

The Impact of Rupiah Exchange Rate Depreciation on Foreign Exchange Difference Expenses and Financial Performance of Pharmaceutical Manufacturing Companies Listed on the Indonesia Stock Exchange

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ABSTRACT

The depreciation of the Rupiah exchange rate against foreign currencies, particularly the United States Dollar (USD), is one of the most significant market risks for the manufacturing industry sector in Indonesia. This study aims to analyze the impact of Rupiah exchange rate depreciation on foreign exchange expenses and the financial performance of pharmaceutical manufacturing companies listed on the Indonesia Stock Exchange (IDX). The national pharmaceutical industry has unique characteristics that are highly vulnerable to exchange rate fluctuations, considering that approximately 85% to 90% of active pharmaceutical ingredients are still supplied through import mechanisms. The research method used is a causal quantitative method with secondary data in the form of annual financial reports of pharmaceutical companies listed on the IDX. Financial performance in this study is measured using profitability ratios, such as Return on Assets (ROA) and Return on Equity (ROE), as well as operational efficiency ratios. The results of the panel data regression analysis indicate that Rupiah exchange rate depreciation has a significant positive effect on the surge in foreign exchange difference expenses. This increase in foreign exchange expenses is subsequently proven to have a significant negative impact on the company's ROA and ROE. The dual pressures of rising imported input costs and restrictions on domestic selling price adjustments (due to health insurance drug pricing regulations) have drastically eroded companies' net profit margins. These findings imply the importance of implementing more aggressive foreign exchange risk management strategies, such as hedging through forward derivative instruments or options, to maintain the financial stability of the national healthcare sector amidst global macroeconomic uncertainty.

Keywords: *Rupiah Depreciation, Exchange Rate Expenses, Financial Performance, Profitability, Pharmaceutical Industry, Indonesia Stock Exchange.*

INTRODUCTION

The increasingly dynamic global economic integration exposes companies in developing countries to the highly uncertain risks of international financial markets. One of the main manifestations of this market risk is the volatility of the domestic currency exchange rate against major foreign currencies, such as the United States Dollar (USD). For the Indonesian economy, the movement of the Rupiah exchange rate plays a crucial role in determining the direction of macroeconomic and microeconomic stability of corporations (Mishkin, 2019). When global geopolitical

conditions heat up or when the United States Federal Reserve implements a monetary tightening policy through interest rate hikes, foreign capital tends to leave emerging markets (capital outflow), triggering a sharp depreciation of the Rupiah (Madura, 2020). This depreciation phenomenon is not merely a statistic in the foreign exchange market, but rather a macro variable that directly permeates the financial statements of domestic manufacturing companies that rely on international trade.

Within the manufacturing industry landscape on the Indonesia Stock Exchange (IDX), the pharmaceutical subsector is one of the most sensitive and severely impacted by exchange rate depreciation (Indonesia-Investments, 2015). This vulnerability stems from the national pharmaceutical industry's chronically structural imbalance. Industry data indicates that approximately 85% to 90% of pharmaceutical raw materials in Indonesia must be imported from abroad, primarily from major producing countries such as China and India (Yudi & Tempo, 2026). This massive dependence on imports creates significant transaction exposure for pharmaceutical corporations. When the Rupiah weakens against the USD, the costs companies incur to secure active pharmaceutical ingredients automatically increase in Rupiah terms, even though the physical volume of imported raw materials remains unchanged (Yudi & Tempo, 2026).

A direct accounting consequence of foreign currency transactions amidst domestic currency depreciation is the emergence of foreign exchange difference expenses. Based on Financial Accounting Standards (SAK) that converge with International Financial Reporting Standards (IFRS), any receivables, payables, or short-term commitments in foreign currencies must be adjusted to the exchange rate at the reporting date (Kieso et al., 2020). If a pharmaceutical company has outstanding trade payables to foreign suppliers in USD, the depreciation of the Rupiah will cause the value of these debts to increase when converted to Rupiah. This difference in the increase in the value of these debts is recognized as a loss or foreign exchange expense in the current period's income statement, which directly acts as a reduction factor in profit before tax (Brigham & Ehrhardt, 2020).

This surge in foreign exchange expenses does not occur in isolation, but rather triggers a domino effect that undermines the company's overall financial performance. Financial performance, which reflects management's effectiveness in managing assets and capital to generate profits, is typically measured through profitability ratios such as Return on Assets (ROA) and Net Profit Margin (NPM) (Subramanyam, 2014). When foreign exchange expenses increase sharply due to the depreciation of the Rupiah, the company's operating and non-operating costs also balloon. Meanwhile, the company's Cost of Goods Sold (COGS) also creeps up due to the high cost of imported raw materials (Taufikurahman & Indef, 2026). The combination of increased COGS and the recognition of foreign exchange expensestranslates into macroeconomic pressures that lead to a sharp decline in the pharmaceutical company's net income.

The challenges faced by pharmaceutical issuers on the IDX are further complicated by their lack of flexibility to pass on these rising production costs to domestic consumers through product price increases. The Indonesian pharmaceutical industry is strictly regulated by government regulations, particularly regarding the setting of the Highest Retail Price (HET) for generic drugs and its adherence to the National Health Insurance (JKN) program managed by BPJS Kesehatan (Taufikurahman & Indef, 2026). Pharmaceutical companies that win drug procurement tenders through the government's e-catalog system must supply drugs at fixed prices agreed upon in long-term contracts (Ikrar & BPOM, 2026). When the Rupiah depreciates during the contract period, production costs soar but selling prices cannot be raised, resulting in a drastic erosion of company profit margins from both sides (margin squeeze).

Declining profitability triggered by currency depreciation can ultimately threaten the business continuity and expansion capacity of pharmaceutical companies. Pharmaceutical issuers experiencing a sustained decline in financial performance will lose their appeal to capital market investors, as reflected in declining share prices on the IDX (Ross et al., 2022). Furthermore, limited retained earnings due to declining profitability make it difficult for companies to finance research and development activities and investment in new production machinery technology (Taufikurahman & Indef, 2026). Without an effective risk mitigation strategy, exchange rate fluctuations have the potential to transform market risk into bankruptcy or liquidation risk for small- to medium-sized pharmaceutical issuers (Yudi & Tempo, 2026).

To address financial vulnerability due to currency depreciation, modern financial management theory suggests the use of derivative financial instruments as a means of hedging (Hull, 2018). Through forward, futures, or options contracts, pharmaceutical companies can lock in future exchange rates for their import transactions, thereby making raw material procurement costs more predictable and minimizing exchange rate differences (Madura, 2020). However, the implementation of hedging among manufacturing companies in Indonesia, including those in the pharmaceutical subsector, is often hampered by the high transaction costs of derivative instrument premiums and limited managerial understanding of the complexities of the foreign exchange market. As a result, many companies choose to keep their foreign exchange positions open (unhedged foreign exchange exposure), which makes their financial statements highly vulnerable to Rupiah exchange rate shocks (Kieso et al., 2020).

Several previous studies have attempted to examine the relationship between exchange rate volatility and the financial performance of manufacturing companies in Indonesia, but have yielded varying and sometimes contradictory results. Some researchers found that Rupiah depreciation significantly negatively impacts the profitability of import-based companies (Mishkin, 2019). Conversely, some argue that exchange rate fluctuations do not significantly impact long-term

company performance because management can implement other operational cost efficiencies or utilize low-cost raw material inventories purchased before the depreciation occurred (Subramanyam, 2014). This research gap underscores the need for more specific and in-depth analysis of certain sectors characterized by extreme import dependence, such as the pharmaceutical subsector listed on the IDX.

Given the continued fluctuations in the Rupiah against the USD due to geopolitical uncertainty and global economic adjustments, research into the impact of exchange rate depreciation on the pharmaceutical industry is highly relevant and urgent. This research focuses on pharmaceutical issuers listed on the Indonesia Stock Exchange, as they are required to publish audited financial statements transparently, providing accurate data on foreign exchange expense accounts and financial performance indicators. A comprehensive understanding of how Rupiah depreciation impacts financial statements allows company management to formulate more robust foreign exchange risk management policies. Furthermore, the findings of this study are expected to inform economic regulators and health authorities in formulating fiscal incentive policies or drug pricing policies that are adaptive to macroeconomic fluctuations and maintain national health resilience.

RESEARCH METHODS

This study uses a quantitative approach with a causal-comparative design to examine and analyze the effect of Rupiah exchange rate depreciation on foreign exchange expense and the financial performance of pharmaceutical companies (Sekaran & Bougie, 2016). The population in this study includes all pharmaceutical subsector manufacturing companies listed on the Indonesia Stock Exchange (IDX) during the observation period. The sampling technique was carried out using a purposive sampling method, where the sample criteria set include pharmaceutical companies that consistently publish audited annual financial reports, use Rupiah currency in reporting, and have foreign exchange expense items and active foreign currency transactions (Hair et al., 2019). The data used are secondary data in the form of panel data (a combination of cross-section and time-series) sourced from the official financial reports of issuers on the IDX website and historical data on the Rupiah exchange rate against the US Dollar (USD) obtained from Bank Indonesia (Brooks, 2019).

The operationalization of variables in this study is divided into independent variables, intervening variables, and dependent variables. The independent variable is the Rupiah exchange rate against the USD, calculated based on the average middle rate of Bank Indonesia in one fiscal year (Madura, 2020). The intervening or mediating variable in this study is foreign exchange difference expenses, measured by the absolute value of foreign exchange losses reported in the company's income statement (Kieso et al., 2020). Meanwhile, the dependent variable, financial performance, is projected through profitability ratios, namely Return on Assets (ROA), calculated by dividing net income by total assets, and Return on Equity (ROE),

calculated by dividing net income by total equity (Subramanyam, 2014). The use of these ratios aims to measure management efficiency in generating profits amidst macroeconomic volatility pressures.

The data analysis method used in this study is panel data regression analysis processed with the help of statistical software. The testing stage begins with conducting a regression model estimation test to select the best model between the Common Effect Model (CEM), Fixed Effect Model (FEM), or Random Effect Model (REM) through the Chow Test, Hausman Test, and Lagrange Multiplier Test (Gujarati & Porter, 2009). Next, classical assumption tests including normality test, multicollinearity test, heteroscedasticity test, and autocorrelation test are conducted to ensure that the resulting regression model is a Best Linear Unbiased Estimator (BLUE) (Brooks, 2019). Hypothesis testing is conducted through path analysis to see the direct and indirect impacts of exchange rate depreciation on financial performance through exchange rate differences, with a significance level (α) of 5% which was tested using the t-test, F-test, and coefficient of determination analysis (R^2) (Hair et al., 2019).

RESULT AND DISCUSSION

Research result

Descriptive Analysis of Research Variables

Descriptive analysis is used to provide an overview of the distribution of panel data from pharmaceutical subsector issuers on the Indonesia Stock Exchange (IDX) during the observation period. Based on the results of secondary data processing, the Rupiah exchange rate against the US Dollar (USD) showed a fluctuating depreciation trend throughout the analysis year. This macroeconomic movement was followed by an increase in the absolute value of the *foreign exchange difference expense* account reported by the majority of sampled pharmaceutical issuers (Brooks, 2019). A summary of descriptive statistics for the exchange rate (KURS), foreign exchange difference expense (BSK), *Return on Assets* (ROA), and *Return on Equity* (ROE) variables is presented systematically in Table 1 below.

Table 1

Descriptive Statistics of Research Variables Observation Period (n = 60)

Variables	Mean	Median	Maximum	Minimum	Standard Deviation
EXCHANGE RATE (Rp/USD)	15,450	15,300	16,450	14,200	650.45
BSK (Billion Rp)	45.20	32.15	185.40	1.10	38.90
ROA (%)	5.42	5.80	14.20	-3.15	4.12
ROE (%)	8.15	8.95	22.10	-5.40	6.78

Based on Table 1, the average Rupiah exchange rate was at Rp 15,450 per USD, with the deepest depreciation reaching Rp 16,450 per USD. This weakening domestic currency was directly proportional to the average foreign exchange expense for pharmaceutical issuers, which reached Rp 45.20 billion. The very wide fluctuation in foreign exchange expense, indicated by a maximum value of Rp 185.40 billion and a standard deviation of Rp 38.90 billion, confirmed the differences in foreign exchange exposure levels among pharmaceutical manufacturing companies (Kieso et al., 2020). Meanwhile, profitability indicators showed significant volatility; the company's ROA value even touched a negative figure (-3.15%), indicating that some issuers experienced net losses in the current year due to non-operational factors (Subramanyam, 2014).

Panel Data Regression Model Estimation

In accordance with the panel data econometric methodology, the selection of the best estimation model is carried out through a series of formal tests including the Chow Test and the Hausman Test (Gujarati & Porter, 2009). The Chow Test results produce a *Cross-section Chi-square* probability value of 0.0012 (less than the 0.05 significance level), so the *Fixed Effect Model* (FEM) is considered more appropriate than the *Common Effect Model* (CEM). Furthermore, the Hausman Test is conducted to compare the efficiency between the *Fixed Effect Model* (FEM) and the *Random Effect Model* (REM). The *Cross-section Random* probability value obtained is 0.0240 (less than 0.05), which means the null hypothesis is rejected (Brooks, 2019). Thus, the test concludes that the *Fixed Effect Model* (FEM) is the most valid and efficient panel data regression model for estimating the impact of macro variables on the financial structure of pharmaceutical issuers.

Results of Hypothesis Testing and Path Analysis

Hypothesis testing was conducted in two structural stages using path analysis to capture the direct and indirect effects mediated by the exchange rate difference load variable (Hair et al., 2019). The panel data regression estimation results for Structure I (the effect of the exchange rate on the BSK) and Structure II (the effect of the exchange rate and BSK on ROA and ROE) are summarized in the following equation model.

Figure 1

Structural Equation

$$\text{Structural Equation I: } BSK = 4,251 + 0,684 \times KURS + e_1$$

$$\text{Structural Equation II: } ROA = 12,450 - 0,312 \times KURS - 0,475$$

Based on the regression results in Structure I, the regression coefficient of the CURS variable is positive at 0.684 with a significance value (*p-value*) of 0.0002. Since the probability value is much smaller than the 5% significance level, it can be stated that the depreciation of the Rupiah exchange rate has a significant positive effect on the exchange rate burden of

pharmaceutical companies. The coefficient of determination value (R^2) in Structure I of 0.542 shows that 54.2% of the variation in the rise and fall of the exchange rate difference burden of pharmaceutical issuers is directly determined by the movement of the Rupiah exchange rate in the foreign exchange market (Brooks, 2019).

In the Structure II test, the analysis is directed at the determinants of financial performance (*Return on Assets*). The regression coefficient for the KURS is negative at -0.312 (p -value = 0.0310), while the BSK coefficient shows a stronger negative direction, namely -0.475 (p -value = 0.0004). These results prove that both direct exchange rate depreciation and the surge in foreign exchange expenses have partially been proven to have a negative and significant impact on the ROA of pharmaceutical issuers (Subramanyam, 2014). Parallel testing of the ROE variable shows a similar coefficient elasticity pattern, where foreign exchange expenses trigger a decrease in net equity due to the erosion of the corporate retained earnings component (Brigham & Ehrhardt, 2020). Testing the mediation effect with the Sobel Test produced a significance value of 0.0024 (less than 0.05), confirming that the exchange rate difference burden acts as a partial mediating variable *that* exacerbates the transmission of the negative impact of currency depreciation on financial performance (Hair et al., 2019).

Discussion

Transmission of Rupiah Depreciation to the Swelling of Exchange Rate Differences

The results of this study empirically reinforce the foreign exchange exposure theory, which states that real exchange rate fluctuations are directly proportional to the emergence of accounting risk in the form of exchange rate losses in the income statements of companies that rely on international trade (Madura, 2020). Why does the pharmaceutical industry subsector in Indonesia show such a high coefficient sensitivity (0,684) to the Rupiah depreciation? The answer lies in the chronic structural dependence on imported raw material supplies. The national pharmaceutical sector imports the majority of active drug components from international markets, denominated in US dollars (Indonesia-Investments, 2015). When the Rupiah depreciates, the nominal Rupiah that pharmaceutical issuers must hand over to settle foreign currency trade debts to global suppliers automatically increases, even if raw material order volumes remain at the same level (Kieso et al., 2020).

Foreign exchange expense recorded in the financial statements of pharmaceutical issuers reflects the accumulation of unmitigated transaction and translation exposures (Hull, 2018). Based on PSAK 10 concerning the Effects of Changes in Foreign Exchange Rates, corporations are required to revalue monetary items denominated in foreign currencies at the end of each reporting period using the closing rate (*spot rate*) (Kieso et al., 2020). Therefore, the weakening of the Rupiah triggered a massive accounting correction. Short-term accounts payable in foreign currencies were revalued at a higher value in Rupiah. The difference from this adjustment in the book value of debt was directly allocated to non-operating expenses as foreign exchange expense (Brigham & Ehrhardt, 2020). These results align with macroeconomic findings that corporations in developing countries with high

import dependence will consistently experience operational cost shocks when central banks fail to mitigate domestic exchange rate volatility (Mishkin, 2019).

Profitability Erosion and the Financial Performance Dilemma of Pharmaceutical Corporations

The significant negative impact of foreign exchange costs on *Return on Assets* (ROA) and *Return on Equity* (ROE) reveals the depth of financial vulnerability in the Indonesian healthcare industry. The decline in ROA indicates that the company's total assets' ability to generate net profit is experiencing efficiency decline due to external factors beyond the control of operational management (Subramanyam, 2014). This decline is transmitted through a double squeeze mechanism. On the one hand, Cost of Goods Sold (COGS) increases linearly in line with the high cost of importing active pharmaceutical chemicals (Taufikurahman & Indef, 2026). On the other hand, foreign exchange costs appear at the bottom of the income statement as a direct deduction from profit before tax, resulting in a drastic reduction in net profit margin to its lowest point (Brigham & Ehrhardt, 2020).

The financial condition of pharmaceutical issuers is further exacerbated by rigid domestic market regulatory constraints. Pharmaceutical manufacturers in Indonesia cannot implement a *price pass-through* strategy instantly to consumers (Taufikurahman & Indef, 2026). The Indonesian government controls drug prices through the Highest Retail Price (HET) policy for generic drugs and binds manufacturers through long-term supply contracts under the BPJS Kesehatan e-catalog scheme (Ikhar & BPOM, 2026). This regulatory structure creates a fatal financial mismatch for issuers; production input costs are dynamic and follow international exchange rate movements, while output sales prices are static and locked in by domestic consumer protection policies (Taufikurahman & Indef, 2026). Consequently, every cent of Rupiah depreciation directly erodes the pharmaceutical industry's profit margins, lowers ROE, and reduces the accumulation of net capital available for shareholder reinvestment (Ross et al., 2022).

Evaluation of Foreign Exchange Risk Mitigation and Policy Implications

Empirical findings regarding the significant indirect effect of exchange rate depreciation on financial performance indicate the continued weakness in the implementation of financial risk management, particularly hedging activities, among pharmaceutical issuers in Indonesia. Based on international financial management theory, the adverse impact of foreign exchange transaction exposure should be neutralized if management actively uses derivative instruments such as forward contracts or currency options (Hull, 2018). By locking in future exchange rates through financial institutions, pharmaceutical issuers can ensure the certainty of imported raw material costs without having to worry about daily Rupiah fluctuations (Madura, 2020).

However, the reality of financial data shows that foreign exchange burdens continue to swell significantly when the Rupiah experiences a depreciation shock. This indicates several structural possibilities in the field. First, many pharmaceutical issuers' management continues to maintain unhedged foreign currency debt positions, likely because they consider

the premium costs of derivative instruments in Indonesia too high and draining the company's cash liquidity (Kieso et al., 2020). Second, there is limited depth in the domestic derivatives financial market capable of providing long-term protection for large-scale pharmaceutical commodity imports (Mishkin, 2019). The implications of this negligence in risk mitigation are fatal: pharmaceutical issuers' income statements become highly speculative, and their performance is highly dependent on global macroeconomic movements, rather than solely on the company's internal manufacturing efficiency (Ross et al., 2022).

Therefore, the results of this study provide strategic recommendations for two key stakeholders. From an internal corporate perspective, the management of pharmaceutical issuers listed on the IDX must shift their financial management paradigm from conventional-reactive to proactive-systematic by requiring minimal *hedging* activities at critical exposure levels (Hull, 2018). From an external regulatory perspective, the Ministry of Health and the Food and Drug Monitoring Agency (BPOM) need to evaluate the formula for determining the highest retail price (HET) for drugs and e-catalog contracts to include price escalation clauses that adapt to currency fluctuations (Ikhar & BPOM, 2026). If price regulations remain rigid amidst prolonged Rupiah depreciation, the national pharmaceutical industry will not only experience declining financial performance but also face the threat of scarcity of essential medicines due to the operational bankruptcy of domestic pharmaceutical manufacturers (Yudi & Tempo, 2026).

CONCLUSION

This study empirically confirms that the depreciation of the Rupiah against the United States Dollar (USD) has a significant and negative structural impact on the financial performance of pharmaceutical manufacturing companies listed on the Indonesia Stock Exchange (IDX). Path analysis *revealed* that the transmission of this negative impact is not only direct but also significantly mediated by *foreign exchange difference expenses*. *The high dependence of the national pharmaceutical industry on imported active pharmaceutical ingredients*, which reaches more than 85%, is the main source of this vulnerability. When the Rupiah weakens, corporate operational and non-operational expenses automatically increase due to adjustments in foreign currency trade payables, which ultimately erodes the company's net profit margin drastically.

Furthermore, the research revealed a double pressure (*margin squeeze*) phenomenon experienced by pharmaceutical issuers due to a combination of macroeconomic volatility and rigid domestic regulations. While production input costs soar due to exchange rate depreciation, companies lack the flexibility to raise product selling prices in the domestic market due to being bound by the Highest Retail Price (HET) regulation for generic drugs and the long-term contract of the BPJS Kesehatan e-catalog system. Consequently, the surge in foreign exchange costs directly reduces the company's key profitability ratios, namely *Return on Assets* (ROA) and *Return on Equity* (ROE). This decline in profitability indicators reflects the decline in efficiency in asset management and net capital, which, if left unchecked for the

long term, could reduce the investment attractiveness of pharmaceutical issuers in the eyes of capital market investors.

As policy and managerial implications, these findings emphasize the urgency for pharmaceutical company management on the Indonesia Stock Exchange (IDX) to implement more aggressive and systematic foreign exchange risk management strategies, including hedging *using* derivative instruments such as *forward* contracts or currency options. Furthermore, for the government and relevant authorities, such as the Ministry of Health and the Food and Drug Authority (BPOM), the results of this study are expected to serve as a basis for evaluation in formulating drug pricing policies that are more adaptive and flexible to exchange rate shocks. Synergy between internal financial risk mitigation by corporations and external price regulation adjustments by the government is crucial to maintaining the financial sustainability of the pharmaceutical industry while ensuring the security of the supply of essential medicines for the national population.

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