



The Nexus of Interest Rate, Foreign Exchange Rate, Profitability, and Leverage on Stock Returns in the Indonesia LQ45 Companies

Andewi Rokhmawati^(✉), Rifo Firmansyah, Fitri Fitri and Elvi Rahmayanti

Faculty of Economics and Business, Universitas Riau, Pekanbaru, Riau, Indonesia
andewi.rokhmawati@lecturer.unri.ac.id

Abstract. Companies must maintain their stock price high to maximize the existing shareholders' wealth. Maintaining the company's solid fundamentals to cope with the macroeconomic turmoil is crucial to sustaining its excellent financial performance. This study analyzes the effect of interest rates, foreign exchange rates, and leverage on profitability- interest rates, foreign exchange, leverage, and profitability on stock returns- the profitability in mediating the effect of interest rates, foreign exchange rates, and leverage on stock returns. This research was carried out in the Indonesian capital market from 2018 to 2020, involving 37 samples out of 45 Liquid companies (LQ45). Path analysis with the Sobel test was used to analyze the data. The results found that interest rates and foreign exchange negatively and significantly affect profitability. Interest rate, foreign exchange, and leverage negatively and significantly affect stock returns, and profitability significantly positively affects stock returns. Profitability negatively and substantially mediates the effect of interest and exchange rates on stock returns. These results imply that investors respond negatively to the increase in the interest rate due to the high level of company leverage. The company leverages have reached an optimum level. Companies were vulnerable to interest rate changes and foreign exchange changes. As a result, the companies are exposed to a higher financial risk. Hence, companies should pay more attention to managing their leverage before they have difficulties in cash flows.

Keywords: Interest Rate, Stock Returns, Indonesia LQ45 Companies

1 Introduction

Global economic factors such as the US-China trade war and us monetary policy normalization have significantly impacted the Indonesian economy, increasing fed interest rates (Góes et al., 2017; Taufikurahman & Firdaus, 2019). This global turmoil has adversely affected the performance of LQ45 companies in Indonesia, particularly since 2018, as higher fed rates have pressured Indonesian stock prices and influenced Bank Indonesia's (bi) interest rate policies (Robiyanto et al., 2019). The resulting IDR depreciation and the increased cost of importing raw materials have placed additional strain on Indonesian companies, particularly in the construction industry, which has seen a

decline in market performance despite being a focus of government development efforts (IDX, 2020; Pefindo, 2020).

This situation highlights the sensitivity of the Indonesian capital market to global economic events and raises concerns about the fundamental financial strength of Indonesian companies. Numerous studies have explored the relationships among interest rates, foreign exchange rates, leverage, and stock returns, as well as the impact of these factors on companies' Return on Assets (ROA) (Abduh & Surur, 2013; Abdulla, 2020; Apriani, Endri, & Gebang, 2020; Bayar & Ceylan, 2017; Egbunike & Okerekeoti, 2018; Hussain, Hassan, Bakhsh, & Abdullah, 2020; Matar, Al-Rdaydeh, Al-Shannag, & Odeh, 2018; Nagahisarchoghaei, Nagahi, & Soleimani, 2018; Norehan & Ridzuan, 2020; Triyono & Robiyanto, 2017).

Numerous studies have investigated the effects of macroeconomic factors on company market performance and profitability, yielding diverse and sometimes contradictory results. Nagahisarchoghaei et al. (2018) found a significant relationship between the real exchange rate and Indian firms' performance. Abduh and Surur (2013) observed a long-term negative impact of exchange rates on Indonesian stock market performance. Apriani et al. (2020) discovered a positive influence of the BI Rate and IDR/USD exchange rate on the Indonesian Composite Index, contrasting with Norehan and Ridzuan (2020), who reported positive impacts of exchange rate and inflation on the Malaysian stock market. Triyono and Robiyanto (2017) noted a negative effect of the exchange rate on Indonesian stock market returns. In their studies, Soon et al. (2020) showed positive effects of exchange rate and interest rate on Malaysian Islamic REIT stock returns, with leverage having a negative impact. At the same time, Mouna and Anis (2017) and Basarda et al. (2018) found that interest rates and leverage have varying effects on Johannesburg and LQ45 stock returns. Akbar and Afiezan (2018) observed a positive impact of leverage and interest rates on LQ45 stock returns. Regarding profitability, Bayar and Ceylan (2017) noted a negative effect of exchange rate fluctuations and leverage on ROA in South Africa. Egbunike and Okerekeoti (2018) found no effect of interest rates on ROA but a positive impact on leverage. Matar et al. (2018) and Abdulla (2020) reported varying impacts of interest rates and leverage on ROA in Jordan, while Hussain et al. (2020) showed that financial leverage positively affects ROE, but the exchange rate negatively affects it. These studies indicate the complex impact of macroeconomic factors on market performance and profitability across different contexts and markets. A common limitation is using nominal rates for interest and exchange, which may not capture company-specific sensitivities. Additionally, these studies often overlook how robust company fundamentals can mediate the impact of macroeconomic changes and how the market responds to these fundamentals versus macroeconomic conditions.

However, these studies have limitations, particularly in measuring exchange and interest rates at nominal values, which do not account for individual company sensitivities to these changes based on their leverage and US dollar usage. This research aims to address this gap using a sensitivity measurement approach, examining how profitability mediates the impact of macroeconomic variables on market performance. This approach could provide deeper insights into how companies with solid fundamentals can

withstand macroeconomic shocks and how the market responds to these fundamentals versus broader macroeconomic conditions.

2 Method

The population of this study is all company stocks listed in the LQ45 index calculation for the period 2017-2019. The sample selection in this study used the purposive sampling method based on the complete availability of data.

2.1 Variable Measurement

Stock return is the level of profit investors enjoy (Ang, 1997). Husnan (2015) measures a stock return with the following formula

$$\text{Stock returns} = \frac{P_t - P_{t-1} + D_t}{P_{t-1}} \quad (1)$$

- P_t : Current stock price
 P_{t-1} : Previous period stock price
 D_t : Current dividend.

Interest rate is the cost of borrowing or the price paid for the borrowed funds (Tandelilin, 2010). The interest rate applicable in this research is the BI-7 Day Reverse Repo Rate (BI7DRR). This study used regression to measure the sensitivity of interest rate changes to ROE based on the quarterly data of the BI7DRR rate as the independent variable and quarterly ROE data as the dependent variable. The estimation of beta regression was then used to measure the sensitivity of the change in interest rate to ROE. The regression model was based on formula (2).

$$\text{Profitability} = \alpha_i + \beta_i \text{IR} + e \quad (2)$$

- Profitability : Quarterly profitability of each company included in the LQ45 index
 α_i : The intercept of the regressions for each firm in the LQ45 index
 β_i : The sensitivity of the LQ45 Index companies to interest rates
 IR : Quarterly interest rates
 e : Error terms

Currency exchange rates are the price of one currency against another. This study used the exchange rate IDR toward US\$. Therefore, this study regressed the exchange rate as an independent variable and ROE as the dependent variable. Then, the beta regression was used to measure the sensitivity of company profitability to exchange rate changes (Husnan, 2015). The regression model is presented in formula (3).

$$\text{Profitability} = \alpha_i + \beta_i \text{FER} + e \quad (3)$$

β_i : Sensitivity of LQ45 Index companies to foreign exchange rates
 FER : Foreign exchange rates

According to Tandelilin (2010), Debt to Equity Ratio reflects a company's ability to fulfill its obligations, shown by some part of its capital or equity used to pay the debt. The debt-to-equity ratio (DER) can be mathematically calculated with the following formula (Ang, 1997). The debt-to-equity ratio (DER) can be measured as formula (4).

$$DER = \frac{Total\ Debts}{Total\ Equity} \tag{4}$$

Return on equity is (ROE) defined as the company's ability to generate profits based on equity capital measure as the ratio of net income to equity (Brigham & Houston, 2006). This measurement is from the shareholder's point of view. ROE can be calculated by using the following formula (Ang, 1997):

$$ROE = \frac{Earning\ after\ tax}{Total\ Equity} \tag{5}$$

Path analysis is used to analyze relationships between variables to know the direct and indirect relationships. Fig. 1 presents the research model of the path.

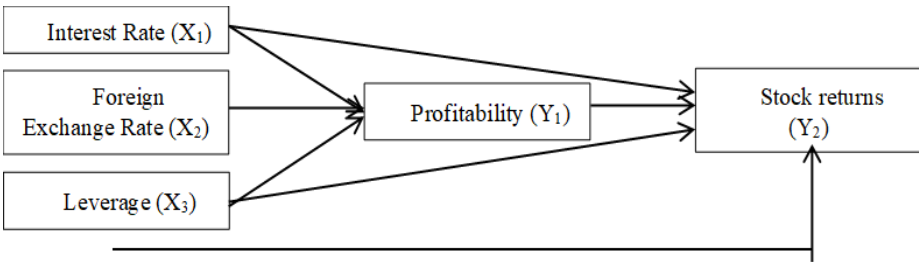


Fig. 1. Research Model

This research's data analysis methods include descriptive statistical analysis and classical assumption, and the mediation test can be carried out using a procedure of the Sobel test (Ghozali, 2016). This study used Sobel tests to test the mediating effect. The path structures are as follows:

$$Structure\ 1: Y_1 = P_{Y1X1}X_1 + P_{Y1X2}X_2 + P_{Y1X3}X_3 + \epsilon_1 \tag{6}$$

$$Structure\ 2: Y_2 = P_{Y2X1}X_1 + P_{Y2X2}X_2 + P_{Y2X3}X_3 + P_{Y2Z}Y_1 + \epsilon_2 \tag{7}$$

3 Result and Discussion

3.1 Descriptive Statistics and Statistical Test Results

The descriptive statistics analysis provides an overview of the data used in the research, and the result is as follows.

Table 1. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Interest Rate (X ₁)	102	-55.6141	12.9236	-7.3031	13.7782
Foreign Exchange Rate (X ₂)	102	-.0505	.1349	.0133	.0343
Debt to Equity Ratio (X ₃)	102	.1476	4.9213	2.4243	1.1880
Return on Equity (Y ₁)	102	-.6703	27.0281	9.7220	5.6796
Stock returns (Y ₂)	102	-.0180	.1094	.0266	.0307
Valid N (listwise)	102				

Source: Data processed, 2020

The mean value of interest rate sensitivity is -7.3031, meaning that ROE is very sensitive to the change in interest rate. A slight increase in the interest rate could reduce ROE significantly if other factors are constant. During the research period, the interest rate tends to increase slightly. The mean value of the debt-to-equity ratio (DER) is 2.42. The debts used by the companies are about 2.4 times their equity. The ROE of 9.72 is good enough, more than the BI7DRR interest rate at around 4 percent, but lower than the previous period. Meanwhile, the mean value of foreign exchange rate sensitivity is 0.0133. The statistical test results of structure 1 and structure 2 are available in Table 2.

Table 2. Multiple Regression Test Results

Hypothesis tests of Structure 1					
Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	7.109	1.181		6.021	.000
Interest Rate (X ₁)	-.276	.050	-.669	-5.540	.000
Foreign Exchange Rate (X ₂)	-63.684	19.931	-.386	-3.195	.002
Debt to Equity Ratio (X ₃)	.599	.423	.125	1.416	.160
R square (R ²)	.246				
Adj. R square (Adj. R ²)	.223				
F Count	37.008				
F Sig.	.000				
^a Dependent Variable: Return on Equity (Y ₁)					
Hypothesis tests of Structure 2					
Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.045	.005		8.283	.000
Interest Rate (X ₁)	-.001	.000	-.538	-5.340	.000
Foreign Exchange Rate (X ₂)	-.557	.083	-.622	-6.738	.000

Debt to Equity Ratio (X_3)	-.012	.002	-.481	-7.387	.000
Return on Equity (Y_1)	.001	.000	.198	2.687	.008
R squared (R^2)	.604				
Adj. R squared (Adj. R^2)	.588				
F Count	10.663				
F Sig.	.000				

^aDependent Variable: Stock Return (Y_2)

Source: Secondary data processed, 2020

3.2 Discussions

Path analysis of Structure 1.

In the study's path analysis (Structure 1), interest rates' significant and negative effect on Return on Equity (ROE) was observed, as detailed in Table 2.

The interest rate effect on ROE.

The findings indicate that an increase in interest rates leads to a decrease in ROE, confirming the hypothesis outlined in the research. During the studied period, Indonesia experienced a slight increase in interest rates, seemingly reducing the ROE of companies listed in the LQ45 index. These companies, on average, had a high debt-to-equity ratio, about 2.4 times their equity, making their ROE particularly sensitive to interest rate changes. This sensitivity implies that LQ45 companies are vulnerable to interest rate fluctuations due to their significant debt levels, as Husnan (2015) discussed. The study suggests that rising interest rates pose a risk to these companies' ROE and should be a concern, especially if interest rates increase substantially. Such a scenario could occur in response to the US central bank raising the Fed rate to control inflation, potentially leading Bank Indonesia to increase interest rates significantly to prevent capital flight. In this case, companies with high leverage might face increased financial risk and challenges in maintaining their cash flows to mitigate the impact of rising interest rates on their ROE.

The foreign exchange rate effects on ROE.

Table 2 of the study reveals that the foreign exchange rate significantly and negatively impacts Return on Equity (ROE), especially when the Indonesian Rupiah (IDR) depreciates against the US dollar. This depreciation particularly affects companies that rely on imported raw materials and services priced in US dollars, as it increases their production costs when the IDR value falls, leading to reduced profits and, consequently, a lower ROE. This issue is exacerbated when the value of imports surpasses that of exports, resulting in higher cash outflows than inflows from abroad. Companies facing this situation, especially those whose products are primarily for domestic markets without export, are more vulnerable to exchange rate fluctuations. The study suggests that these companies should consider sourcing raw materials locally to lessen their sensitivity to exchange rate changes and diversify their markets to include domestic and international customers, reducing import dependency. Additionally, the government could

play a role by encouraging investors to establish factories in Indonesia to produce these materials, possibly offering tax incentives as motivation. Another aspect considered is the impact of foreign loans on ROE. While companies in the study have a relatively high debt-to-equity ratio and are exposed to US dollar appreciation, this does not affect their ROE significantly. This observation implies that the companies' loans are likely sourced domestically rather than from foreign borrowings.

The leverage effect on ROE.

According to Table 2 of the study, leverage does not significantly affect Return on Equity (ROE), suggesting that the current leverage levels of the companies under study are optimal. This finding aligns with the tradeoff theory, which posits that companies can profit from financing their investments with debt if the benefits outweigh the costs. The benefits include increased profits and tax savings, while the costs are associated with higher capital costs. The study's results imply that the advantages of using debt to finance investments currently cover the costs associated with that debt. However, this also serves as a caution, indicating that if companies increase their leverage beyond this point, they may experience negative effects, such as reduced profits and increased financial risk. This balance is crucial as exceeding the optimal leverage level could lead to financial distress. Therefore, companies must manage their debt levels, maintaining them within limits to avoid financial risks and potentially reducing their leverage to allow more flexibility in financial decisions.

Path Analysis Structure 2.

The t-test for structure 2 examines the effects of interest rate, foreign exchange rate, DER, and ROE on stock returns. The result is in Table 2.

The effects of interest rate on stock returns.

Table 2 from the study indicates a negative and significant effect of interest rates on stock returns. This finding supports the hypothesis that an increase in interest rates leads to decreased stock returns. During the research period, a slight increase in interest rates was observed, which likely caused investors to shift their investments from stocks to bonds, resulting in selling pressure on stocks and a consequent decline in stock prices and returns. This trend suggests that even though the fundamentals of the LQ45 companies might be strong, investors in the capital market tend to favor bonds over stocks when interest rates rise. Additionally, the study found that companies with high leverage are negatively perceived by the market in times of rising interest rates, leading to a loss of investor confidence and increased stock selling, further driving down stock prices. The study also confirms this with the observation that the debt-to-equity ratio (DER) has a negative effect on stock returns.

The effect of foreign exchange rate on stock returns.

Table 2 from the study reveals that foreign exchange rates negatively and significantly impact stock returns. Specifically, an increase in foreign exchange rates tends to reduce

stock returns. This trend is observed particularly when the Indonesian Rupiah (IDR) depreciates against the US dollar, which theoretically should make Indonesian stocks more attractive to foreign investors due to lower prices from their perspective, potentially increasing stock demand and prices. However, several factors influenced the opposite outcome during the research period. Firstly, the US-China trade war, coupled with stronger economic growth and higher Federal Reserve rates in the US, made investments in the US market more appealing than in Indonesia, deterring foreign investment in the Indonesian capital market. Secondly, a general downward trend in the IDR against the US dollar likely discouraged long-term investment from foreign investors, as ongoing depreciation would require more IDR to convert returns and investments to foreign currency. Thirdly, from a local investor perspective, companies in the LQ45 index are often considered mature, blue-chip stocks with solid fundamentals suitable for long-term investment. Value investors who prefer to buy undervalued stocks and hold them until they are overvalued might opt to retain them for longer periods, impacting the dynamics of stock returns in the market.

The effect of the debt-to-equity ratio on stock returns.

Table 2 of the study shows that leverage, as indicated by the debt-to-equity ratio (DER), has a negative and significant effect on stock returns, supporting the proposed hypothesis. According to the signaling theory, investors might perceive a high level of DER, which is about 2.4 times on average for LQ45 companies, as an increased risk of bankruptcy. This perception leads investors to respond negatively to high leverage levels, often opting to sell their stocks. The resulting increase in stock supply can lead to a decrease in stock prices, thereby reducing returns. This negative response to leverage is further exacerbated by global economic uncertainties, where foreign investors prefer investing in markets like the US, which are perceived to offer more certainty or higher returns.

Debt to equity effect on stock returns.

The findings presented in Table 2 of the study reveal a positive and significant relationship between Return on Equity (ROE) and stock returns. Specifically, an increase in ROE is associated with an increase in stock returns, and conversely, a decrease in ROE tends to lead to reduced stock returns. This trend suggests that even a slight decrease in ROE can negatively impact the market, prompting investors to sell stocks and lowering stock prices and returns. Despite this, the study notes that investors seem to give more weight to interest rates and exchange rate movements. However, it is important to recognize that stocks in the LQ45 index represent mature companies with strong fundamentals, high profitability, excellent market liquidity, and significant market capitalization. Therefore, despite rising interest rates and uncertainties surrounding the Federal Reserve's policies, LQ45 stocks yield slight returns.

Sobel Test Results of the Mediating Effect.

The result of the Sobel test is provided in Table 3.

Table 3. Sobel Test Result

Path		Regression Coeff. (un- standard- ized)	Standard Error	Test Statis- tic	ϵ_1 value of the path	P-Value
X1 → Y1 → Y2	X1 → Y1	-.276	.050	-5.52	.00005	.00000003
	Y1 → Y2	.001	.000			
X2 → Y1 → Y2	X2 → Y1	-63.684	19.931	-3.195	.019931	.001397
	Y1 → Y2	.001	.000			
X3 → Y1 → Y2	X3 → Y1	.599	.423	1.416	.000423	.156753
	Y1 → Y2	.001	.000			

Source: Secondary data processed, 2020

Return on equity roles mediates the effects of interest rate, foreign effect, and DER on stock returns.

The study's analysis, as detailed in Table 2 and Table 3, reveals significant insights into the relationships between interest rates, foreign exchange rates, debt-to-equity ratio (DER), ROE, and stock returns. The Sobel test results, with a t-value of -5.52, confirm that ROE mediates the effect of interest rates on stock returns. Despite LQ45 companies having solid fundamentals, an increase in interest rates, which led to a decrease in ROE due to high debt levels, negatively impacted stock returns. Investors responded by moving away from stocks, especially as the companies' leverage made them vulnerable to financial distress, affecting their flexibility in cash utilization.

Similarly, ROE significantly mediated the effect of foreign exchange rates on stock returns. The depreciation of the IDR against the US dollar, primarily due to increased costs from imported raw materials, led to a reduction in ROE and, consequently, stock returns. This trend suggests that foreign investors, influenced by stronger US economic prospects, preferred investing in the US market, overshadowing the strong fundamentals of LQ45 companies. This observation underscores the importance for companies with high dependency on imported materials to develop hedging strategies and for the government to address the reliance on imported materials.

Interestingly, ROE does not mediate the effect of DER on stock returns. Although high leverage negatively impacts ROE, the capital market's reaction was not overly negative, indicating that investors might perceive these companies as still within tolerable risk levels, possibly due to their strong fundamentals and absence of liquidity or financial distress issues.

Overall, the results imply that while macroeconomic conditions like interest rates and foreign exchange rates significantly impact stock returns, the fundamental strength of companies, as reflected in their ROE, plays a crucial mediating role. Companies should be aware of their leverage levels to maintain investor confidence and adapt strategies to mitigate risks associated with external economic factors. On the other hand, investors can rely on strong company fundamentals for long-term investments, even in the face of macroeconomic fluctuations.

4 Conclusion

The study finds that interest and foreign exchange rates significantly and negatively affect profitability, indicating that these macroeconomic factors impact all companies, with only those with strong fundamentals capable of withstanding such uncertainties. The research shows that leverage, as measured by the debt-to-equity ratio (DER), does not affect profitability, suggesting that companies have reached an optimum level of leverage where its costs counterbalance the benefits of debt. This equilibrium signals a need for companies to be cautious about their DER levels, as increased leverage could limit their financial flexibility due to the fixed cost of loan repayments. Furthermore, the study reveals that interest rates, foreign exchange rates, and leverage negatively and significantly impact stock returns, highlighting these factors as key considerations for investors in the capital markets. Profitability, specifically Return on Equity (ROE), is found to have a positive effect on stock returns, demonstrating that the market responds favorably to companies with higher ROE. This finding underscores companies' importance in managing their DER effectively and maintaining strong fundamental performance to navigate macroeconomic uncertainties. Additionally, ROE is identified as a mediator in the relationship between interest rates and stock returns. This mediation suggests that companies' ROE is highly sensitive to interest rate changes, with investors reacting negatively to such fluctuations, particularly when the company's leverage is at a level where debt benefits only cover the costs. This sensitivity also extends to the impact of foreign exchange rates on stock returns, with ROE playing a mediating role. However, the study notes that ROE does not mediate the effect of DER on stock returns, indicating that DER is not a significant factor in the absence of interest rate changes and that companies have reached an optimal leverage level. This finding implies that companies should be cautious about exceeding this leverage limit, as higher DER could negatively affect their ROE.

References

1. Abduh, M., & Surur, M. (2013). The dynamics of macroeconomics variables and the volatility of Indonesia stock markets: Evidence from Islamic and conventional stock markets. *Journal of Islamic Banking & Finance*, 30(3), 25-33.
2. Abdulla, Y. (2020). Firms' profitability: evidence from Bahrain and Qatar. *International Journal of Economics and Business Research*, 19(1), 70-87.
3. Akbar, T., & Afiezan, A. (2018). Determination of sharia stock price through analysis of fundamental factors and macro-economic factors. *Account and Financial Management Journal*, 3(10), 1739-1745.
4. Ang, R. (1997). Buku pintar pasar modal Indonesia. In: Jakarta: Mediasoft Indonesia.
5. Apriani, E., Endri, E., & Gebang, A. Y. (2020). Dynamic movement of Indonesian stock exchanges: Analysis of global stock exchanges and macroeconomic variables. Available at SSRN 3669773. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3669773
6. Basarda, R. F., Moeljadi, M., & Indrawati, N. K. (2018). Macro and micro determinants of stock return companies in LQ-45 Index. *Jurnal Keuangan dan Perbankan*, 22(2), 310-320.

7. Bayar, Y., & Ceylan, I. E. (2017). Impact of macroeconomic uncertainty on firm profitability: A case of BIST nonmetallic mineral products sector. *Journal of Business Economics and Finance*, 6(4), 318-327.
8. Brigham, E. F., & Houston, J. F. (2006). Dasar-dasar manajemen keuangan, edisi 11. *Jakarta: Salemba Empat*.
9. Egbunike, C. F., & Okerekeoti, C. U. (2018). Macroeconomic factors, firm characteristics and financial performance. *Asian Journal of Accounting Research*.
10. Ghozali, I. (2016). Aplikasi analisis multivariete dengan program IBM SPSS 23 (edisi 8). *Cetakan ke VIII. Semarang: Badan Penerbit Universitas Diponegoro*, 96.
11. Góes, C., Kamil, H., De Imus, P., Garcia-Escribano, M. M., Perrelli, M. R., Roache, M. S. K., & Zook, J. (2017). *Spillovers from US monetary policy normalization on Brazil and Mexico's sovereign bond yields*: International Monetary Fund.
12. Husnan, S. (2015). Dasar-dasar teori portofolio dan analisis sekuritas.
13. Hussain, S., Hassan, A. A. G., Bakhsh, A., & Abdullah, M. (2020). The impact of cash holding, and exchange rate volatility on the firm's financial performance of all manufacturing sector in Pakistan.
14. IDX. (2020). Digital statistic: Jakarta composite index and sectoral indices movement. Retrieved from <https://www.idx.co.id/en-us/market-data/statistical-reports/digital-statistic-beta/jci-sectoral-movement/>. <https://www.idx.co.id/en-us/market-data/statistical-reports/digital-statistic-beta/jci-sectoral-movement/>
15. Matar, A., Al-Rdaydeh, M., Al-Shannag, F., & Odeh, M. (2018). Factors affecting the corporate performance: Panel data analysis for listed firms in Jordan. *Academy of Accounting and Financial Studies Journal*, 22(6), 1-10.
16. Mouna, A., & Anis, J. (2017). Stock market, interest rate and exchange rate risk effects on non financial stock returns during the financial crisis. *Journal of the Knowledge Economy*, 8(3), 898-915.
17. Nagahisarchoghaei, M., Nagahi, M., & Soleimani, N. (2018). Impact of exchange rate movements on Indian firm performance. *International Journal of Finance and Accounting*, 7(4), 108-121.
18. Norehan, M. A. H., & Ridzuan, A. R. (2020). The impact of macroeconomics variables toward stock market in Malaysia.
19. Pefindo. (2020). Construction industry. *August*. Retrieved from <https://www.pefindo.com/fileman/file/936>
20. Robiyanto, R., Santoso, M. A., Atahau, A. D. R., & Harijono, H. (2019). The Indonesia stock exchange and its dynamics: An analysis of the effect of macroeconomic variables. *Montenegrin Journal of Economics*, 15(4), 59-73.
21. Soon, W. C. K., Hussin, M. Y. M., Muhammad, F., & Wahab, N. A. (2020). Macroeconomic shocks and leverage effect on Malaysian Islamic real estate investment trust stock return. *J. Crit. Rev*, 7(6), 607-617.
22. Tandelilin, E. (2010). *Portofolio dan investasi: Teori dan aplikasi*: Kanisius.
23. Taufikurahman, M. R., & Firdaus, A. H. (2019). *The economic consequences and strategies of the US-China trade war on Indonesia: A GTAP simulation analysis*. Paper presented at the International Conference on Trade 2019 (ICOT 2019).
24. Triyono, D., & Robiyanto. (2017). The effect of foreign stock indexes and Indonesia's macroeconomics variables toward Jakarta Composite Stock Price Index (JCI). *Advanced Science Letters*, 23(8), 7211-7214.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

