The Impact Of Exchange Rate Volatility On Financial Performance (A Systematic Literature Review)

Dampak Volatilitas Nilai Tukar Terhadap Kinerja Keuangan (Tinjauan Literatur Sistematis)

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ABSTRACT
Exchange rate volatility continues to be a critical factor affecting financial performance, particularly within emerging markets. This systematic review of the literature synthesizes 41 peer-reviewed open-access studies published from 2011 to 2025, examining the connection between exchange rate fluctuations and financial outcomes at the firm-level or sectoral scales. The findings show that most studies identify a negative impact of exchange rate volatility on profitability, stock returns, and financial stability. However, the size and direction of this relationship depend on factors like firm size, export intensity, macroeconomic variables, and institutional quality. Five major thematic areas are identified in the review: directionality of effects, sectoral heterogeneity, macro-institutional moderators, methodological innovation, and regional distribution. The literature demonstrates a methodological shift toward hybrid econometric-machine learning models. These include GARCH-MIDAS, LSTM, and Transformer architectures. This review proposes a conceptual framework. It also outlines future research agenda emphasizing comparative regional analysis, sectoral deep dives, and policy transmission mechanisms. This study contributes to the literature through offering structured synthesis and strategic roadmap. It targets researchers and policy designers focused on financial risk management in volatile currency environments.
Keywords: Exchange Rate Volatility, Financial Performance, Systematic Literature Review

ABSTRAK
Volatilitas nilai tukar terus menjadi faktor kritis yang memengaruhi kinerja keuangan, khususnya di pasar negara berkembang. Tinjauan sistematis literatur ini mensintesis 41 studi akses terbuka yang ditinjau sejawat yang diterbitkan dari tahun 2011 hingga 2025, yang meneliti hubungan antara fluktuasi nilai tukar dan hasil keuangan pada tingkat perusahaan atau skala sektoral. Temuan menunjukkan bahwa sebagian besar studi mengidentifikasi dampak negatif volatilitas nilai tukar terhadap profitabilitas, pengembalian saham, dan stabilitas keuangan. Namun, besarnya dan arah hubungan ini bergantung pada faktor-faktor seperti ukuran perusahaan, intensitas ekspor, variabel makroekonomi, dan kualitas kelembagaan. Lima area tematik utama diidentifikasi dalam tinjauan ini: arah efek, heterogenitas sektoral, moderator makro-kelembagaan, inovasi metodologis, dan regional distribusi. Literatur menunjukkan pergeseran metodologis menuju model ekonometrik-pembelajaran mesin hibrida. Ini termasuk arsitektur GARCH-MIDAS, LSTM, dan Transformer. Tinjauan ini mengusulkan kerangka kerja konseptual. Ini juga menguraikan agenda penelitian masa depan yang menekankan analisis regional komparatif, pendalaman sektoral, dan mekanisme transmisi kebijakan. Studi ini berkontribusi pada literatur dengan menawarkan sintesis terstruktur dan peta jalan strategis. Studi ini ditujukan untuk peneliti dan perancang kebijakan yang berfokus pada manajemen risiko keuangan dalam lingkungan mata uang yang bergejolak.
Kata Kunci: Volatilitas Nilai Tukar, Kinerja Keuangan, Tinjauan Literatur Sistematis

1. Introduction

Exchange rate volatility remains a pivotal concern in the discourse on international finance and macroeconomic stability, since it directly influences trade flows, investment decisions, and firm-level profitability. In an increasingly globalized financial environment,

fluctuations in exchange rates impose significant risks on businesses. This is particularly true for those operating in emerging and developing economies, which are often characterized by weaker institutional frameworks and greater exposure to external shocks (Aizenman et al., 2011; Hong Vo et al., 2019). The complex relationship between exchange rate dynamics and financial performance has garnered growing scholarly attention. This is especially evident in light of recent global events that have intensified market uncertainty, including the COVID-19 pandemic and geopolitical tensions.

Theoretically, exchange rate volatility introduces transaction and translation risks. These risks can erode firm revenues denominated in foreign currencies, distort pricing strategies, and ultimately impact corporate profitability (Joseph et al., 2025; Ahmad et al., 2022). However, empirically, the evidence remains mixed and context-dependent. It varies across sectors, firm sizes, and levels of financial market development. Some studies reveal adverse effects of exchange rate fluctuations on firm performance (Reaz et al., 2017; Ibrahimov et al., 2025). Others suggest that firms with robust hedging strategies or those operating in export-intensive industries may even benefit from such volatility (Ali et al., 2020; Fitriani, 2017)."

The increasing availability of high-frequency financial data and advances in econometric and machine learning techniques (e.g., GARCH, LSTM, Transformer models) have enabled researchers to better capture the nonlinear and time-varying nature of exchange rate movements (Nsengiyumva et al., 2025; Zhao & Yan, 2024). Despite these developments, significant gaps remain in our understanding of the mechanisms through which exchange rate volatility affects firm-level financial outcomes. This is particularly true in under-researched regions and sectors.

This paper seeks to address this gap. It provides a systematic literature review of peer-reviewed empirical studies published between 2011 and 2025 that examine the nexus between exchange rate volatility and financial performance. By synthesizing findings across diverse geographies, methodological approaches, and industry contexts, this review aims to: (i) map the evolution of academic inquiry on the topic, (ii) evaluate the methodological rigor and analytical depth of existing studies, and (iii) identify critical knowledge gaps and future research trajectories. The review contributes to both academic literature and policy discourse. It offers a comprehensive overview of how exchange rate risk is conceptualized, measured, and linked to financial outcomes in varied economic environments."

Research Objectives

The main goal of this paper is to systematically review and synthesize scholarly works exploring links between exchange rate volatility and financial performance. This research specifically aims to:

Identify and categorize empirical research examining how exchange rate volatility impacts firm-level or sectoral financial performance, especially in open and emerging economies.

Analyze the methodological approaches used in such studies, including econometric models like GARCH, ARDL, SEM-PLS, and machine learning techniques such as LSTM and Transformer, to assess how exchange rate volatility is estimated and interpreted.

Evaluate the contextual factors - country characteristics, industry sectors, macroeconomic variables, and institutional quality—that mediate exchange rate volatility effects across different studies.

Highlight emerging trends and gaps in the literature. Including underexplored regions, sectors, and modeling techniques that warrant further investigation.

Proposse a conceptual framework and research agenda for future studies to guide scholars, financial analysts, and policymakers in designing more robust strategies for managing exchange rate risk and enhancing financial performance."

3. Methods

This systematic literature review (SLR) adopts a transparent and replicable methodology that aligns with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. The process includes four key phases: (1) search strategy development, (2) inclusion and exclusion criteria, (3) data extraction and coding, and (4) analytical synthesis.

Search strategy and data sources

We selected the Scopus database because it offers comprehensive coverage of peer-reviewed scholarly publications in economics, finance, and related disciplines. The following Boolean search query was used to ensure the relevance of the collected studies:

(TITLE-ABS-KEY (exchange AND rate) AND TITLE-ABS-KEY (volatility) AND TITLE-ABS-KEY (financial AND performance))

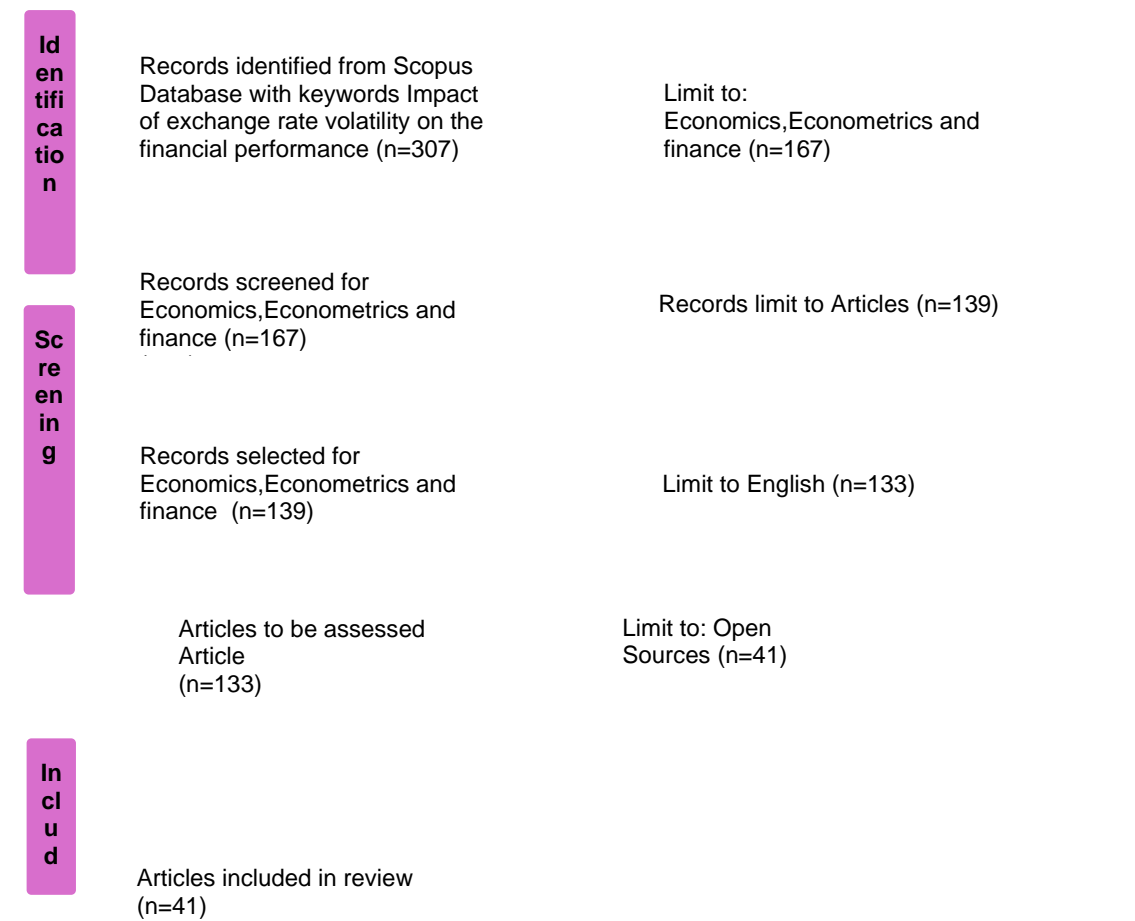Adopted from PRISMA_2020_flow_diagram_new_SRs_v1 (2)

Identification	Records identified from Scopus Database with keywords Impact of exchange rate volatility on the financial performance (n=307)	Limit to: Economics,Econometrics and finance (n=167)
Screening	Records screened for Economics,Econometrics and finance (n=167)	Records limit to Articles (n=139)
	Records selected for Economics,Econometrics and finance (n=139)	Limit to English (n=133)
	Articles to be assessed Article (n=133)	Limit to: Open Sources (n=41)
Includ	Articles included in review (n=41)	

Figure 1. Systematic Literature Review information flow using PRISMA

The search was restricted to:

a. open-access articles

b. Subject area: Economics, Econometrics, and Finance

c. Document type: Article
d. Language: English
e. Publication years: 2011- 2025

This query yielded 41 articles relevant to the scope of this review.

Inclusion and Exclusion Criteria
The following criteria were applied to ensure focus and quality:

Inclusion criteria:
a. Peer-reviewed articles
b. Studies where exchange rate volatility is a central independent variable
c. Studies assessing financial performance (e.g., profitability, stock returns, ROA, ROE)
d. Articles using quantitative or hybrid methodologies

Exclusion criteria:
a. Conference papers, reviews, editorials, or book chapters
b. Articles without empirical or conceptual relevance to the research question
c. Studies focused solely on monetary policy without linking to firm or market-level financial performance

Data Extraction and Coding
Each article was reviewed in full, and key metadata was coded, including:
a. Author(s) and affiliations
b. Year of publication
c. Country or region of study
d. Sector/industry focus
e. Methodological approach (e.g., GARCH, ARDL, SEM-PLS, LSTM, Transformer)
f. Key variables and data sources
g. Major findings and policy implications
     The papers were then grouped on a thematic basis according to methodological frameworks and geographic focus or sectoral emphasis to facilitate cross-comparative analyses.

Analytical Framework
     Mixed-methods synthesis was employed in the study. Publication trends, regional distributions, and dominant methodologies were mapped using descriptive statistics. Common findings, divergences, and theoretical contributions were identified through thematic analysis. Methodological triangulation was used, where applicable, to compare findings across statistical models and machine learning.

4. Result and Discussion
Thematic Findings
     A comprehensive synthesis of 41 selected study reveals convergence of themes surrounding the impact of exchange rate volatility on financial performance. The findings are structured around five key thematic dimensions: (1) directionality of the exchange rate–performance relationship, (2) sectoral and firm-level heterogeneity, (3) macroeconomic moderating factors and institutional, (4) methodological innovations, and (5) disparities in regional context.

Direction and Magnitude of Effects

The majority of studies report negative relationship, statistically significant, between exchange rate volatility and financial performance metrics like return on assets (ROA), return on equity (ROE), stock returns, and profitability (Ahmad et al., 2022; Reaz et al., 2017; Ibrahimov et al., 2025). Volatility introduces uncertainty in cash flows, raises hedging costs, and disrupts investment planning, especially for firms engaged in international trade.

However, subset of studies also identifies neutral effects or even positive effects under specific conditions. Firms with adequate exposure management strategies, for example, or those operating in export-favorable conditions may benefit from exchange rate movements (Ali et al., 2020; Fitriani, 2017). This suggest that the impacts are nuanced and context-dependent.

Sectoral and Firm-Level Heterogeneity

Several studies emphasize that effects of exchange rate volatility are not uniform across sectors. For instance:
a. The agriculture sector in Malaysia showed strong sensitivity to currency fluctuations (Reaz et al., 2017).
b. The banking sector in India was negatively impacted, particularly during the COVID- 19 crisis (Joseph et al., 2025).
c. Manufacturing firms in Türkiye showed resilience through restructuring under macroeconomic stress (Ibrahimov et al., 2025).

Firm-specific factors like size, export intensity, foreign ownership, and managerial efficiency also mediate the volatility–performance relationship (Hasanudin, 2025; Ahmad et al., 2022).

Macroeconomic and Institutional Moderators

Macroeconomic variables such as inflation, interest rates, and GDP growth frequently interact with exchange rate volatility, amplifying or mitigating its effects on financial performance (Abaidoo & Agyapong, 2025; Ubi et al., 2021). Governance quality and institutional robustness, moreover, were shown to moderate the influence of exchange rate risk on financial markets, especially in Sub-Saharan Africa and South Asia.

Methodological Innovations

One clear trend emerging from the literature is the use of advanced econometric and machine learning models. These tools help capture nonlinear and dynamic patterns in exchange rate volatility:
a. GARCH and EGARCH models still form the foundation (Reaz et al., 2017; Likitratcharoen & Suwannamalik, 2024).
b. Hybrid approaches like GARCH-MIDAS (Nortey et al., 2024) and GARCH-LSTM (Nsengiyumva et al., 2025) have been shown to improve forecasting accuracy.
c. Transformer-based architectures have, in some cases outperformed traditional models (Zhao & Yan, 2024).

These methodological improvements enable more accurate volatility modeling. This is especially true during crisis periods or when structural breaks occur.

Regional Disparities

Most studies focus on South and Southeast Asia (India, Pakistan, Indonesia, Malaysia) and Sub-Saharan Africa (Nigeria, Ghana). Research on Latin America and Eastern Europe is

relatively scarce. This concentration may reflect higher volatility exposure in emerging markets, but it also points to a need for broader geographic coverage in future work.

Discussion

This review offers strong evidence that exchange rate volatility significantly shapes firm-level and sectoral financial performance. The effect is particularly pronounced in economies with high exposure to global capital flows and trade dynamics. These findings support key principles of international finance theory, particularly the balance sheet effect and transaction exposure channels, both of which suggest that unpredictable currency movements can harm firm revenues, costs, and investment decisions (Aizenman et al., 2011; Héricourt & Poncet, 2015).

Theoretical Implications

The empirical link between exchange rate volatility and financial performance largely aligns with theoretical expectations. Volatility introduces risk premiums and increases the cost of capital. However, moderating factors such as sector type, firm characteristics, and institutional strength indicate that the impact is not deterministic.

This is consistent with the Resource-Based View (Barney, 1991). This view emphasizes the firm's internal capabilities (e.g., hedging, diversification, capital structure) in mitigating external environmental risks.

Interestingly, evidence from hybrid models and newer machine learning techniques (e.g., LSTM and Transformer models) suggests that conventional linear assumptions may not fully capture the complex dynamics of exchange rate volatility. Such findings support the emerging paradigm of nonlinear financial modeling, which offers greater flexibility in forecasting and risk management.

Practical Implications for Firms and Policymakers

For firms, especially those in trade-sensitive sectors like manufacturing, agriculture, and finance, the findings underscore the need for robust currency risk management strategies. These include:
a. Natural hedging via production and sourcing diversification
b. Financial hedging through derivatives
c. Real-time monitoring of currency markets using AI-driven tools

For policymakers, the review highlights the importance of exchange rate stability as a macroeconomic objective. While full exchange rate control may be infeasible in open economies, improved transparency in monetary policy and institutional quality can buffer the adverse effects of volatility. Studies such as Abaidoo & Agyapong (2025) and Ibrahimov et al. (2025) underscore the value of governance and macroprudential regulation in reducing financial system vulnerability.

Methodological Considerations

Our review reveals an encouraging trend toward methodological sophistication in modeling exchange rate effects. However, heterogeneity in model specification, sample periods, and volatility proxies remains a challenge for cross-study comparability. Few studies employ out-of-sample validation or robustness checks across multiple models and time horizons. Future research should prioritize model generalizability and comparative evaluation across techniques.

Limitations of the Existing Literature

Despite increasing scholarly attention, several gaps persist:

a. Over-concentration on specific regions (e.g., South Asia) limit the generalizability of findings.
b. Most studies use firm-level data but overlook supply chain linkages or macro-sectoral spillovers.
c. Limited attention is given to policy transmission mechanisms—how monetary and fiscal interventions interact with exchange rate volatility to affect firms.

These limitations suggest a need for multidisciplinary approaches. Such approaches should integrate finance, economics, and data science to build more holistic, policy- relevant models.

Conceptual Framework and Future Research Agenda
Conceptual Framework

Based on the systematic synthesis of 41 peer-reviewed articles, we propose a conceptual framework. This framework illustrates the dynamic interaction between exchange rate volatility and financial performance, moderated by firm-level, macroeconomic, and institutional factors (see Figure 1).
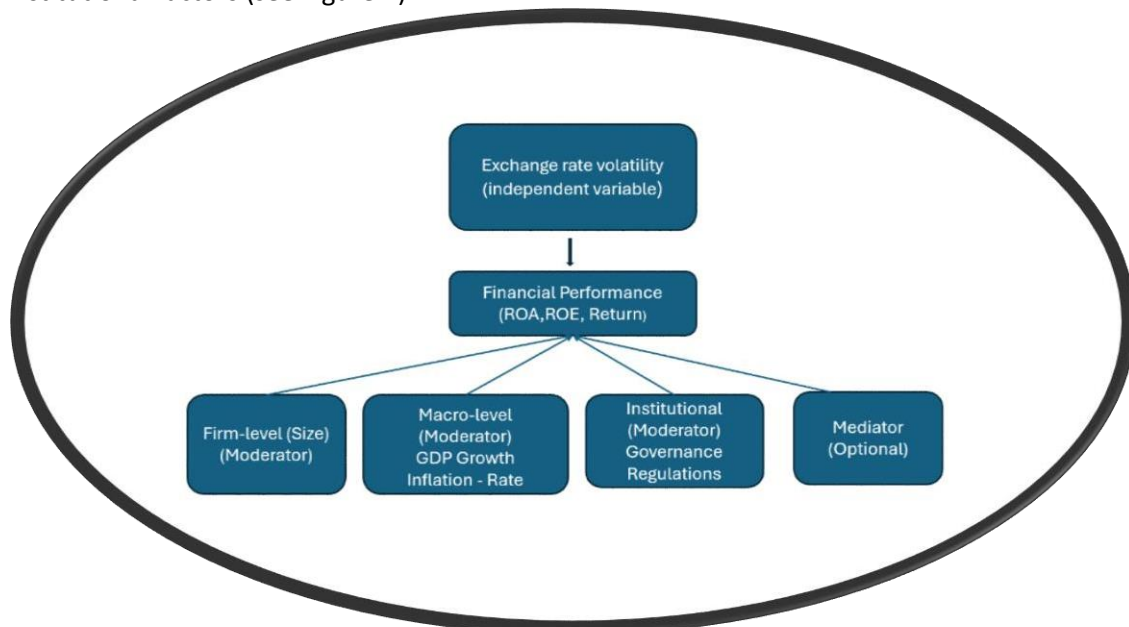
Figure 2. Exchange Rate
Impact Framework

Core Components:
a. Independent Variable:
   Exchange Rate Volatility (ERV), measured via GARCH-type models, standard deviation of returns, or machine learning-based forecasts.
b. Dependent Variable:
   Financial Performance Indicators: Return on Assets (ROA), Return on Equity (ROE), Net Profit Margin, Stock Returns.
c. Moderating Variables:
   1) Firm-specific: Size, Export Intensity, Hedging Strategy, Ownership Structure
   2) Macroeconomic: Interest Rate, Inflation, GDP Growth, Commodity Prices
   3) Institutional: Rule of Law, Governance Quality, Financial Market Development
d. Mediating Effects:
   1) Inflation (Hasanudin, 2025)

2) Trade Flows and Investment Behavior (Yousfani et al., 2025; Héricourt & Poncet, 2015)

e. Methodological Layer:

Analytical Tools: ARDL, GARCH, SEM-PLS, Panel Regression, Transformer, LSTM, GARCH-MIDAS

This framework is adaptable across sectors and geographies. It offers a foundation for future empirical modeling and policy simulation.

Future Research Agenda

Even though there has been significant progress in the existing literature, various research gaps still persist. The following directions are proposed for future exploration:

a. Cross-Regional Comparative Studies

Most research focuses on emerging Asian and African economies. Studies that compare Latin America, Eastern Europe, and the Middle East can help uncover region-specific vulnerabilities alongside policy responses.

b. Sectoral Deep Dives

Current literature focuses disproportionately on the manufacturing, agriculture, and banking sectors. Future research ought to examine underexplored areas such as:

1) Healthcare and pharmaceuticals

2) Technology and digital services

3) Tourism and logistics

c. Firm-Level Adaptation Mechanisms

More detailed studies are needed to understand how firms manage exchange-rate risks:

1) Use of financial derivatives (forwards, swaps, options)

2) Strategic pricing and invoicing in foreign currencies

3) Supply chain reconfiguration

d. Integration of Real-Time Data and AI Models

Emerging machine learning techniques - such as Temporal Fusion Transformers (Zhao & Yan, 2024) and hybrid GARCH-LSTM models (Nsengiyumva et al., 2025) offer promising avenues for improving volatility forecasting. Emphasis should be placed on explainability, out-of-sample validation, and practical deployment in future studies.

e. Policy Transmission Channels

There is a need to examine how monetary policy tools (e.g., interest rate targeting, inflation targeting, foreign reserve accumulation) influence the volatility–performance nexus. Macro-finance models could be integrated with firm-level data to simulate policy scenarios.

f. ESG and Sustainability Considerations

As the global economy shifts toward sustainability, future research might explore how environmental, social, and governance (ESG) dimensions moderate or exacerbate the impact of financial volatility on firm resilience.

5. Conclusion

This systematic literature review examined the relationship between exchange rate volatility and financial performance, synthesizing evidence from 41 peer-reviewed, open-access articles published between 2011 and 2025. Findings underscore that exchange rate volatility, particularly in emerging and trade-exposed economies, remains a significant determinant of firm-level financial stability and profitability. While the majority of studies confirm a negative relationship, the magnitude and direction of the effect are conditioned by moderating variables, including firm characteristics, macroeconomic factors, and institutional quality.

From a methodological perspective, the field has progressed from linear econometric models (e.g., ARDL, GARCH) to more sophisticated hybrid and machine learning approaches

(e.g., LSTM, Transformer). This shift allows for better modeling of complex volatility patterns. However, the literature also reveals notable gaps. These include limited geographic diversity, underexplored sectors, and weak integration between firm-level dynamics and macro-policy frameworks.

To address these shortcomings, a conceptual framework was proposed that situates exchange rate volatility within a broader ecosystem of firm-level, macroeconomic, and institutional factors. Additionally, a future research agenda was outlined emphasizing the need for cross-regional studies, AI-enhanced forecasting, and policy-relevant modeling.

As financial markets continue to evolve amid global uncertainty, this review offers timely insights for scholars, investors, and policymakers seeking to understand and manage the risks posed by exchange rate fluctuations. Future research in this domain can contribute meaningfully to economic resilience and strategic financial planning by bridging methodological rigor with real-world relevance.

References

Ahmad, Z., Hassan, A., & Dakingari, U. M. (2022). Effect of firm characteristics and some key monetary variables on the financial performance of Unilever Nigeria Plc. Asian Journal of Economic Modelling, 10(4), 236–244. https://doi.org/10.55493/5009.v10i4.4663

Abaidoo, R., & Agyapong, E. K. (2025). Financial market uncertainty and the macro economy: The role of governance and institutional quality. EconomiA, 26(1), 89–107. https://doi.org/10.1108/ECON-02-2023-0034

Ali, R., Mangla, I. U., Rehman, R. U., Xue, W., Naseem, M. A., & Ahmad, M. (2020). Exchange rate, gold price, and stock market nexus: A quantile regression approach. Risks, 8(3), 86. https://doi.org/10.3390/risks8030086

Fitriani, S. (2017). The exchange rate volatility and export performance: The case of Indonesia's exports to Japan and US. Buletin Ekonomi Moneter dan Perbankan, 20(1), 49–69. https://doi.org/10.21098/bemp.v20i1.724

Vo, D. H., Vo, A. T., & Zhang, Z. (2019). Exchange rate volatility and disaggregated manufacturing exports: Evidence from an emerging country. Journal of Risk and Financial Management, 12(1), 12.https://doi.org/10.3390/jrfm12010012

Joseph, A., Elangovan, G., & Kishore, L. (2025). Impact of macroeconomic factors on bank stock returns: Empirical evidence from India. Investment Management and Financial Innovations, 22(1), 416–428. https://doi.org/10.21511/imfi.22(1).2025.31

Nsengiyumva, E., Mungátu, J. K., & Ruranga, C. (2025). Hybrid GARCH- LSTM forecasting for foreign exchange risk. FinTech, 4(2), 22. https://doi.org/10.3390/fintech4020022

Reaz, M., Mahat, F., Dahir, A. M., Sahabuddin, M., & Mahi, M. A. S. M. (2017). Exchange rate volatility and financial performance of agriculture firms in Malaysia: An empirical analysis using GARCH, wavelet and system GMM. Business and Economic Horizons, 13(3), 409–427. https://doi.org/10.15208/beh.2017.29

Yousfani, K., Iftikhar, H., Rodrigues, P. C., Armas, E. A. T., & López-Gonzales, J. L. (2025). Global shocks and local fragilities: A financial stress index approach to Pakistan's monetary and asset market dynamics. Economies, 13(8), 243. https://doi.org/10.3390/economies13080243

Zhao, L., & Yan, W. Q. (2024). Prediction of currency exchange rate based on Transformers. Journal of Risk and Financial Management, 17(8), 332. https://doi.org/10.3390/jrfm17080332