage depreciation of the domestic currency against the US Dollar.

For Company X as a manufacturing company whose most raw materials are majority imported using US Dollar, the exchange rate is crucial. This leads to risk exposure to exchange rate fluctuations. If the Rupiah depreciates against the US Dollar, the cost used to acquire imported raw materials will increase, affecting Company X's profitability. Public consumption also affects consumer demand, which is reflected in the revenue of Company X. Since most of Indonesia's GDP consists of consumption, GDP can reflect the growth of public consumption. The higher the GDP growth, the more public consumption growth should be accompanied by an impact on Company X's revenue growth. By taking into account the income of Company X, the main expenses that must be incurred, the ability of management in managing operational and non-operational expenses, will affect the Company's earnings. Furthermore, earnings and stock price movements of Company X can form a P/E Ratio (hereinafter in this study referred to as P/E), whether at a certain P/E level investors are willing to buy Company X shares.

This research seeks to address the gaps identified in previous studies by: (i) analyzing investor movements across different time horizons ranging one to five years; (ii) disaggregating behavior by investor type that are foreign institutional, domestic institutional, and retail investors ; (iii) integrating both macroeconomic and microeconomic variables; and (iv) focusing on the Indonesian context, with Company X serving as the first firm-level case study of its kind. Previous studies rarely focus on short- and long-term effects without disaggregating foreign, domestic, and retail investors and focus on developed or emerging countries. The research questions are how do macroeconomic conditions and P/E contribute to the movement of each foreign institutional, domestic institutional, and retail investors?

From macroeconomic perspective, a study conducted by Banegas *et al.* (2022) on mutual funds in the United States indicate that monetary policy tightening can negatively impact the performance of equity and fixed-income mutual funds. Conversely, monetary policy easing has a positive effect on equity funds, particularly in emerging markets. Additionally, market sensitivity to interest rate changes becomes more pronounced during periods of high investor activity, as demonstrated by Cepni and Gupta (2021) through the sentiment-mispricing mechanism in the U.S. stock market. Ghumro *et al.* (2022) similarly found that the impact of macroeconomic variables on the stock market becomes more prominent in post-crisis periods. Exchange rates and investor sentiment jointly affect stock market performance. Sibande (2024) also found that investor induced herding behavior in the bear market and tend to change behaviourin extraordinary market condition. Domestically, GDP has been found to influence and correlate with stock prices which may be the signal of the investor movements. Research by Ball and French (2021) suggesting that stock market trends provide informative signals about actual GDP levels. Kumari *et al.* (2025) found that, over the long term, foreign institutional investor (FII) inflows into the Indian equity market are positively associated with the Indian stock market index, an appreciating exchange rate, inflation, and interest rate differentials. In contrast, the US stock index shows a negative relationship with FII inflows into India.

From a fundamental and investor movement perspective, foreign institutional investors are often regarded as advanced market participants whose activities influence overall market sentiment and help reduce market information asymmetry (Rundiawarni *et al.*, 2024). Institutional investors play a crucial role in monitoring investee firms effectively, helping to reduce information asymmetry and promoting higher earnings quality. These insights are valuable for various stakeholders in financial reporting, such as investors, analysts, regulators, and corporate managers (Eliwa *et al.*, 2025). Meanwhile, individual investors are considered less adept at recognizing underpricing driven by capital flows (Jiang and Wang, 2021).

There is a notable interplay between international capital flows via the stock market and domestic investor sentiment. Li *et al.* (2025) find that selling activity by international investors significantly influences both foreign and domestic investors in the Chinese market, with domestic stock sentiment playing a key role. Major markets such as the US and UK act as primary sources of information spillovers, particularly affecting domestic sectors like industrials and materials. Additionally, volatility in international markets heightens short-term attention from domestic investors and prompts long-term portfolio adjustments, contributing to information spillovers in Chinese equities.

Neupane *et al.* (2024) explored the behavior of domestic institutional, foreign institutional, and retail investors in the Indian market during 2020. Domestic institutional investors exhibited a 'flight-to-quality' behavior, consistently investing in low-risk companies (those with large market capitalizations and low betas) throughout the year. Foreign institutional investors engaged in 'fire sales,' reducing their holdings in high-quality companies (large, profitable firms with high book-to-market ratios and publicly listed companies). Foreign institutional investors contributed most to lower returns and higher volatility during the crisis. In contrast, retail investors acted as 'liquidity providers,' refraining from significant sell-offs during the early stages of the pandemic. Instead, retail investors increased their holdings in both high-risk (high-beta, low-profitability) and high-quality (low-leverage) companies, thereby supplying liquidity to the market.

The actions of leading global asset management firms also provide insights into capital flows. Pan, C. (2024) found that BlackRock's divestment activities negatively impacted the stock prices of companies with significant foreign institutional ownership. Investor sentiment and changing expectations about these companies were identified as critical channels through which this effect materialized. Tseng and Pan (2024), in their study of the MSCI Taiwan Index, discovered that foreign investors tend to buy or sell more shares during MSCI rebalancing periods than individual investors. In contrast, domestic institutions often act counter to foreign investors by adjusting their positions the day before the rebalancing occurs. Herculano and Lütkebohmert (2023) concluded that domestic investor sentiment exhibits substantial idiosyncratic components. Additionally, foreign sentiment shocks significantly influence domestic investor sentiment. Yang *et al.* (2021) found that foreign investors tend to buy stocks more aggressively one day after positive returns, indicating that foreign investors closely monitor daily stock price movements.

RESEARCH METHODS

The data used in this study is secondary data, with a monthly data frequency over a five-year period, from October 2019 to September 2024. Company X is a publicly listed company on the Indonesia Stock Exchange. Company X operates in the manufacturing sector, with activities in professional, scientific, and technical services, as well as supporting business operations. It offers a wide range of products with access to markets across Indonesia and exports to several countries. Company X was selected as the research object due to attributions of its reflectiveness of other prominent Indonesian listed companies with similar investor structures: (i) its inclusion for the consecutive years during the research period in the LQ45 index and MSCI Indonesia global standard index; (ii) its relatively high free-float of 42.01% as of September 2024 with high-dependencies of foreign investors who own 60–70% of the free float shares; (iii) its high quality governed company (AA rated of MSCI). Moreover, while exchange-level data in Indonesia does not disaggregate investor movements by type, this study benefits from privileged access to firm-level data, enabling a rare and detailed analysis of foreign institutional, domestic institutional, and retail investor behavior.

The Fed Rate data is the overnight interest rate obtained from FRED Economic Data St. Louis. The unit of the Fed Rate is expressed as a percentage. The exchange rate variable is defined as the percentage change in the exchange rate between the United States Dollar and the Indonesian Rupiah at the end of month *t* vs. the end of month *t - 1*. The author uses the Jakarta Interbank Spot Dollar Rate (JISDOR) as the reference exchange rate. The GDP variable is defined as the percentage growth of real GDP, using constant prices, calculated on a year-on-year basis for each quarterly period (e.g., GDP from January to March 2023 compared to GDP from January to March 2022, GDP from April to June 2023 compared to GDP from April to June 2022, and so on). GDP data is obtained from the Indonesia Statistics Bureau. The unit of the GDP variable is percentage. These quarterly data are then interpolated into monthly data. Interpolation is performed using the Cubic method for low-to-high frequency conversion and the last observation carried forward (LOCF) method for high-to-low frequency conversion. The Price-to-Earnings (P/E) ratio is defined as the ratio of the average monthly closing stock price to the earnings per share (EPS) over the previous 12 months (trailing 12 months). The data used for this calculation is sourced from the Company X's financial statements. The unit of measurement for the P/E ratio is expressed as a multiple (x). Investor movements in Company X are categorized into foreign institutional investors, domestic institutional investors, and retail investors, sourced from Company X. Investor movements for each type are defined as the percentage growth in the number of shares held at the end of each month, comparing the number of shares at the end of month *t* with those at the end of month *t–1* for each investor type. The unit of measurement used is percentage.

In Vector Error Correction (VEC) modeling, variable ordering must be considered before analyze variance decomposition and impulse function response. Different orderings can lead to different variance decomposition and impulse function response results. Variance decomposition will explain

how much of the variance in prediction errors is explained by each variable. Variable ordering should ideally be based on financial theory that explains the impact of one variable on variables in the previous order (Brooks, C., 2014). The theoretical discussion on variable ordering has been discussed in the Introduction of this research. The models are structured as follows:

Model 1 : Fed Rate → Exchange Rate → GDP → P/E → Foreign Institutional Investors
Model 2 : Fed Rate → Exchange Rate → GDP → P/E → Domestic Institutional Investors
Model 3 : Fed Rate → Exchange Rate → GDP → P/E → Retail Investors

The study employs the Vector Error Correction (VEC) Model to analyze the dynamic relationships among various macroeconomic and microeconomic variables and their impact on investor movements of Company X. Unit root test, cointegration test, and lag-length determination required to be performed. A model in reduced form can be formulated as follows:

$$Y_t = c + \sum_{i=1}^{p} A_i Y_{t-i} + u_t$$

Where:

Y_t : Endogen variable vector (k x 1) at time t
c : Constanta vector (k x 1)
A_i : Lag coefficient matrix (k x k) for lag i
P : Considerable lag or optimum lag
u_t : uncorrelated residual Vector (k x 1) with zero *mean* ($E(u_t)=0$)

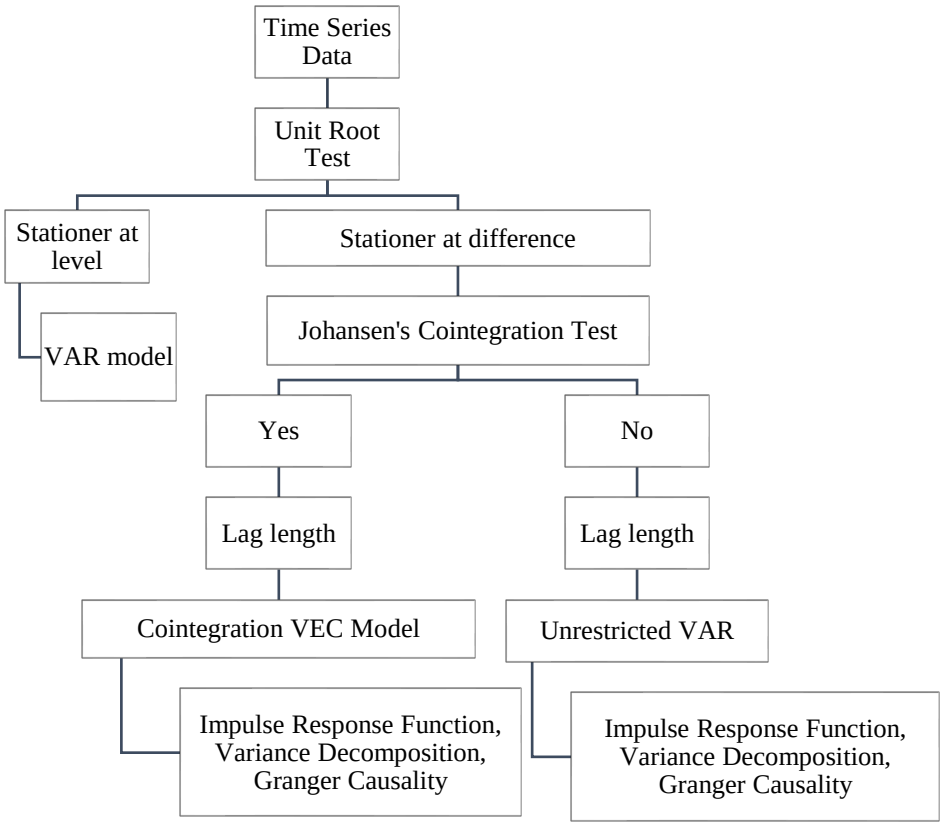


Figure 2. Research Methodology

RESULT AND DISCUSSION

The variables for foreign institutional investors, domestic institutional investors, retail investors, and exchange rates are stationary at the level (I(0)). The Price-to-Earnings (P/E) ratio and Gross Domestic Product (GDP) are at the first difference (I(1)). Federal Reserve interest rates (Fed Rate) is at the second difference (I(1)). Johansen's Cointegration test indicating >1 cointegrating equations, thus VEC model is selected. Optimum lag length for the all model are 7.

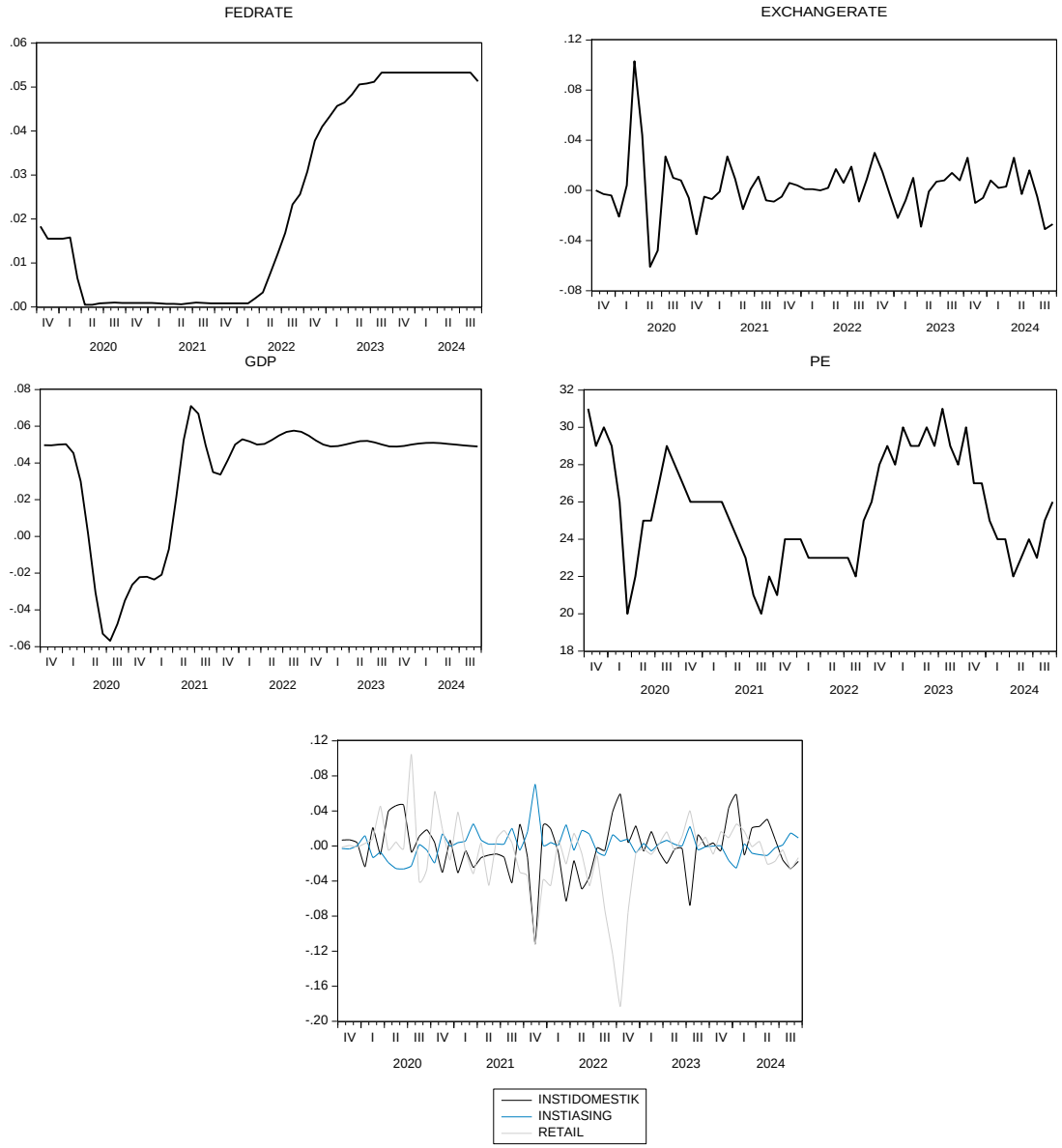


Figure 3. Research Variables

Table 1. Unit Root Test Result

No.	Variabel	ADF p-value	Stationerity Level
1.	Fed Rate	0.7505	I(2)
2.	Exch. rate	0.0000	I(0)
3.	GDP	0.7201	I(1)
4.	P/E	0.2477	I(1)
5.	Foreign Institutional Investor	0.0001	I(0)
6.	Domestic Institutional Investor	0.0000	I(0)
7.	Retail Investor	0.0028	I(0)

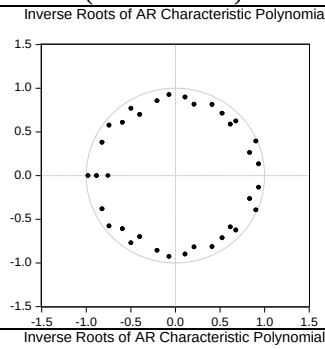
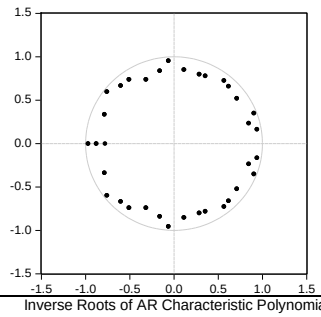
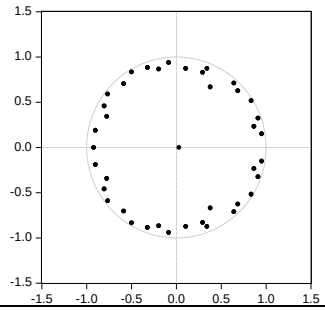
Source: Authors' work (2025)

Tabel 2. Cointegration Test Result

Model	Number of Cointegrating equations		Cointegration
	Trace test	*Maximum Eigenvalue*	
Model 1	5	3	Yes
Model 2	5	5	Yes
Model 3	5	2	Yes

Source: Authors' work (2025)

Table 3. Lag-length Result

Model	Model Stability (Unit Root <1)	Maximum Lag	*Adj.* R^2 At the Optimum Lag	Optimum Lag
Model 1		7	0.680970	7
Model 2		7	0.628174	7
Model 3		8	0.631693	7

Source: Authors' work (2025)

In general, each variable contributes differently to each type of investor, in line with the statement by Bodie, Z., Kane, A., & Marcus, A.J. (2024) that investors may respond to information differently. This finding also aligns with the research by Lee, E.J., Lee, Y.K., and Chae, J. (2019), which suggests that different types of investors have varying levels of attention that can influence the market.

The exchange rate is the variable with the highest contribution across all types of investors in the medium to long term. This finding is consistent with the research by Hachicha, F. (2023), which identified a strong relationship between investor sentiment and the exchange rate, both in the short and long term. The P/E ratio is also a factor considered by all types of investors, given its relatively equal contribution across investor groups.

Table 4. Highest and Lowest Contribution Percentage of Variance Decomposition

Period (Month)	Foreign Institutional		Domestic Institutional		Retail	
	Highest	Lowest	Highest	Lowest	Highest	Lowest
1	GDP	Exch. rate	P/E	GDP	P/E	GDP
2	GDP	Fed Rate	Exch. rate	GDP	P/E	GDP
3	GDP	Fed Rate	P/E	Fed Rate	P/E	GDP
4	GDP	Fed Rate	Exch. rate	Fed Rate	P/E	GDP
5	Exch. rate	Fed Rate	Exch. rate	GDP	P/E	GDP
6	Exch. rate	Fed Rate	Exch. rate	Fed Rate	Exch. rate	GDP
7	Exch. rate	Fed Rate	Exch. rate	Fed Rate	Exch. rate	GDP
8	Exch. rate	Fed Rate	Exch. rate	Fed Rate	Exch. rate	GDP
9	Exch. rate	Fed Rate	Exch. rate	GDP	Exch. rate	GDP
10	Exch. rate	Fed Rate	Exch. rate	GDP	Exch. rate	Fed Rate
11	Exch. rate	Fed Rate	Exch. rate	GDP	Exch. rate	Fed Rate
12	Exch. rate	Fed Rate	Exch. rate	GDP	Exch. rate	Fed Rate
⋮	⋮	⋮	⋮	⋮	⋮	⋮
24	Exch. rate	Fed Rate	Exch. rate	GDP	Exch. rate	Fed Rate
⋮	⋮	⋮	⋮	⋮	⋮	⋮
36	Exch. rate	Fed Rate	Exch. rate	GDP	Exch. rate	Fed Rate

Source: Authors' work (2025)

This is supported by Coleman, L. (2019), who stated that fundamental valuation is the primary methodology used by active institutional and corporate investors to achieve risk-adjusted returns. Even skilled and experienced fund or portfolio managers continue to rely on fundamental analysis in their investment decision-making. Compared to institutional investors, the Fed Rate has a higher impact on retail investors. This aligns with the findings of Liu, H., Peng, L., and Tang, Y. (2022).

Movement of Foreign Institutional Investors (Model 1)

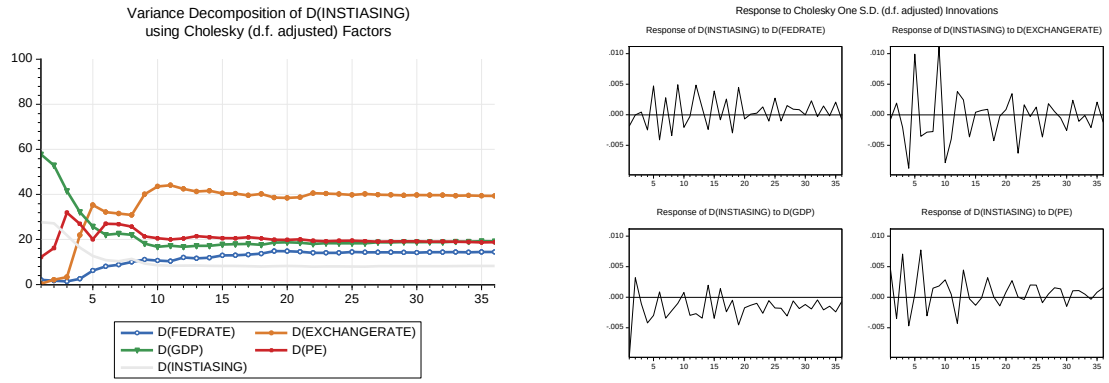


Figure 4. Variance Decomposition and Impulse Response Function Model 1 for Foreign Institutional Investors

Source: Authors' work (2025)

Foreign institutional investors pay close attention to the macroeconomic indicators of exchange rate and GDP, as evidenced by the variance decomposition which shows the exchange rate and GDP contribute the most in the long term and short term respectively. The exchange rate often serves as an indicator of economic sentiment and capital flows. It becomes the largest contributor when the impact of GDP begins to fade in the long term, as GDP contributes the most to foreign investor movements during the initial shock period. This may reflect that foreign institutional investors base their investment decisions more heavily on local macroeconomic indicators, such as GDP and the exchange rate, as these

variables can be used to assess growth potential and ensure stable returns when converted into the foreign investors' currency. Besides, fundamental valuation is crucial, as shown by the contribution of P/E which is almost as high as the exchange rate in the short term and almost as high as GDP in the long term. P/E contributes the most among other variables besides itself in the short run. Fed rate is not the main and only contributor in all periods.

Impulse response function shows that the biggest shock is the exchange rate while the shock to GDP has a persistent effect under long-run equilibrium, meaning it has a structural or fundamental impact on the decisions of foreign institutional investors. In terms of response duration, all variables gradually move back toward long-term equilibrium starting from around one and a half to two years. This may indicate a relatively long adjustment period for the market to stabilize after a shock, especially within the context of a complex economy.

Granger causality shows that exchange rate and GDP significantly affect foreign institutional investors (Table 5). The exchange rate influences foreign investors' decisions as it is directly related to currency conversion risk and perceptions of economic stability. Meanwhile, GDP has an impact because it reflects the strength of the domestic economy, which affects a company's growth prospects. This is consistent with the research of Rehman, N.U. (2016) and R.K. & Bansal, R. (2021) for the significance of the GDP and Ghumro *et al.* (2022) and Usman *et al.* (2024) for the significance of exchange rate. Fed rate does not significantly affect the movement Foreign institutions due to a globally diversified portfolios, so they are not only affected by the Fed Rate policy but also consider the attractiveness of other markets as well as macroeconomic conditions in the investment destination country. Even though P/E has shown a noticeable contribution, Granger causality shows that P/E does not significant, since a broader macroeconomic analysis is required. foreign institutional investors do not rely solely on one indicator of investing in valuation, e.g. P/E. Foreign investors generally have a longer time horizon so they are more likely to wait for macroeconomic stability or wait and see rather than chasing momentum.

Movement of Domestic Institutional Investors (Model 2)

Domestic institutional investors are concerned about exchange rates and P/E, as evidenced by the variance decomposition which shows that exchange rates and P/E contribute the most in the long run and short run, respectively. Contribution of Fed rate to the domestic institutional investors are higher than foreign institutions because of its direct influence on interest rates, exchange rates, market liquidity, and local investment stability. Fed Rate in the long run contributes more than GDP, in contrast to the response of foreign institutional investors. This may indicate that domestic institutional investors pay more attention to the Fed rate due to its direct influence on interest rates, Rupiah exchange rate, market liquidity, and local investment stability. While GDP is not the main and only contributor in the long run, this is due to the information superiority of domestic investors over foreign. This could be due to a wider and deeper access by domestic institutional investors to micro information such as company performance, government regulations or market sentiment. Therefore, they do not always rely on GDP

as a key macroeconomic indicator in the short term, as the information is considered to be already reflected in other factors, such as financial statements. Domestic institutional investors are generally familiar with the dynamics of the local economy. This is also consistent with the research of Ferreira *et al.* (2017) that domestic institutions show information superiority in domestic investment.

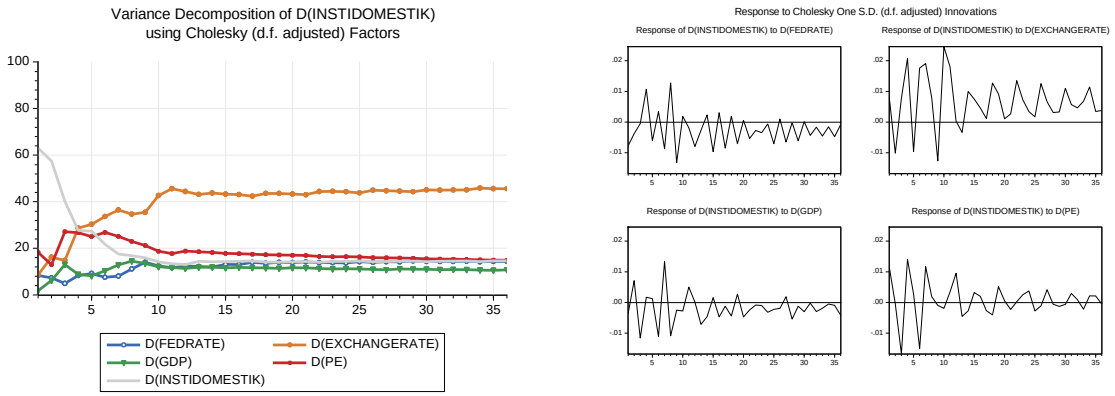


Figure 5. Variance Decomposition and Impulse Response Function Model 2 for Domestic Institutional Investors
Source: Authors' work (2025)

P/E contributes the most among the variables, apart from itself, in the short term. Domestic investors tend to be more familiar with the local market, giving them greater confidence in valuation ratio-based analysis for making quick decisions. P/E better reflects market conditions and the immediate sentiment toward specific stocks, making it a more significant factor in investment decisions. P/E becomes more relevant as it provides specific information about a company's valuation and fundamental condition.

Impulse response function shows that the largest shock is to the exchange rate and has a persistent effect above equilibrium, meaning that the exchange rate has a structural or fundamental impact on the decisions of domestic institutional investors. In terms of response duration, all variables only begin to move back toward long-term equilibrium after approximately one and a half years.

Granger Causality results show that the exchange rate is proven to significantly affect the movement of domestic institutional investors (Table 5). This indicates that changes in the exchange rate can provide sufficient information to predict future buying or selling movements by domestic institutional investors. This can occur with the dependence of domestic institutional investors on external macroeconomic conditions and the impact of exchange rate changes on the profitability of domestic companies, capital flows, or certain sectors that are sensitive to exchange rates. This is consistent with the research of Ghumro *et al.* (2022) and Usman *et al.* (2024).

Movement of Domestic Retail Investors (Model 3)

Retail investors are concerned about the macroeconomic indicators of exchange rates and P/E, as evidenced by the variance decomposition which shows the exchange rate and P/E the highest level of contribution in the long term and short term respectively. Retail investors in the short term pay

attention to the Fed rate because the contribution is almost as high as P/E in the short term. Retail investors' focus on market sentiment and short-term information enables them more likely to concentrate on indicators that directly impact stock prices in the short term, such as market sentiment, price momentum, or fundamental ratios like P/E.

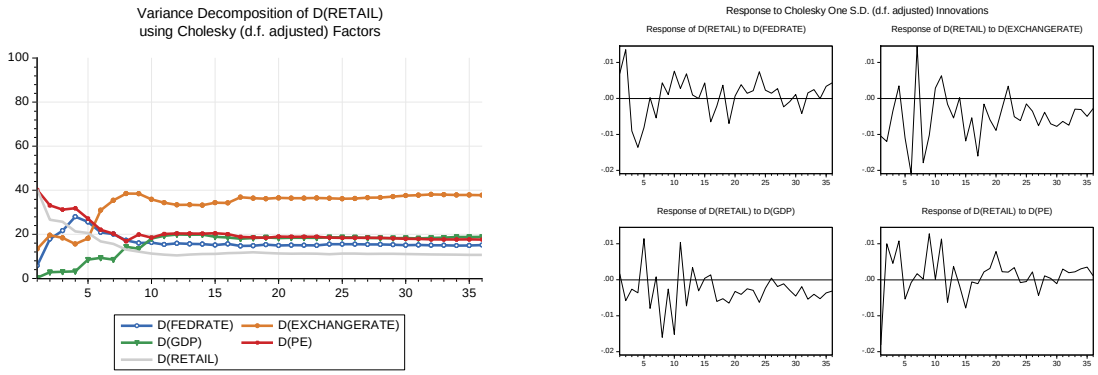


Figure 6. Variance Decomposition and Impulse Response Function Model 3 for Retail Investors

Source: Authors' work (2025)

The majority of retail investors are domestic, which means their perspective on GDP may align with that of domestic institutional investors, who do not view GDP as a primary indicator due to their advantage in accessing domestic information. Retail investors' understanding of GDP is also relatively more complex and harder to interpret compared to other variables like stock prices, interest rates, or P/E ratios. As a result, retail investors may respond more slowly to changes in GDP due to their limited understanding of its relevance to their investments, especially in the short term. On the other hand, P/E is the variable that contributes the most in the short term. Retail investors often use P/E as a simple guideline for selecting stocks because it is easy to understand, readily available on various trading platforms without the need to analyze financial reports, and directly relevant to potential returns. Retail investors often have a shorter investment horizon, making them more influenced by immediate indicators such as the P/E ratio. This suggests that retail investors are becoming more educated and capable of using the P/E ratio as a basis for their investment decisions. This aligns with the findings of Chakraborty, D. *et al.* (2023), which indicate that retail investors also consider fundamental conditions when making investment decisions.

Impulse response function shows that the biggest shock is to the exchange rate. Retail investors respond differently to each variable. The Fed Rate variable begins to stabilize from the eighth period onwards. This indicates that, despite its sensitivity, the effect is limited and quickly subsides, suggesting that retail investors tend to make opportunistic decisions with less focus on the long term.

Granger Causality results show that the Fed Rate is proven to significantly affect the movement of retail investors (Table 5). This indicates that changes in the Federal Reserve's benchmark interest rate have a direct impact on the investment decisions made by retail investors. While the impact of the Fed Rate is not immediately felt and takes longer to influence the domestic market, information and

news about the Fed Rate's direction are more accessible through various media platforms that retail investors can easily access. This supports the findings of Herculano and Lütkebohmert (2023). Although not always the case, higher Fed rates are often associated with higher borrowing costs, which can reduce purchasing power and investment appetite. If the opposite is true, then generally lower interest rates usually encourage retail investors to seek higher returns in the stock market, as deposit or bond rates become less attractive.

Table 5. Granger Causality Significance at 10% Confidence Level

	F-Statistic	Prob.
Model 1 Null Hypothesis:		
EXCHANGERATE does not Granger Cause GDP	1.98650	0.0826
EXCHANGERATE does not Granger Cause PE	2.77278	0.0197
EXCHANGERATE does not Granger Cause INSTIASING	2.41433	0.0379
GDP does not Granger Cause PE	4.27320	0.0014
GDP does not Granger Cause INSTIASING	1.89474	0.0976
Model 2 Null Hypothesis:		
EXCHANGERATE does not Granger Cause GDP	1.98650	0.0826
EXCHANGERATE does not Granger Cause PE	2.77278	0.0197
EXCHANGERATE does not Granger Cause INSTIDOMESTIK	2.24220	0.0519
GDP does not Granger Cause PE	4.27320	0.0014
Model 3 Null Hypothesis:		
FEDRATE does not Granger Cause RETAIL	2.80683	0.0186
EXCHANGERATE does not Granger Cause GDP	1.98650	0.0826
GDP does not Granger Cause PE	4.27320	0.0014

Source: Authors' work (2025)

The confidence level used in this analysis is 10% with the consideration that in the context of macroeconomic analysis and investor behavior, the existence of a causal relationship between variables can be detected even with a higher probability of error. In addition, data accuracy of investor movement are highly depending from Company X. The use of a 10% confidence level is expected to better reflect the theory used, which recognizes that the relationship between variables can have a weaker but still economically significant effect.

CONCLUSION AND RECCOMENDATION

As the purpose of this study is to determine how much the contribution of macroeconomic conditions and P/E on the movement of foreign institutional, domestic institutions, retail investors of Company X, the following are the results of the study:

1. In the movement of foreign institutional investors, domestic macroeconomic factors, namely GDP, contribute the most in the short term, but in the medium to long term, the contribution of exchange rates and P/E increases. The Fed rate contribution is not the largest among other variables. This indicates that foreign institutional investors are very concerned about the economic conditions of the investment destination country, namely GDP and exchange rates as well as the fundamentals of Company X.
2. In the movement of domestic institutional investors, GDP, contribute the least compared to other variables, while the contribution of the exchange rate continues to increase until the long term. Fed rate also has an almost equally high contribution in the long run when compared to

P/E. P/E becomes the highest contributing factor in the short term, but over time its contribution decreases until it has almost the same contribution as the Fed Rate. This indicates that domestic institutional investors pay the most attention to the fundamentals of Company X as the fastest investment decision making, while the exchange rate is most concerned in the long run.

3. In the movement of retail investor, GDP is the least contributing variable in the short term, but its contribution increases until the long term, while the Fed Rate contribution increases in the short term, but the contribution starts to decrease over time until it becomes the lowest contributing variable. Exchange rate is the most contributing variable in the long run, while P/E contributes the most in the short run, and then decreases as the contribution of other variables increases.

In general, the exchange rate is crucial factor and contributor to shaping the movements of all types of investors from the six-month period to the long-term period. The exchange rate proved to be the most contributing factor to the formation of investor movements in the first four to six months period to the long-term period, both foreign institutional investors, domestic institutional investors, and retail investors. The Impulse Function Response also shows that the exchange rate shock provides the highest magnitude for all types of investors. Since it does not converge and persistently moves above or below the equilibrium line, indicating a structural impact by the exchange rate and GDP variables. All shocks return to the equilibrium point at a period of more than one year for all types of investors. P/E is a factor that is sufficiently considered by all types of investors so that business fundamentals crucial to be strengthened. This is because P/E has an almost equally high contribution for all types of investors from the third month to the one-year period. This means that P/E is become a considerable factor for all types of investors.

It is recommended for Company X to formulate strategies to maintain the fundamentals of business efficiency and manage revenues, as external factors greatly affect the company's performance. Furthermore, the impact of the weakening exchange rate should be managed effectively and a gradual reduction in the use of USD as a payment method for raw materials. Communication to foreign institutional investors needs to be carried out by emphasizing the stability and future macroeconomic prospects as well as the fundamental strength of Company X. Communication to domestic institutional investors needs to pay attention to its intensity due to suspicion of tactical movements with a focus on the theme of communication of Company X's business fundamentals. Communication to retail investors needs to raise aspects to reinforce why Company X's P/E is attractive. In addition, expanding the domestic institutional investor base can be a mitigation measure against potential macroeconomic shocks in the short term. The company also needs to review the composition of free float investors to ensure the diversity of investor classifications.

For academics and future research, there are several opportunities for further study. First, research on retail investor herding behavior toward foreign institutional investors. The study could also

explore whether each type of investor adheres to the Efficient Market Hypothesis (EMH) and whether the market operates efficiently for each group. Second, research could examine whether domestic institutional investors adopt tactical investment strategies, meaning they are faster responding on domestic information change. Third, an analysis of foreign investor behavior based on their country of origin, such as investors from the United States, Europe, and others—particularly in relation to the impact of global interest rate movements (e.g., the Fed Rate)—would be relevant for understanding international market dynamics. Fourth, adding more relevant variables and exploring alternative variable orders that more accurately reflect investor movements dynamics, along with adjusting the data frequency and research period, could enhance the validity of the analysis model. A more precise modeling approach should consider the stationarity and degree of integration of the data. Finally, isndustry- or country-level studies could be conducted to capture investor dynamics in broader stock markets, providing a more comprehensive understanding of market behavior.

For policymakers, efforts are needed to maintain strong domestic economic fundamentals by addressing structural factors such as consumption growth, investment, and exports to sustain the attractiveness of the market for foreign investors. This is essential for building a solid and competitive economic foundation. Additionally, ensuring long-term exchange rate stability should remain a priority, as the exchange rate has been identified as the most influential variable for all types of investors in the medium to long term.

This study has several limitations that should be acknowledged to provide appropriate context for interpretation of its findings and to inform future research directions. First, the research is based on a single company, which, while representative of large, liquid firms with high foreign ownership in Indonesia, may limit the generalizability of the results to other sectors or smaller firms. Second, although the study utilizes a Vector Error Correction (VEC) Model to capture various time horizon dynamics, the results remain sensitive to the selected time frame, data frequency, and model specification. Third, the variables included—while grounded in theory and supported by previous literature—do not capture all possible macroeconomic or behavioral factors that may influence investor decisions. Fourth, stationarity tests indicate different levels of integration (I(0), I(1), I(2)) across variables, which may affect model robustness despite methodological adjustments. Finaly, the findings are based on historical data covering a period marked by multiple economic shocks, including the COVID-19 pandemic and geopolitical disruptions, which may affect their applicability under more stable conditions.

REFERENCES

Ackert L, F. & Deaves, R. (2010). *Behavioral Finance: Psychology, Decision-Making, and Markets.* Mason: Cengage Learning.

Ball, C., & French, J. (2021). Exploring what stock markets tell us about GDP in theory and practice. *Research in Economics, 75* (4), 330-344.

Banerjee, A.V. (1992). A Simple Model of Herd Behavior. *The Quarterly Journal of Economics*, 107 (3), 797–817.

Banegas, A., Montes-Rojas, G., & Siga, L. (2022). The effects of U.S. monetary policy shocks on mutual fund investing. *Journal of International Money and Finance, 123*.

Basuki, A.G. & Prawoto, N. (2015). *Analisi Regresi dalam Penelitian Ekonomi dan Bisnis*. Yogyakarta: Rajawali Press.

Bellalah, M., & Dammak, F.A. (2019). International capital asset pricing model: the case of asymmetric information and short-sale. *Ann Oper Res*. 281, 161–173.

Bodie, Z., Kane, A., & Marcus, A.J. (2024). *Investments*. Newyork: McGraw Hill.

Brooks, C. (2014). *Introductory Econometrics for Finance*. New York: Cambridge University Press.

Cepni, O., & Gupta, R. (2021). Time-varying impact of monetary policy shocks on US stock returns: The role of investor sentiment. *The North American Journal of Economics and Finance,* 58.

Chakraborty, D., Gupta, N., Mahakud, J. & Tiwari, M.K. (2023). Corporate governance and investment decisions of ritel investors in equity: do group affiliation and firm age matter?. *Managerial Auditing Journal*, 38 (1), 1-34.

Coleman, L. (2019), "Fundamental Analysis of Equities", New Principles of Equity Investment, Emerald Publishing Limited, Leeds. 95-122.

Danthine, J. P., & Donaldson, J. B. (2015). The arbitrage pricing theory. *Intermediate Financial Theory*, 417–442.

Drobetz, W., Ghoul, S.E, Guedhami, O. dan Yu, X. (2025). Beyond ownership: the role of institutional investors in international Corporate Governance. *Corporate Governance: An International Review*, 1–15.

Eliwa, Y., Haslam, J., Abraham, S. & Saleh, A. (2024). The power of oversight: institutional investors as moderators of the earnings quality-information asymmetry nexus in Europe. *International Journal of Accounting & Information Management,* 1 – 36.

Ferreira M.A., *et al.* (2017). Do locals know better? A comparison of the performance of local and foreign institutional investors. *Journal of Banking and Finance*, 82, 151-164.

Gavriilidis, K., Kallinterakis, V., Ferreira, M. P.L. (2013). Institutional industry herding: Intentional or spurious?, *Journal of International Financial Markets, Institutions and Money.* 26.

Ghumro, N.H., Soomro, I.A., & Abbas, G. (2022). Asymmetric effect of exchange rate and investors' sentiments on stock market performance. *Journal of Economic and Administrative Sciences,* 40 (5), 1192 – 1204.

Hachicha, F. (2024). Sentiment investor, exchange rates, geopolitical risk and developing stock market: evidence of co-movements in the time-frequency domain during Russia Ukraine war. *Review of Behavioral Finance*, 16 (3), 486-509.

Herculano, M.C. & Lütkebohmert, E. (2023). Investor sentiment and global economic conditions. *Journal of Empirical Finance*, 73, 134-152.

Jiang, J. & Wang, W. (2022). Individual investors' responses to mutual fund fire sales and sell-side analysts' price-correcting revisions. *International Journal of Managerial Finance*, 18 (3), 510-533.

Jaiyeoba, H.B., Abdullah, M.A. and Ibrahim, K. (2020). Institutional investors vs retail investors: Are psychological biases equally applicable to investor divides in Malaysia?. *International Journal of Bank Marketing*, 38 (3), 671-691.

Johansen, S. (1995). *Likelihood-Based Inference in Cointegrated Vector Autoregressive Models.* Oxford: Oxford University Press.

Kumari, M., Bhattacharjee, A., Debnath, P., & Das, J. (2023). Investigating the determinants of foreign institutional investor inflows in indian equity market: An application of the augmented autoregressive distributed lag bounds testing approach. *The Indian Economic Journal*, 71(5), 805-819.

Lee, E.J., Lee, Y.K., dan Chae, J. (2019). Investor attention and expected return. *Journal of Derivatives and Quantitative Studies*, 27(1).

Li, S. *et al*. (2025). The role of international and domestic investors in international market information spillover effects: Evidence from interconnected multilayer networks. *The North American Journal of Economics and Finance*, 102465.

Liu, H., Peng, L., & Tang, Y. (2022). Ritel attention, institutional attention. *Journal of Financial And Quantitative Analysis*, 58 (3), 1005–1038.

Mankiw, N.G (2019). *Principles of Economics*. Boston: Cengage Learning.

Mavruk, T. (2022). Analysis of herding behavior in individual investor portfolios using machine learning algorithms. *Research in International Business and Finance*, 62.

Neupane, S., Fan, Z., Sanchez, D.Y., & Neupane, B. (2024). Diverse investor reactions to the COVID-19 Pandemic: Insights from an emerging market, *Journal of International Financial Markets, Institutions and Money*, 93.

Schmeling, M. (2009). Investor sentiment and stock returns: Some international evidence. *Journal of Empirical Finance*, 16(3), 394–408.

Sexton, R.L. (2016). *Exploring Macroeconomics*. Boston: Cengage Learning.

Warjiyo, P. (2004). *Mekanisme transmisi kebijakan moneter di Indonesia.* Jakarta: Pusat Pendidikan dan Studi Kebanksentralan Bank Indonesia.

Pan, C., Song Y., & Jin K. (2024). Stock price spillovers from foreign institutional investor divestment: Evidence from BlackRock's closure of the China Flexible Equity Fund, *International Review of Financial Analysis*, 96.

Pesaran, M. H., & Shin, Y. (1998). Generalized impulse response analysis in linear multivariate models. *Economics Letters*, 58(1), 17-29.

Rahman, M. L., & Shamsuddin, A. (2019). Investor sentiment and the price-earnings ratio in the G7 stock markets. *Pacific-Basin Finance Journal*, 55, 46–62.

Rudiawarni, F.A., Sulistiawan, D. &, Sergi B.S. (2024). The role of the net purchase of stocks by foreign investors in boosting stock returns: Evidence from the Indonesian stock market. *Economic Modelling, 135.*

Rehman, N.U. (2016). FDI and economic growth: empirical evidence from Pakistan. *Journal of Economic and Administrative Sciences*, 32 (1), 63-76.

Ross, S. A. (1976). The arbitrage theory of capital asset pricing. *Journal of Economic Theory*, 13(3), 341–360.

Sibande, X. (2024). Herding behaviour and monetary policy: Evidence from the ZAR market. *Journal of Behavioral and Experimental Finance*, 42.

Tseng, Y. & Pan, G. (2024). Do anticipated changes in the MSCI Taiwan index drive investor behaviour?. *International Review of Economics & Finance, 92*, 563-580.

Usman, *et al.* (2024). Exploring investor attention in Shariah markets, macroeconomic influences, and corporate performance: Insights from Indonesia. *Social Sciences & Humanities Open,* 10.

Verma, R.K. & Bansal, R. (2021). Impact of macroeconomic variables on the performance of stock exchange: a systematic review, *International Journal of Emerging Markets*. 16 (7), 1291-1329.

Yang, J.Y., Samitas, A. & Kampouris, I. (2021). Investor behavior, stock returns and CDS spreads: evidence from foreign and domestic investors in Korea. *International Journal of Managerial Finance*. 17(4), 497-521.