The Effect of Inflation and Profitability on Stock Returns in LQ45 on Indonesian Stock Market

Isti'anah Rizqullah[1*]; Muhammad Irfan Rizki[2]

[1] *istianah.rizqullah@widyatama.ac.id, Universitas Widyatama, Indonesia*
[2] *irfan.rizki@widyatama.ac.id, Universitas Widyatama, Indonesia*

(*) Corresponding Author

ABSTRACT

Objectives: *This research intends to investigate how inflation and profitability influence the stock returns of firms listed in the LQ45 index on the Indonesia Stock Exchange (IDX).*

Methodology: *This research employs a regression technique based on panel data utilizing the Common Effect Model (CEM) method. The information analyzed consists of secondary data obtained from 25 LQ45 firms spanning the years 2017 to 2021. To confirm the integrity of the regression model, classical assumption evaluations, including tests for multicollinearity, autocorrelation, and heteroscedasticity, were performed.*

Findings: *The results of the analysis show that neither inflation nor profitability have a significant effect on stock returns in LQ45 companies. Although inflation has a positive coefficient, this relationship is not statistically significant. Meanwhile, profitability shows a negative relationship to stock returns, but is also not significant. This suggests that other factors outside of inflation and profitability are likely to play a greater role in determining stock returns in the Indonesian capital market.*

Conclusion: *This study indicates that investors cannot fully rely on inflation and profitability variables as determinants of stock returns in LQ45 companies. Other factors, such as macroeconomic conditions, industry performance, and market expectations, are likely to have a greater influence in determining stock returns on the IDX.*

Keywords: *Inflation, Profitability, Stock Return, LQ45, Indonesia Stock Exchange.*

INTRODUCTION

Indonesia has a large area with a population of 281.6 million people as of June 25, 2024 (Central Bureau of Statistics, 2024). This makes Indonesia have great potential to become a developed country, supported by abundant natural resources. However, the management of these resources is often hampered by inadequate infrastructure (Tambunan, 2020). Many companies need additional capital to develop their business and improve the quality and quantity of their products in order to compete in the market (Sundjaja & Barlian, 2021). Large companies with

_____

stable finances usually go public through an IPO (Initial Public Offering) to obtain public funds (Amiria & Suprapto, 2024). an IPO allows the general public to become owners of company shares, which are then traded on the Indonesia Stock Exchange (IDX). The IDX also provides indices such as the IHSG and LQ45 to track stock performance, making it easier for investors to understand stock price trends and make investment decisions (IDX, 2023).

Stock returns are one of the main indicators used by investors to assess a company's performance in the capital market (Brahmana & Shiratina, 2024). Macroeconomic factors such as inflation often affect stock price movements, while fundamental company factors, such as profitability, also play a key role in determining stock returns (Bodie, Kane, & Marcus, 2021). High inflation can cause an increase in a company's production and operating costs, which can ultimately reduce the company's profits and depress stock returns (Mishkin, 2020). For example, in the manufacturing sector, rising raw material prices due to inflation often result in increased selling prices, which can reduce consumer demand and reduce company revenues (Fama & French, 2018). Conversely, companies with high profitability tend to be more resistant to the impact of inflation because they have stronger competitiveness and better cost management strategies (Ross, Westerfield, & Jaffe, 2021).

In the context of the Indonesian capital market, research on the relationship between inflation, profitability, and stock returns is still a relevant topic. Previous studies have shown that inflation has a negative relationship with stock returns, but its significance varies across industry sectors (Nugroho et al., 2022). Therefore, this study aims to further examine how inflation and profitability affect stock returns in Indonesia using a panel data approach.

LITERATURE REVIEW

Inflation

As stated by Sukirno (2010:14), inflation refers to the trend of rising prices within an economy. This phenomenon leads to a reduction in consumers' ability to buy goods and services. The level of inflation in a nation serves as a signal for investment risks, significantly influencing the actions of investors when engaging in investment ventures. Tandelilin (2010) notes that inflation affects a business by raising both revenues and expenses. Rahardja and Manurung (2004) assert that an economy is considered to be experiencing inflation when it meets three specific criteria, which include:

1. price increases,
2. price increases are general in nature, and
3. occur continuously.

Profitability

Profitability refers to the capacity of a business to generate earnings in connection to its sales, overall assets, and equity, according to Santoso and Priatinah (2016). It signifies the extent of net income that an organization can realize while conducting its business activities. Profitability illustrates how well the capital put into various assets can create returns for investors, as noted by Ambarsari and Hermanto (2017). Essentially, profitability is the capability to produce profits, as stated by Prihadi (2012:258).

_____

Stock Return

Return refers to the earnings generated from an investment. Stocks signify ownership in the assets of the company that provides the shares. When individuals possess shares in a corporation, they are entitled to a portion of its profits and resources, following the settlement of the company's liabilities (Fahmi, 2011).

Stock returns represent the gains that investors realize from their stock investments. These returns may comprise both realized profits that have already occurred and anticipated returns that are expected to happen in the future (Jogiyanto, 2017: 283). Stock returns can be calculated as capital gain (or loss) plus yield. Capital gain (or loss) denotes the difference between the current stock price and its value from a previous period. Based on a review of existing literature, this theoretical framework indicates that both inflation and profitability are thought to impact the stock returns of companies listed in the LQ45 index.
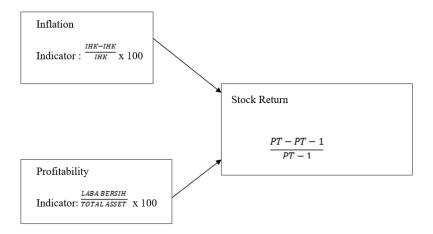

Figure 1. Framework

METHOD

This research employs a panel data regression approach to assess the connection between the dependent and independent variables. The dataset utilized consists of a mix of time series data and cross-sectional data, referred to as panel data.

The application of panel data in research comes with multiple benefits. To begin with, panel data merges cross-sectional and time series data, allowing for a larger dataset, which increases the level of freedom. Additionally, integrating insights from time series and cross-sectional data helps address the issue of excluded variables or omitted variables (Widarjono, 2018: 85). The research utilizes secondary data based on the criteria for sample selection as follows.

_____

Table 1.1 Sample Selection Criteria

Description	Qty
Sampling based on criteria (purposive sampling) :	45
LQ45 firms that have not been on the IDX from 2017 to 2021 in a continuous manner.	(3)
The company did not report audited and incomplete financial statements and there were losses in 2017-2021.	(10)
Companies that do not use Rupiah currency	(7)
Research Sample	25
Observation Period Year 2017-2021	5
Number of Observation Samples (25x5)	125

Source: www.idx.co.kr (2023)

The number of LQ45 companies listed on the Indonesia Stock Exchange in 2023 is 45 companies with a total observation year of 5 consecutive years during the period 2017-2021. After selection with purposive sampling with the above criteria, 25 companies were obtained, so that the total observations in this study were 125 observations. The list of 25 sample companies can be seen in table 1.2

Table 1.2 Research Sample

Id	Code	Company Name
1	ACES	Ace Hardware Indonesia Tbk.
2.	AKRA	AKR CorporindoTbk.
3.	AMRT	Sumber Alfaria Trijaya Tbk.
4.	ANTM	Aneka Tambang Tbk.
5.	ASII	Astra International Tbk.
6.	BBCA	Bank Central Asia Tbk.
7.	BBNI	Bank Negara Indonesia (Persero) Tbk.
8.	BBRI	Bank Rakyat Indonesia (Persero) Tbk.
9.	BBTN	Bank Tabungan Negara (Persero) Tbk
10.	BMRI	Bank Mandiri (Persero) Tbk.
11.	CPIN	Charoen Pokphand Indonesia Tbk
12.	ICBP	Indofood CBP Sukses Makmur Tbk
13.	INDF	Indofood Sukses Makmur Tbk.
14.	INTP	Indocement Tunggal Prakarsa Tbk.
15.	JPFA	JapfaComfeed Indonesia Tbk.
16.	KLBF	Kalbe FarmaTbk.
17.	PTBA	Bukit AsamTbk.
18.	SCMA	Surya Citra Media Tbk.
19.	SIDO	Sidomuncul Tbk.
20.	SMGR	Semen Indonesia (Persero) Tbk.
21.	TBIG	Tower Bersama Infrastructure Tbk.
22.	TLKM	Telekomunikasi Indonesia (Persero) Tbk.
23.	TOWR	Sarana Menara Nusantara Tbk.
24.	UNTR	United Tractors Tbk.
25.	UNVR	Unilever Indonesia Tbk.

Source: Data Processed

_____

RESULTS AND DISCUSSION

Results
Descriptive Statistics

Table 1. Results of Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Inflation	125	0.020	0.040	0.03400	0.008032
Profitable	125	0.000	0.470	0.09504	0.086478
Stocks Return	125	-0.440	1.410	0.08376	0.333898

Source: Processed data with RStudio

According to the findings from the descriptive statistics, the average inflation within the examined sample is 3.4%, with the lowest rate being 2% and the highest at 4%. The standard deviation stands at 0.8%, suggesting that the inflation rates are quite consistent, showing little variation. Meanwhile, the profitability of the companies has an average of 9.5%, with a minimum of 0% and a maximum of 47%, and a standard deviation of 8.65%, indicating a significant variation between highly profitable companies and those with minimal profits. The stock return has an average of 8.38%, with a very wide range from -44% to 141%, and a high standard deviation of 33.39%, reflecting significant volatility in the stock returns of the companies analyzed. This shows that, compared to inflation and profitability, stock return has a higher level of uncertainty, which may provide high returns but also poses high risks.

Panel Data Regression Analysis

Chow Test

The Chow test is conducted to determine whether the Common Effect Model (CEM) or the Fixed Effect Model (FEM) is more suitable in panel data regression analysis.

Table 2. Chow Test Results

F-statistics	df1	df2	p-value
0.85058	24	98	0.6905

Source: Processed data with RStudio

The test results in Table 2 show that the F-statistic is 0.85058 with a p-value of 0.6905, which is greater than 0.05. Since the p-value is > 0.05, the null hypothesis (H_0) is accepted, meaning that the Common Effect Model (CEM) is more appropriate than the Fixed Effect Model (FEM). In other words, there is no significant difference between individuals in the sample, so the use of a fixed effects model is unnecessary.

Hausman Test

The Hausman test serves to evaluate the Fixed Effect Model (FEM) against the Random Effect Model (REM) by assessing if the distinction between the two is meaningful.

_____

Table 3. Hausman Test Results

Chi-square	df	p-value
3.9778	1	0.0461

Source: Processed data with RStudio

The findings presented in Table 3 indicate that the Chi-square statistic is 3.9778, accompanied by a p-value of 0.0461, falling below the 0.05 threshold. Given that the p-value is less than 0.05, we dismiss the null hypothesis (H_0), signifying that the Fixed Effect Model (FEM) is preferable to the Random Effect Model (REM). This suggests the presence of distinct variations for each individual within the dataset, thus making the fixed effect model a better choice for conducting panel regression analysis.

Breusch-Pagan Test

The Breusch-Pagan test is conducted to determine whether the Common Effect Model (CEM) or the Random Effect Model (REM) is more suitable for panel data regression analysis.

Table 4. Breusch-Pagan Results

LM value	p-value
-1.3252	0.9075

Source: Processed data with RStudio

The results in Table 4 show that the LM value is -1.3252 with a p-value of 0.9075, which is much greater than 0.05. Since the p-value > 0.05, the null hypothesis (H_0) is accepted, indicating that the Common Effect Model (CEM) is more appropriate than the Random Effect Model (REM). Thus, there are no significant random effects in the data, and the simpler CEM model is more suitable.

According to the outcomes of the three assessments, it has been determined that the Common Effect Model (CEM) is the most suitable model for analyzing this panel data through regression. This is because both the Chow and Breusch-Pagan tests indicate that CEM is more appropriate than FEM and REM, although the Hausman test shows the suitability of FEM over REM. Therefore, the subsequent regression analysis should use the Common Effect Model (CEM) to obtain more accurate results that match the characteristics of the data.

Based on the results of these three tests, it was found that the Common Effect Model (CEM) is the most appropriate model for this panel data regression analysis. This is because both the Chow and Breusch-Pagan tests indicate that CEM is more appropriate than FEM and REM, although the Hausman test shows the suitability of FEM over REM. Therefore, the subsequent regression analysis should use the Common Effect Model (CEM) to obtain more accurate results that match the characteristics of the data.

Estimation of Common Effect Model (CEM) Parameters

From the panel data obtained in this study, the estimation of parameters will be conducted using the Common Effect Model (CEM) for 25 LQ45 companies listed on the Indonesia Stock Exchange (IDX) with stock return data. This model treats panel data as regular regression using Ordinary Least Squares (OLS), without considering heterogeneity between companies or

_____

variations in specific periods.

Table 5. CEM Parameter Estimation Results

Variable	Coefficient	Std. Error	t-statistics	p-value
Intercept	-0.066	0.133	-0.495	0.622
Inflation	4.477	3.753	1.193	0.235
Profitable	-0.029	0.349	-0.084	0.933

Source: Processed data with RStudio

Based on the estimation results using the Common Effect Model (CEM) in Table 5, it was found that both inflation and profitability do not have a significant effect on stock return for LQ45 companies listed on the Indonesia Stock Exchange (IDX). This is evident from the p-value for both independent variables being greater than 0.05, indicating that the relationship between inflation and profitability on stock return is not statistically significant. The coefficient for inflation of 4.477 suggests that for every unit increase in inflation, stock return would increase by 4.477 units. However, since this relationship is not significant, its effect cannot be considered meaningful in this model. Meanwhile, the coefficient for profitability of -0.029 shows a negative relationship with stock return, but the p-value of 0.933 indicates that this effect is also not significant. Overall, this model shows that inflation and profitability alone do not sufficiently explain the variability in stock return, suggesting that other factors may play a more substantial role in determining stock return movements.

The Common Effect Model is as follows:

$$Y_{it} = -0.066 + 4.477 Inflation_{it} - 0.029 Profitable_{it} \qquad (1)$$

Classical Assumption Tests

Multicollinearity Test

The multicollinearity assessment seeks to find out if there exists a strong linear correlation among the independent variables within the regression model. This evaluation is performed by analyzing the values of the Variance Inflation Factor (VIF).

Table 6. Multicollinearity Test Results

Variable	Nilai VIF
Inflation	1.006235
Profitable	1.006235

Source: Processed data with RStudio

In the multicollinearity test results in Table 6, the VIF value is found to be 1.006235 for both inflation and profitability. Generally, if the VIF < 10, there is no multicollinearity issue. Since the obtained VIF values are very low, it can be concluded that there is no multicollinearity in the model, meaning the independent variables in this model do not have a strong linear relationship with each other.

Autocorrelation Test

Autocorrelation refers to the correlation between residuals in the regression model, which can

cause ineffective estimation. The autocorrelation test is performed using the Breusch-Godfrey/Wooldridge test.

Table 7. Autocorrelation Test Results

Chi-square	df	p-value
13.365	25	0.9717

Source: Processed data with RStudio

In the autocorrelation test results in Table 7, the Chi-square value is 13.365 with a p-value of 0.9717. If the p-value > 0.05, the null hypothesis (H_0), which states that there is no autocorrelation in the model, cannot be rejected. Since the p-value is much greater than 0.05, it can be concluded that the regression model does not suffer from autocorrelation, thus meeting the assumption of independence of residuals.

Heteroscedasticity Test

Heteroscedasticity occurs when the variance of residuals is not constant, which can cause inefficiency in regression results. The heteroscedasticity test is conducted using the Breusch-Pagan test.

Table 8. Heteroscedasticity Test Results

BP value	df	p-value
0.87136	2	0.6468

Source: Processed data with RStudio

In the heteroscedasticity test results in Table 8, the BP value is 0.87136 with a p-value of 0.6468. Since the p-value > 0.05, we fail to reject the null hypothesis (H_0) that there is no heteroscedasticity in the model. Thus, the regression model does not suffer from heteroscedasticity, and the variance of residuals can be considered constant.

Normality Test

The normality test is conducted to check whether the residuals in the regression model are normally distributed. The normality test is done using the Jarque-Bera test.

Table 9. Normality Test Results

X-squared	df	p-value
80.845	2	<2.2e-16

Source: Processed data with RStudio

According to the results of the normality test presented in Table 9, the X-squared statistic equals 80.845, accompanied by a p-value less than 2.2e-16. Given that the p-value is significantly below 0.05, we dismiss the null hypothesis (H_0) asserting that the residuals follow a normal distribution. This suggests that the residuals within the regression model do not conform to normality, potentially indicating problems with the model's structure or the existence of outliers that require attention. Although the normality test results show that the residuals in the regression model are not normally distributed (p-value < 0.05), this is not always a serious

_____

problem, especially in the context of panel data regression with a large sample size. According to the Central Limit Theorem (CLT), if the sample size is large enough (more than 30 observations), the sampling distribution of the sample mean will approach normal distribution, even if individual data or residuals are not normal. In this study, the number of observations is 125, which is well above 30, so the normality assumption of residuals is not a strict requirement for the validity of parameter estimates in the regression.

Discussion

The results of this study show that neither inflation nor profitability has a significant effect on stock return for LQ45 companies listed on the Indonesia Stock Exchange. This finding aligns with several previous studies, which also found that inflation and profitability do not significantly affect stock returns. For example, a study published in the E-Jurnal Ekonomi dan Bisnis Universitas Udayana found that inflation does not have a significant effect on stock returns for real estate and property companies listed on the Indonesia Stock Exchange. One reason why inflation does not have a significant effect on stock returns is that companies may have the ability to adjust their product or service prices in line with inflation levels, thus minimizing the impact of inflation on profitability and, ultimately, stock return. Additionally, investors may have already anticipated inflation levels in their investment decisions, so changes in inflation do not provide new information that affects stock returns. For profitability, although companies with higher profitability are theoretically expected to provide higher stock returns, in practice, other factors such as market conditions, competition, and investor expectations can influence this relationship. Therefore, profitability is not always the primary determinant of stock returns. Overall, these findings suggest that other factors, beyond inflation and profitability, may play a more significant role in determining stock returns for LQ45 companies. Investors are advised to consider other variables, such as macroeconomic conditions, industry performance, and company-specific factors when making investment decisions.

CONCLUSION

From the findings and analysis, it can be inferred that inflation and profits do not substantially influence the stock returns of LQ45 firms registered on the Indonesia Stock Exchange (IDX). These findings are consistent with previous research, which showed that these two variables do not have a strong enough impact on stock return movements. Specifically, although inflation has a positive coefficient, indicating that an increase in inflation could raise stock returns, the p-value greater than 0.05 suggests that this relationship is not significant. Similarly, profitability, with a negative coefficient, shows no significant effect on stock returns, as indicated by the very high p-value. Therefore, it can be concluded that inflation and profitability alone do not adequately explain the variability in stock returns. Other factors, both macroeconomic and microeconomic, are likely to play a larger role in determining stock price movements in the market.

REFERENCES

Amiria, H. D., & Suprapto, S. (2024). Green HRM and Employee Engagement: Impact on Employee Performance in Manufacturing Companies. *Journal of Sustainable Economic and Business*, *1*(4), 263-273.

_____

Badan Pusat Statistik. (2024). *Statistik Indonesia 2024*. Jakarta: BPS.

Brahmana, S. T., & Shiratina, A. (2024). Analysis of the Decision to Use Jastip (Personal Shopper) through Trust as a Mediating Variable. *Journal of Sustainable Economic and Business*, *1*(4), 221-242.

Bursa Efek Indonesia. (2023). *Laporan Pasar Modal Indonesia 2023*. Jakarta: BEI.

Bodie, Z., Kane, A., & Marcus, A. J. (2021). *Investments* (12th ed.). McGraw-Hill. ISBN: 978-1260013832.

Fahmi, I. (2011). *Pengantar Pasar Modal*. Bandung: Alfabeta.

Fama, E. F., & French, K. R. (2018). Choosing Factors. *Journal of Financial Economics*, 128(2), 234-252. https://doi.org/10.1016/j.jfineco.2018.02.012.

Jogiyanto, H. (2017). *Teori Portofolio dan Analisis* Investasi. Yogyakarta: BPFE.

Mishkin, F. S. (2020). *The Economics of Money, Banking, and Financial Markets* (13th ed.). Pearson. ISBN: 978-0134733821.

Nugroho, R., Setiawan, B., & Hartono, T. (2022). Inflation and Stock Returns: Evidence from Indonesian Capital Market. *Indonesian Journal of Economics*, 15(3), 102-118.

Prihadi, T. (2012). *Analisis Laporan Keuangan*. Jakarta: Salemba Empat.

Ross, S. A., Westerfield, R. W., & Jaffe, J. (2021). *Corporate Finance* (13th ed.). McGraw-Hill. ISBN: 978-1260013900.

Rosa, J. L., Puspaningsih, A., & Damayanti, A. Implementasi Corporate Social Responsibility Dan Dampaknya Terhadap Nilai Perusahaan.

Rahardja, P., & Manurung, M. (2004). Teori Ekonomi Makro Suatu Pengantar Edisi Kedua. *Jakarta: Lembaga Penerbit Fakultas Ekonomi Universitas Indonesia (FEUI)*.

Sundjaja, M. M., & Barlian, E. (2021). *Manajemen Keuangan: Teori dan Aplikasi*. Jakarta: Salemba Empat.

Tandelilin, E. (2010). *Portofolio dan Investasi: Teori dan Aplikasi*. Yogyakarta: Kanisius.

Tambunan, T. (2020). *Perekonomian Indonesia: Tantangan dan Peluang Menuju Negara Maju*. Jakarta: UI Press.