Inflation, Exchange Rates, and Return on Assets in Explaining Manufacturing Stock Prices

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ABSTRACT

This study investigates how inflation, exchange rates, and return on assets shape stock prices among manufacturing firms. Using archival data and multivariate regression techniques, we evaluate whether macroeconomic conditions and firm profitability provide distinct explanatory power for equity valuation. The findings indicate that inflation exerts a significant and negative influence on stock prices, consistent with cost pressures, higher discount rates, and weaker consumer purchasing power that erode expected cash flows and valuation multiples. By contrast, exchange rate movements display no significant partial effect on stock prices for predominantly domestically oriented manufacturers, likely due to natural hedges, currency matched contracts, and offsetting exposures across supply chains. Furthermore, return on assets does not significantly explain contemporaneous stock prices, suggesting that investors prioritized resilience, pricing power, and cash flow quality over accounting profitability during the period studied. These results highlight the primacy of inflation dynamics in shaping equity prices in manufacturing, while underscoring muted direct sensitivity to currency fluctuations and profitability ratios. Practical implications include strengthening cost pass through mechanisms, pursuing operational hedges, and communicating cash flow durability. Future research should probe nonlinear thresholds, regime dependence, and disaggregated exposure profiles to reveal conditional effects that average estimates may obscure across different market contexts.

Keywords: inflation, exchange rates, return on assets, stock prices, manufacturing firms

1. INTRODUCTION

Indonesia's capital market has expanded markedly in recent years, with the Indonesia Stock Exchange (IDX) serving as a primary barometer of domestic investment activity (www.idx.co.id). Within this landscape, manufacturing stands out as a strategic pillar whose stock price dynamics are shaped by both macroeconomic conditions and firm-level fundamentals (Wijoyo & Reksa, 2023). In this sector, valuation shifts often trace back to movements in inflation, exchange rates, and profitability signals that together inform investors' expectations and risk assessments (Yusuf & Pratama, 2022).

The 2019–2023 window captures an extraordinary economic arc encompassing the onset of the COVID-19 shock, subsequent stabilization, and the early phases of recovery in Indonesian manufacturing (Alam & Lestari, 2022). These regime changes likely altered how macroeconomic variables transmit into equity prices, making the period uniquely informative for testing relationships among inflation, the rupiah–U.S. dollar exchange rate, and Return on Assets (ROA). Stock prices—often tracked via price indices to compare levels across time—provide an integrated market signal of these forces. Against this backdrop, examining manufacturing shares listed on the IDX offers relevant and timely evidence for investors and policymakers alike .

Literature Review and Previous Research. Inflation, in the context of IDX-listed manufacturing firms during 2019–2023, refers to a broad and sustained rise in the general price level that erodes purchasing power and increases input costs (Arko, 2021). This study operationalizes inflation using the Consumer Price Index (CPI), a household-based metric that tracks average changes in prices of goods and services over time. Prior work indicates that macroeconomic conditions—including inflation—shape stock price movements in the manufacturing sector (Wijoyo & Reksa, 2023) and influence corporate performance, thereby feeding through to valuations and investment decisions (Yusuf & Pratama, 2022).

The exchange rate in this study is understood as the price of one unit of foreign currency in domestic currency, reflecting how many rupiah are exchanged per U.S. dollar (Prabowo, 2020). The indicator used is the IDR/USD rate, which is especially salient for manufacturing firms with imported inputs and export exposure. Previous research underscores that currency fluctuations, alongside inflation, affect the operating conditions and financial outcomes of Indonesian manufacturers, which can in turn be capitalized into stock prices (Yusuf & Pratama, 2022; Wijoyo & Reksa, 2023).

ROA for IDX manufacturing companies is defined as a profitability measure capturing a firm's ability to generate net earnings relative to the assets it employs (Hanafi, 2016:81). It is operationalized as the ratio of net income to total assets computed from annual financial statements sourced through the exchange (www.idx.co.id). Earlier studies frame ROA as an essential firm-level signal when modeling stock valuations in Indonesian manufacturing, especially when analyzed in tandem with macroeconomic variables such as inflation and exchange rates .

Gap Analysis And Novelty Statement. A prominent gap arises from fragmentation in the literature: many studies analyze macroeconomic drivers or firm fundamentals in isolation, limiting clarity on their joint influence on stock prices in the manufacturing sector (Wijoyo & Reksa, 2023). Additionally, findings on exchange rate significance are mixed, and less is known about how these relationships behaved across the COVID-19 shock and recovery—precisely when structural breaks can alter the strength and sign of effects (Yusuf & Pratama, 2022; Alam & Lestari, 2022). Measurement consistency is another challenge, as studies vary in inflation proxies and exchange rate definitions, complicating comparisons across samples and periods.

The present study addresses these gaps by jointly modeling inflation (CPI), the rupiah–U.S. dollar exchange rate (IDR/USD), and ROA within a single framework focused exclusively on IDX-listed manufacturing firms during 2019–2023. This design captures a rare, high-variance economic period that encompasses the pandemic's onset and recovery, enabling more credible inference about time-specific transmission mechanisms (Alam & Lestari, 2022). The study relies on consistent annual data from the IDX to ensure comparability across firms and years while integrating macro and micro indicators to reveal their combined and partial effects on stock prices (www.idx.co.id).

Research Objectives. This study aims to examine and quantify both the partial effects (Dhany et al., 2025; Hudzafidah, Rahmansyah, et al., 2023; Rahmansyah, Dhany, et al., 2024; Rahmansyah & Dhany, 2023) of inflation (CPI), the IDR/USD exchange rate, and ROA on the stock prices of manufacturing companies listed on the IDX during 2019–2023. It seeks to clarify the relative contributions of macroeconomic conditions and firm profitability to equity valuations in a shock-and-recovery period. The findings are intended to inform investors' asset allocation and risk management decisions, while offering policymakers evidence on how macro stabilization and micro performance shape capital market outcomes (Wijoyo & Reksa, 2023; Yusuf & Pratama, 2022).

Hypotheses. Grounded in theory and prior empirical indications, this study hypothesizes that higher inflation is associated with lower stock prices for IDX-listed manufacturers due to rising

input costs and compressed margins (Arko, 2021). It further posits that a stronger rupiah against the U.S. dollar is associated with higher stock prices by easing imported input costs and stabilizing cash flows (Prabowo, 2020). ROA is expected to be positively related to stock prices as it signals efficient asset utilization and sustainable profitability (Hanafi, 2016:81), and, taken together, inflation, the exchange rate, and ROA are hypothesized to exert a joint influence on manufacturing stock prices during 2019–2023 (www.idx.co.id; Wijoyo & Reksa, 2023; Yusuf & Pratama, 2022; Alam & Lestari, 2022).

2. METHOD

This study employed a quantitative research design (Dhany & Rahmansyah, 2022; Hudzafidah, Dhany, et al., 2023; Rahmansyah, Hudzafidah, et al., 2024) using secondary, annual data and multiple linear regression to examine the effect of Inflation, Exchange Rate, and Return on Assets (ROA) on Stock Prices of manufacturing companies listed on the Indonesia Stock Exchange (IDX) during 2019–2023, with data obtained through documentation and observation from the IDX portal (www.idx.co.id). The population comprised all IDX-listed manufacturing firms in 2019–2023, and sampling used purposive sampling to include issuers with available, complete annual observations; while the exact firm count is not explicitly stated, the Durbin–Watson calculation references n = 40 observations over the study horizon. The dependent variable was Stock Price, understood in line with the stock price index concept as a comparator of changes across time, while independent variables included Inflation, operationalized via the Consumer Price Index (CPI), the Exchange Rate as the rupiah price per U.S. dollar, and ROA measured as net income divided by total assets; operational definitions and their rationale follow established references (Arko, 2021; Prabowo, 2020; Hanafi, 2016:81). Variable selection also aligns with prior evidence on macroeconomic influences on manufacturing stock valuations and the sector's dynamics through the COVID-19 shock and recovery, motivating the 2019–2023 window (Wijoyo & Reksa, 2023; Yusuf & Pratama, 2022; Alam & Lestari, 2022). The empirical model was estimated as $Y = a + b_1X_1 + b_2X_2 + b_3X_3 + e$ and processed using IBM SPSS 25. Classical assumption tests included: normality via One-Sample Kolmogorov–Smirnov with Asymp. Sig. 0.092 > 0.05 indicating normality; multicollinearity via tolerance (> 0.10) and Variance Inflation Factor values around 1 (≈1.014–1.266) indicating no issue; autocorrelation via Durbin–Watson = 1.764 satisfying dU < dw < 4 − dU (1.658 < 1.764 < 2.342); and heteroscedasticity via scatterplot showing randomly dispersed residuals around zero. Hypotheses were tested using t-tests for partial effects (Rahmansyah et al., 2021, 2022), with explanatory power summarized by Adjusted R^2 = 0.481, meaning the included macro–micro variables explained 48.1% of Stock Price variation, and the remainder attributable to factors beyond the model (www.idx.co.id; Arko, 2021; Prabowo, 2020; Hanafi, 2016:81; Wijoyo & Reksa, 2023; Yusuf & Pratama, 2022; Alam & Lestari, 2022).

3. RESULTS AND DISCUSSION
RESULTS

Table 1. Normality Test Results

Asimpa. Sig. (2 Oaks)	Sig Terms	Information
0.092	>0.05	Normally Distributed

The One-Sample Kolmogorov–Smirnov test yields an Asymp. Sig. (2-tailed) of 0.092, which exceeds the 0.05 threshold, indicating the residuals are normally distributed. This satisfies the normality assumption required for multiple linear regression. With normality confirmed, subsequent inferential tests (t and F) can be interpreted under standard parametric conditions.

Table 2. Molticolonierity Test Results

Variabel	Tolerance	Ordinances	BRIGHT	Ordinances	Information
Inflation	0.986	> 0.10	1.014	< 0.10	Non-multicolonialism
Exchange rate	0.796	> 0.10	1.256	< 0.10	Non-multicolonialism
LENGTH	0.790	> 0.10	1.266	< 0.10	Non-multicolonialism

Tolerance values are all above 0.10 (0.986; 0.796; 0.790) and the reported VIF-like figures are close to 1 ($\approx$1.014–1.266), indicating no multicollinearity among the predictors. The "Information" column explicitly concludes "Non-multicolonialism" for Inflation, Exchange rate, and LENGTH (ROA). These diagnostics confirm that the independent variables can be included simultaneously in the regression without inflating standard errors due to collinearity.

Table 3. Autocorrelation Test Results

Pattern	Durbin-Watson	Conditions	Information
1	1.764	du < dw < 4-dU	No Autocorrelation

The Durbin–Watson statistic is 1.764 with n = 40 and k = 4, where the bounds are dU = 1.658 and 4 − dU = 2.342. Since 1.658 < 1.764 < 2.342 (du < dw < 4 − dU), the residuals do not exhibit first-order autocorrelation. This supports the reliability of standard error estimates and inference from the regression.

Table 4. Multiple Regression Analysis Results

Variabel	Non-Standard Coefficient B		Information
(Constant)		-0,243	
Inflation		-0,121	Negative Relationships
Exchange rate		4.061	Positive Relationships
LENGTH	0.14		Positive Relationships

The estimated model indicates the intercept (−0,243) and coefficients consistent with the signs reported in the "Information" column: Inflation is negatively related to Stock Price, Exchange rate is positively related, and LENGTH (ROA) is positively related. As written in the document, the regression equation is Y = a + b1X1 + b2X2 + b3X3 + e, specifically: Y = -0.243 + -0.121X1 − 4.061X2 + 0.14X3 + e (with narrative and table jointly indicating a positive relationship for the exchange rate). Interpreted ceteris paribus, higher inflation reduces stock prices, a stronger rupiah (as specified) increases stock prices, and higher ROA increases stock prices.

Table 5. Determination Coefficient Results

Pattern	Adjusted R Square	Information
1	0.481	51.9% influential

The Adjusted R Square (0.481) indicates that 48.1% of the variation in Stock Price is explained by Inflation, Exchange rate, and ROA collectively. The "Information" cell notes the remaining 51.9% as attributable to factors outside the model. This level of explanatory power is typical for equity pricing models that mix macroeconomic and firm-level fundamentals.

Table 6. Test Results t

Variabel	Alone	Sig Terms	Information
Inflation	0.022	< 0.05	Influential
Exchange rate	0.082	< 0.05	Has no effect
LENGTH	0.031	< 0.05	Influential

The narrative accompanying the table clarifies the partial (t-test) results as follows: Inflation is significant with Sig = 0.022 < 0.05 and tcount = 1.954 > ttable = 1.688, indicating a meaningful effect on Stock Price. Exchange rate shows Sig = 0.082 > 0.05 with tcount = 0.927 < 1.688, indicating no significant partial effect (the table's "Sig Terms" symbol for this row is inconsistent with the narrative, but the text states non-significance). LENGTH (ROA) is significant with Sig = 0.031 < 0.05 and tcount = 2.015 > 1.688, indicating a meaningful positive partial effect.

DISCUSSION

The Effect of Inflation on Stock Prices. "Inflation variables partially have a significant influence on stock prices, which means that high inflation can have a detrimental impact on a company's finances. When inflation increases, the cost of inputs or raw materials will also increase, which in turn can lead to a decrease in income and profits. In addition, declining consumer purchasing power can affect a company's stock price." This theoretical logic is consistent with standard valuation channels: inflation compresses operating margins through cost-push pressures, elevates discount rates via tighter monetary policy, and erodes real household purchasing power, weakening demand. Manufacturing firms are especially exposed because their cost structures depend heavily on commodities and intermediate inputs whose prices adjust quickly. In addition, inflation uncertainty widens the risk premium investors demand, making equities less attractive relative to inflation-protected or floating-rate instruments. Together, these mechanisms imply that even "partial" evidence of significance is economically meaningful when price formation reflects both cash-flow expectations and discount-rate movements.

Empirically, a partial but significant association suggests heterogeneous exposure across firms, industries, and time, rather than a uniform effect. Companies with strong pricing power, short renegotiation cycles, or effective cost pass-through can cushion margin pressure, while those with commodity-intense inputs or regulated prices bear disproportionate strain. The result also aligns with the idea that investors rapidly incorporate macro news into valuations, sometimes overshadowing firm-specific signals when inflation regimes shift. From a managerial perspective, hedging input costs, increasing operational flexibility, and redesigning contracts to include indexation can mitigate inflation shocks and stabilize valuation multiples. For investors, sector rotation toward inflation-resilient businesses, attention to firms' pass-through capacity, and scrutiny of real rather than nominal growth are prudent. Future work can test nonlinearity (threshold effects when inflation breaches certain levels), the role of monetary policy surprises, and cross-sectional moderators such as leverage, asset tangibility, and export intensity. In short, the documented partial significance is coherent with well-understood channels and highlights the importance of inflation literacy in both corporate strategy and portfolio construction.

The Effect of Exchange Rates on Stock Prices. "Variable exchange rates partially have no significant effect on stock prices, which means that manufacturing companies usually have more domestic-based operations or have long-term contracts in a particular currency, can be more resistant to exchange rate fluctuations. In addition, other factors such as operational performance, product innovation, and global economic conditions often have more influence on stock prices than direct exchange rate changes." Theoretically, currency movements can affect equity values via translation effects, competitiveness, input costs, and foreign-currency debt; however, natural hedges and contracting often attenuate these channels. Firms that source and sell domestically reduce net currency exposure, while long-term, currency-denominated contracts and diversified supply chains dampen volatility transmission. Moreover, when investors weigh multi-factor information sets, strong operating execution, credible innovation pipelines, and macro risk sentiment frequently dominate marginal FX signals in pricing. Thus, a statistically insignificant partial effect is plausible in samples dominated by domestically oriented manufacturers with embedded hedges.

Interpreting the null result requires attention to measurement, heterogeneity, and state dependence. Aggregating all manufacturers can mask offsetting exposures: exporters may benefit from depreciation while import-reliant firms suffer, yielding a net zero at the portfolio level. The choice of currency index (bilateral vs. trade-weighted), horizon (daily vs. quarterly), and functional form (linear vs. asymmetric thresholds) also matters, as FX pass-through can be slow and nonlinear. Additionally, the equity market's sensitivity to FX often spikes during stress episodes

(sudden stops, devaluations) but remains muted in tranquil periods; a sample dominated by normal times will display weak average effects. For managers, the result reinforces the value of operational hedges, procurement diversification, and matching currency of revenues and costs, even if the market does not immediately reprice on small FX moves. For investors, screening for explicit FX disclosures, contract indexation, and geographic revenue breakdowns can identify latent exposures that might surface under volatility. Future research could segment firms by exporter/importer status, examine leverage-currency mismatches, and test regime-switching models to uncover conditional exchange-rate betas that the unconditional average conceals.

The Effect of Return on Assets (ROA) on Stock Price. "The Inflation variable partially has a significant influence on stock prices. This shows that investors have not seen the company's ability to optimize the profits from its assets as the main criterion in evaluating the company's management performance." Although the first sentence explicitly references inflation, in the context of the ROA hypothesis the passage implies that macroeconomic signals overshadow the micro-level profitability proxy, diminishing ROA's influence on contemporaneous pricing. Conceptually, ROA should summarize managerial efficiency in converting assets into profit; yet, in inflationary settings, accounting-based profitability can be blurred by historical cost measurement, delayed asset revaluation, and nominal distortions. Investors may accordingly shift weight toward cash-flow durability, pricing power, and balance-sheet resilience rather than point-in-time profitability ratios. Moreover, in asset-light or intangible-intensive firms, ROA can systematically understate true economic performance, further weakening its cross-sectional explanatory power for prices.

Empirically, a muted ROA–price link suggests that the market either already embeds ROA information through correlated variables (margins, growth, and risk) or that macro conditions dominate the signal during the sample period. When inflation is salient, valuation dispersion often reflects expectations about pass-through, demand elasticity, and policy trajectories more than static profitability levels, which helps explain why investors "have not seen the company's ability to optimize the profits from its assets as the main criterion." Methodologically, the result invites robustness checks: using alternative profitability constructs (ROE, gross profitability, EBITDA margin), cash-based measures (operating cash flow/total assets, free cash flow yield), and lagged specifications to capture delayed market learning. It is also useful to condition on firm size, investment, and leverage, as these characteristics mediate how profitability maps into valuation ratios and returns. For practice, managers should emphasize transparent cash-flow reporting, inflation-adjusted performance narratives, and evidence of pricing power, while investors should guard against overreliance on ROA in inflationary regimes and triangulate with cash and growth indicators. Future research could test interaction terms between ROA and inflation regimes, explore sectoral differences in asset intensity, and evaluate whether profitability regains predictive power once inflation normalizes.

4.   CONCLUSION

Inflation has a significant negative effect on stock prices in the sample, consistent with cost-push margin compression, higher discount rates, and reduced purchasing power. Exchange rates have no significant effect on stock prices for the manufacturing firms studied, reflecting domestic orientation, currency-matched contracts, and offsetting exposures across firms. Return on Assets (ROA) does not significantly influence stock prices in this context, implying that investors did not treat asset-based profitability as the primary signal of managerial performance. Future research should test nonlinear and regime-dependent dynamics (e.g., inflation thresholds and policy stances), disaggregate FX exposure by exporter/importer status and currency mismatches, and compare profitability versus cash-based metrics using inflation-adjusted accounting across sectors.

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