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Dynamics of Exchange Rate, Equity, and Global Uncertainty in Indonesia

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ABSTRACT

This study examines the dynamic relationships among Indonesia's stock market (IHSG), the exchange rate, and global economic policy uncertainty (GEPU) using monthly data from January 2000 to July 2025. The objective is to determine whether these variables share a stable long-run equilibrium or interact mainly through short-run dynamics across different economic regimes. The analysis covers four phases: the pre-global financial crisis period, the global financial crisis and Eurozone turmoil, post-crisis normalization, and the COVID-19 pandemic and global tightening period. The Johansen trace test provides only marginal evidence of cointegration, while the small first eigenvalue and structural-break results indicate that the detected long-run relationship is economically fragile and unstable. For this reason, the analysis proceeds with a VAR model in first differences. The results show a robust bidirectional short-run relationship between IHSG and the exchange rate in the full sample. GEPU does not independently Granger-cause IHSG in the full-sample model, but its influence becomes significant during the global financial crisis period, indicating that global uncertainty affects domestic equity dynamics mainly under stress conditions. The findings suggest that Indonesia's financial market has become increasingly synchronized with global sentiment without implying that domestic equity movements structurally determine global uncertainty. These results highlight the importance of regime-aware risk management, exchange-rate monitoring, and adaptive macro-financial policy in an increasingly interconnected financial environment.

Keywords: *Exchange Rate; Equity Market; Global Uncertainty; Financial Integration; Emerging Market*

INTRODUCTION

Global financial integration has deepened the interconnection between domestic markets and global uncertainty (Astaíza-Gómez, 2025). Capital movements, exchange rate shifts, and stock market reactions increasingly reflect changes in global policy direction, investor sentiment, and risk perception (Yan, 2023; Apaitan et al., 2021; Quaye et al., 2016). For emerging economies such as Indonesia, this interdependence presents a complex trade-off. Greater openness attracts investment and fosters growth, yet it also increases exposure to external volatility. When uncertainty rises in major economies, capital can flow out rapidly, exchange rates can depreciate, and stock prices can fluctuate sharply (Bhattarai et al., 2019). Understanding these interactions is therefore vital for both investors seeking to manage portfolio risk and policymakers aiming to preserve financial stability.

Periods of elevated global uncertainty often reshape how investors perceive risk and allocate capital. The Global Economic Policy Uncertainty (GEPU) index captures these worldwide fluctuations in confidence and expectations (Davis, 2016). In tranquil times, markets tend to respond to domestic fundamentals, while during global stress episodes, external sentiment often dominates local dynamics (Rath, 2023). Indonesia's experience reflects this duality (Aziza et al., 2021; Andaiyani & Falianty, 2018). Over the past two decades, its financial system has navigated the pre-crisis expansion, the global financial crisis, the post-crisis normalization, and the recent pandemic and tightening phase. Each period

redefined how international shocks were transmitted to domestic asset prices and how resilient the market proved under uncertainty (Indrawati et al., 2020; Al-Mujaddid & Suwito, 2024).

Theoretically, these interactions can be explained through several complementary frameworks. The open-economy macro-financial perspective posits that global shocks affect domestic markets through capital flows, trade balances, and expectation channels (Apaitan et al., 2021; Hu & Yuan, 2025). The portfolio balance theory explains that as global risks and returns shift, investors rebalance between domestic and foreign assets, linking exchange rate changes with equity movements (Frankel, 1992; Ahmadian-Yazdi et al., 2025). The uncertainty transmission theory highlights that policy ambiguity raises precautionary behavior, reduces investment, and intensifies short-term volatility (Huynh et al., 2023; Hashmi et al., 2021). Meanwhile, the efficient market hypothesis developed by Fama (1970) implies that markets adjust quickly to new information, but in emerging markets such as Indonesia, imperfect information and behavioral biases can slow this adjustment, resulting in overshooting and prolonged fluctuations**.**

Understanding these mechanisms is crucial for both investment and policy decisions. For investors, knowing how global uncertainty interacts with domestic variables can improve diversification, hedging, and market-timing strategies (Cao & Vo, 2025). Recognizing when the stock market is more sensitive to currency fluctuations or external shocks allows for better risk assessment. For policymakers, identifying periods when global factors exert stronger influence can guide interventions aimed at stabilizing exchange rates or mitigating financial contagion. The insight into whether these relationships intensify during crises or weaken during stable periods helps assess Indonesia's level of financial resilience and integration in the global system.

Despite the growing significance of these issues, Indonesia's financial linkages under global uncertainty remain underexplored from a long-term and structural perspective. The existing understanding does not yet capture how these relationships evolve through different global conditions or how domestic responses have matured as the financial system developed. This study provides a comprehensive examination of these dynamics over more than two decades, highlighting the changing patterns of interaction between Indonesia's stock market, exchange rate, and global policy uncertainty. The findings are expected to enhance practical decision-making for investors and contribute to the design of more adaptive policy frameworks that strengthen Indonesia's position within an increasingly volatile global environment.

Based on the preceding discussion, the study addresses four research questions. First, do IHSG, the exchange rate, and GEPU share a stable long-run cointegrating equilibrium relationship? Second, what are the short-run dynamic linkages among IHSG, the exchange rate, and GEPU in the full sample? Third, how do these short-run interactions evolve across different global economic regimes? Fourth, are these dynamic relationships robust to structural breaks, diagnostic checks, heteroskedasticity-robust inference, and conditional volatility modelling?

The hypotheses are formulated as follows. H1: IHSG, the exchange rate, and GEPU do not form a stable long-run equilibrium relationship, indicating that short-run adjustment mechanisms dominate the interaction among these variables. H2: IHSG and the exchange rate exhibit bidirectional short-run Granger causality, consistent with portfolio-balance and capital-flow adjustment mechanisms. H3: The short-run influence of GEPU on domestic financial variables is regime-dependent, becoming stronger during periods of global financial stress than during normal market conditions. H4: The strength and direction of short-run linkages among IHSG, the exchange rate, and GEPU differ across global economic regimes, reflecting time-varying financial integration and changing exposure to external uncertainty.

METHODS

Research Design

This study adopts a quantitative time-series research design to investigate the dynamic interactions among Indonesia's equity market (IHSG), the exchange rate, and global economic policy uncertainty (GEPU). The analysis focuses on identifying short-run transmission mechanisms and interdependence among these financial variables within a unified econometric framework.

All variables were first converted into logarithmic form and examined for their stochastic properties using the Augmented Dickey–Fuller (ADF) test with appropriate augmentation lags, supported by autocorrelation and partial autocorrelation diagnostics. Following confirmation that the series are integrated of order one, the Johansen cointegration test was applied to assess the possibility of a long-run equilibrium relationship.

Based on these preliminary procedures, the study proceeds with a Vector Autoregressive (VAR) model in first differences to capture short-run dynamic linkages. To account for potential regime-specific behavior, the sample period was segmented into four phases: pre–Global Financial Crisis (GFC), GFC phase, post crisis normalization, and pandemic tightening period, allowing the analysis to reflect structural changes in the financial system. Robustness checks and diagnostic tests were subsequently employed to ensure the reliability and stability of the estimations. All data transformations and estimations were conducted using Stata 17.

Data and Sources

The dataset consists of monthly observations from January 2000 to July 2025, comprising 307 data points. It includes three key variables: the Indonesia Composite Index (IHSG) as a measure of equity performance (Indonesia Stock Exchange, 2025), the IDR/USD nominal exchange rate (International Monetary Fund, 2025), and the Global Economic Policy Uncertainty (GEPU) Index proposed by Baker et al. (2016). All variables are expressed in natural logarithms to reduce volatility and ensure proportional comparability. The data are measured at a monthly frequency and obtained from reputable and publicly accessible sources. The data sources are summarized in Table 1.

Table 1. Data Sources

Variable	Description	Unit / Form	Source
IHSG	Indonesia Composite Index	Monthly close, log form	*Bursa Efek Indonesia*
Exchange Rate	IDR/USD nominal rate	End-of-month, log form	*IMF International Financial Statistics*
GEPU	Global Economic Policy Uncertainty Index	Monthly, log form	*Davis, Baker & Bloom, policyuncertainty.com*

Source: Bursa Efek Indonesia, IMF, policyuncertainty

Variables Treatment and Stationary Test

The stochastic properties of each series were examined using the Augmented Dickey–Fuller (ADF) test. The test was supported by autocorrelation and partial autocorrelation diagnostics, as well as the Breusch–Godfrey LM test to ensure the absence of residual serial correlation. For the GEPU series, the ADF test was conducted using augmented lags determined through diagnostic evaluation to address its high persistence and autocorrelation structure. Each variable was tested under the appropriate deterministic components. The first differences were generated for variables identified as non-stationary in accordance with the requirements of the VAR framework.

Model Specification

Short-run dynamics among the variables were analyzed using a Vector Autoregressive (VAR) model estimated in Stata 17. The general formula is:

$$y_t = AY_{t-1} + B_0 x_t + u_t$$

This formulation treats all variables as endogenous, allowing each to respond contemporaneously and dynamically to the others' past values (Sims, 1980). The model captures the short-run interdependencies between changes in the stock market, exchange rate, and global uncertainty. The optimal lag length (p) was determined using the Akaike (AIC), Hannan–Quinn (HQIC), and Schwarz–Bayesian (SBIC) information criteria (Akaike, 1973; Hannan & Quinn, 1979; Schwarz, 1978). Model stability was verified by ensuring that all eigenvalues of the companion matrix lie within the unit circle. Diagnostic testing included the Lagrange Multiplier (LM) test for serial correlation (Breusch, 1978), Jarque–Bera test for normality (Jarque & Bera, 1980), and ARCH LM test for conditional heteroskedasticity (Engle, 1982). Directional causality among the variables was assessed using the Granger causality Wald tests (Granger, 1969). All estimations were performed in Stata 17, ensuring full reproducibility and consistency across sub-period analyses.

Sub-period Segmentation

To capture time-varying dynamics, the study divides the full sample into four subperiods that reflect major structural phases in both the Indonesian and global financial environment. These regimes are historical and interpretive in nature rather than statistically estimated breakpoints, and are designed to contextualize changes in short-run interactions over distinct macro-financial episodes. The detail of segmentation can be seen on table 2.

Table 2. Sub-period Segmentation

Code	Period	Economic Context	Observations
R1	2000 m1 – 2007 m12	Pre-Global Financial Crisis	92
R2	2008 m1 – 2012 m12	Global Financial Crisis and Eurozone turmoil	60
R3	2013 m1 – 2019 m12	Post-crisis normalization	84
R4	2020 m1 – 2025 m7	COVID-19 pandemic and global tightening	67

Source: Author's computation

Each subperiod was estimated separately using the VAR framework, followed by stability verification, the Lagrange Multiplier (LM) test for serial correlation, and Granger causality analysis. This segmentation facilitates comparison of directional linkages and dynamic interdependencies across different global financial regimes, allowing the study to evaluate whether the strength and direction of market–uncertainty interactions evolve under contrasting macroeconomic conditions.

Robustness and Validation Tests

To ensure the reliability and consistency of the results, several robustness procedures were implemented. First, Structural stability was evaluated through Wald-based tests for structural change (Andrews, 1993; Hansen, 1992), applied to detect parameter shifts within the regression framework. Second, this research used known break dates corresponding to major global economic events in 2008, 2013, and 2020. These approaches allowed assessment of whether the underlying relationships among the equity market, exchange rate, and global uncertainty remained stable or changed across distinct economic regimes.

Third, subsample estimations were conducted for each regime to examine the sensitivity of dynamic relationships to changing macroeconomic environments. Standard diagnostic evaluations were performed to assess model stability, serial correlation, and normality of residuals (Jarque & Bera, 1980; Breusch, 1978).

Fourth, heteroskedasticity- and autocorrelation-consistent estimations were applied to verify short-run causal linkages and ensure that inference was not affected by potential serial dependencies or non-constant variances (Newey & West, 1987).

Finally, conditional volatility modeling was employed to validate the persistence and structure of time-varying variances in the residuals (Engle, 1982; Bollerslev, 1986).

Together, these procedures confirm that the overall empirical design is methodologically sound and resilient to alternative specifications and data conditions.

RESULT AND DISCUSSION

Descriptive Statistics

The descriptive statistics show substantial variation across variables as can be seen in the table 3.

Table 3. Descriptive Statistics (Level Value)

Variable	Obs	Mean	Std. Dev.	Min	Max
IHSG	307	3,781.16	2,365.95	358.23	7,670.73
Exchange Rate	307	11,596.45	2,623.34	7,425	16,787
GEPU	307	153.81	84.43	47.86	628.48

Source: Stata17 computation

The IHSG shows a wide dispersion, ranging from 358.23 to 7,670.73, reflecting both strong long-term growth and episodes of market turbulence. The exchange rate varies between 7,425 and 16,787, indicating pronounced external vulnerability and currency adjustments during periods of financial stress. The GEPU index has an average of 153.81 with a high standard deviation, suggesting frequent fluctuations in global economic policy uncertainty over the observation period. Descriptive statistics are reported in levels for economic context; all estimations use log-first differences.

Unit Root and ADF Result

The time-series properties of all variables were examined using the Augmented Dickey–Fuller test, with optimal lags automatically determined by information criteria.

Table 4. ADF Unit Root Test Result

Variable	ADF Statistic	p-value	Stationarity
l_IHSG	−1.229	0.661	Non-stationary
l_Exchange	−1.453	0.557	Non-stationary
l_GEPU	−2.468	0.123	Non-stationary
Δl_IHSG	−14.297	0.000	Stationary
Δl_Exchange	−16.206	0.000	Stationary
Δl_GEPU	-13.748	0.000	Stationary

Source: Stata17 computation

The stationarity of all variables was examined using the Augmented Dickey–Fuller (ADF) test with one augmentation lag (k = 1), which effectively removed serial correlation and ensured white-noise residuals. The lag selection followed diagnostic evaluation based on autocorrelation and partial autocorrelation functions, consistent with the high persistence typically observed in monthly financial data. At lag 0 the ADF statistic suggested weak stationarity for GEPU, but residual diagnostics indicated serial correlation, therefore the augmented lag 1 specification was adopted. Each variable was tested under appropriate deterministic components: a constant and trend for the level form and a constant for the first-differenced form. The first differences were then applied to all non-stationary variables, in accordance with the requirements of the VAR framework.

Cointegration Test

The Johansen cointegration test was applied to assess the existence of a long-run equilibrium relationship among IHSG, the exchange rate, and GEPU using the log-level series with a constant and two lags. The results are summarized in Table 5.

Table 5. Johansen Trace Test Result

Rank (r)	Parameters	Log Likelihood	Eigenvalue	Trace Statistic	5% Critical Value	Decision
0	12	1224.0005	—	**30.8232**	29.68	Reject H_0 (no cointegration)
1	17	1234.2617	0.06507	**10.3009**	15.41	Fail to reject H_0 (at most one)
2	20	1238.5882	0.02797	**1.6479**	3.76	Fail to reject H_0 (at most two)
3	21	1239.4122	0.00539	—	—	—

Source: Stata17 computation

The trace statistic marginally exceeds the 5 percent critical value at r = 0 but falls below the critical value at r = 1. Although this result formally indicates one cointegrating relation, the evidence is weak. The margin is small, with a trace statistic of 30.823 compared with a 5 percent critical value of 29.68, and the first eigenvalue of 0.065 suggests that the detected long-run relation is economically fragile. The structural-break evidence also indicates parameter instability across the sample. For these reasons, a VECM specification would impose a long-run adjustment structure that is not sufficiently stable for the present research objective. The analysis therefore proceeds with a VAR model in first differences to focus on short-run dynamic interactions.

VAR and Granger Causality Result

All variables are estimated in first differences, ensuring stationarity. The VAR was estimated with three lags because AIC, FPE, and the LR statistic favored lag 3, although HQIC selected lag 2 and SBIC selected lag 0. The three-lag specification was retained to capture richer short-run dynamics and to maintain comparability across subperiod models. To trace the evolution of short-run linkages, separate VAR(3) estimations were conducted for four structural phases: R1 (2000–2007) pre-Global Financial Crisis, R2 (2008–2012) Global Financial Crisis R3 (2013–2019) normalization, and R4 (2020–2025) pandemic and tightening. The result can be seen in the table 6.

Table 6. VAR and Granger Causality Result

Period / Regime	Equation (Dependent Variable)	Key Significant Lags (Direction of Influence)	Granger-Causality χ^2	p-value	Directional Summary
Full Sample (2000–2025)	Δl_IHSG	Δl_Exchange(−1), Δl_Exchange(−2)	12.06	0.007	FX → IHSG
	Δl_Exchange	Δl_IHSG(−1), Δl_IHSG(−2)	21.44	0.000	IHSG → FX
	Δl_GEPU	Δl_IHSG(−1,−2), Δl_Exchange(−2)	17.07; 12.97	0.001; 0.005	IHSG → GEPU, FX → GEPU
R1 (2000–2007)	Δl_IHSG	Δl_IHSG(−3), Δl_Exchange(−2)	7.01	0.320	Weak short-run linkages
	Δl_Exchange	Δl_IHSG(−2)	8.29	0.217	IHSG → FX not robust
	Δl_GEPU	Δl_IHSG(−1), Δl_Exchange(−2)	8.67; 11.76	0.034; 0.008	IHSG → GEPU, FX → GEPU
R2 (2008–2012)	Δl_IHSG	Δl_Exchange(−2), Δl_GEPU(−1)	7.84; 7.94	0.049; 0.047	FX → IHSG, GEPU → IHSG
	Δl_Exchange	Δl_IHSG(−1), Δl_Exchange(−2)	13.93	0.003	IHSG → FX
	Δl_GEPU	Insignificant	1.25	0.975	No causal effect
	Δl_IHSG	Mostly insignificant	4.21	0.648	No strong relation

R3 (2013–2019)	Δl_Exchange	No major driver	5.35	0.500	—
	Δl_GEPU	Δl_IHSG(−2), Δl_Exchange(−2) marginal	7.31; 6.59	0.063; 0.086	Weak IHSG → GEPU, weak FX → GEPU
R4 (2020–2025)	Δl_IHSG	Δl_GEPU(−1) marginal	5.05	0.538	Weak short-run link
	Δl_Exchange	Δl_IHSG(−3)	6.36	0.095	IHSG → FX weak
	Δl_GEPU	Δl_IHSG(−2), Δl_GEPU(−1)	15.87	0.001	IHSG → GEPU

Source: Stata17 computation

The results indicate that short-run linkages between the equity index, exchange rate, and global uncertainty evolved considerably over time. For the full sample, bidirectional feedback exists between IHSG and the exchange rate, while IHSG and the exchange rate significantly predict GEPU. However, GEPU does not independently Granger-cause IHSG in the full-sample model. During the pre-crisis phase, domestic financial variables mainly predicted GEPU, while the direct short-run linkages to IHSG and the exchange rate remained weak. The direction changed during the global financial crisis, when global uncertainty and currency shocks became significant drivers of equity returns, and IHSG also significantly predicted exchange-rate movements. In the normalization phase, most short-run linkages weakened, although GEPU remained weakly sensitive to local financial variables. During the pandemic–tightening phase, IHSG showed a significant short-run predictive association with GEPU and a weaker association with the exchange rate. These results should be interpreted as evidence of synchronized market adjustment rather than as proof that Indonesian equity movements causally determine global uncertainty.

Diagnostic tests were also conducted, with the results reported in table 7.

Table 7. VAR Diagnostic Result

Period / Regime	Max Root Modulus	LM (1–12) p-value Range	Normality (JB p-value)	Stability Assessment
Full Sample	0.613	0.20–0.78	0.000	Stable; non-normal residuals
R1 (2000–2007)	0.69	0.056–0.991	0.001	Stable; small-sample variance acceptable
R2 (2008–2012)	0.69	0.188–0.920	0.000	Stable; volatility clustering during crisis
R3 (2013–2019)	0.66	0.08–0.991	0.012	Stable; calm regime, minor deviations
R4 (2020–2025)	0.69	0.12–0.983	0.000	Stable; residual heteroskedasticity due to pandemic volatility

Source: Stata17 computation

Note: JB refers to Jarque-Bera normality test

Diagnostic results confirm that all VAR models are dynamically stable, with all eigenvalues located inside the unit circle. The LM tests indicate no systematic residual serial correlation across the main VAR specifications. Residual non-normality is present, which is common in financial time-series data, especially during crisis and pandemic periods. HAC-robust estimations are therefore used as a robustness check to assess whether the main short-run causal patterns remain stable under heteroskedasticity- and autocorrelation-consistent inference. Overall, the diagnostic results support the use of the VAR specifications for interpreting short-run dynamic relationships, provided that the non-normality of residuals is acknowledged.

Robustness Tests

To ensure the consistency and reliability of the empirical findings, several robustness procedures were applied, encompassing stability, causality, and volatility diagnostics. Each test complements the main VAR results and confirms the resilience of short-run linkages across time and market regimes.

Table 8. Robustness Test

Robustness Test	Period / Scope	Key Statistics
Structural Break (Unknown Dates)	2000–2025	Breaks at 2006m4 (Wald = 1184.99, p = 0.000), 2010m9 (Wald = 833.62, p = 0.000), 2016m6 (Wald = 104.33, p = 0.000), 2021m10 (Wald = 94.17, p = 0.000)
Structural Break (Known Dates)	Full sample (2000–2025)	χ^2 = 1163.95 (df = 9, p = 0.000) at 2008m1, 2013m1, 2020m1
Sub-Sample VAR Stability	Regimes R1–R4	Max root modulus = 0.61–0.69; LM(1–12) p-values = 0.06–0.99; Normality p = 0.00–0.01
Heteroskedasticity-Robust Granger Causality	Full sample (2000–2025)	Exchange → IHSG: F = 2.91 (p = 0.0346); IHSG → Exchange: F = 3.17 (p = 0.0246); IHSG → GEPU: F = 2.75 (p = 0.0432); Exchange → GEPU: F = 3.19 (p = 0.0239)
Conditional Volatility (GARCH (1, 1))	Full sample residuals	IHSG α = 0.157 (p < 0.01), β = 0.802 (p < 0.01); FX α = 0.321 (p < 0.01), β = 0.351 (p = 0.024); GEPU α = 0.108 (p = 0.088), β = 0.702 (p < 0.01) → α + β < 1
AR-GARCH (1, 1)	IHSG residuals	AR(1) = −0.059 (p = 0.465); ARCH(1) = 0.335 (p < 0.01); GARCH(1) = 0.009 (p = 0.966)
Model Adequacy (Diagnostics)	All VAR estimations	No roots > 1; LM p > 0.05; Jarque–Bera p < 0.05 in crisis and pandemic phases

Source: Stata17 computation

The robustness procedures generally support the reliability of the empirical framework. The structural-break tests reveal statistically significant shifts around major financial and policy episodes, including 2008, 2013, 2020, and 2021, which supports the use of subperiod analysis. Despite these breaks, the sub-sample VAR systems remain dynamically stable, with all eigenvalues inside the unit circle. The heteroskedasticity-robust causality tests reproduce the main full-sample directional pattern, particularly the bidirectional relationship between IHSG and the exchange rate and the predictive association from IHSG and the exchange rate to GEPU. The GARCH estimates indicate that volatility shocks are persistent but mean-reverting, although the AR-GARCH specification for IHSG shows that persistence should not be overstated because the GARCH term is not statistically significant. Overall, the robustness checks support the main short-run findings while confirming that the results should be interpreted as predictive dynamic relationships rather than structural causal effects.

Discussion

The results demonstrate that the dynamic relationships between Indonesia's equity market, exchange rate, and global economic policy uncertainty are neither uniform nor time-invariant. These linkages evolve in response to shifts in global financial conditions and domestic market adaptation. Such temporal variation confirms that Indonesia's financial system has moved through distinct phases of integration, vulnerability, and partial synchronization with global sentiment.

In the full-sample analysis, the mutual influence between stock prices and the exchange rate indicates a significant two-way transmission mechanism. This finding is consistent with portfolio balance and capital flow theories, which posit that exchange rate adjustments reflect cross-border portfolio rebalancing in response to changes in equity returns (Frankel, 1992; Ahmadian-Yazdi et al., 2025). When domestic equity performance strengthens, foreign capital inflows tend to appreciate in the local currency, while depreciation pressures arise when investors rebalance away from emerging-market assets. The presence of feedback from both variables to global uncertainty suggests that Indonesia's financial dynamics have become increasingly relevant within the broader emerging-market sentiment captured by the GEPU index.

The Granger-causality results from IHSG and the exchange rate to GEPU should not be interpreted as evidence that Indonesian financial variables structurally determine global economic policy uncertainty. GEPU is a globally aggregated index, and Indonesia's equity market is unlikely to move

the index through a direct causal channel. A more defensible interpretation is synchronization. Changes in IHSG and the exchange rate appear to contain information about broader emerging-market adjustment to global sentiment, so the statistical predictability from domestic variables to GEPU reflects co-movement within the global risk cycle rather than direct causation from Indonesia to global uncertainty.

Sub-period analysis provides further insight into how these mechanisms have evolved. During the pre-crisis expansion, the relative influence of domestic indicators on global uncertainty reflects Indonesia's improved macroeconomic credibility and the growing confidence of global investors in emerging markets. This phase represents a period of relatively autonomous market behavior, where internal performance contributed positively to global risk perceptions. By contrast, during the global financial crisis, the direction of causality reversed, with global shocks and exchange-rate pressures emerging as primary drivers of domestic equity movements. This reversal aligns with uncertainty transmission theory (Huynh et al., 2023; Hashmi et al., 2021), illustrating how external shocks rapidly propagate through capital flows and investor expectations. The heightened volatility and residual heteroskedasticity detected in this regime are consistent with the global contagion and liquidity stress that characterized the 2008–2012 period (Bhattarai et al., 2019; Rath, 2023).

In the post-crisis normalization phase, the weakening of short-run interactions implies a gradual recovery of domestic autonomy. Market responses became less sensitive to global shocks, suggesting that Indonesia's strengthened macroeconomic management and institutional credibility contributed to a more stable adjustment process. During the pandemic and subsequent tightening period, short-run causality from the stock market to global uncertainty reappears, not as a sign of dominance, but as part of a synchronized regional reaction to global shocks. The finding that Indonesia's equity dynamics co-move with fluctuations in global uncertainty reflects both the depth of its integration and its exposure to global risk cycles.

From a broader perspective, these results suggest that Indonesia's financial market has transitioned from being primarily reactive to external shocks toward becoming a participant in global sentiment formation within the emerging-market complex. The shift from domestic-led to externally driven and then to synchronized dynamics illustrates the adaptive nature of Indonesia's financial integration process (Astaíza-Gómez, 2025). This trajectory also implies that periods of global stress amplify linkages, while periods of stability allow domestic fundamentals to regain influence.

The implications for financial stability and investment strategy are notable. For investors, the findings indicate that global uncertainty exerts an uneven influence across time, amplifying the importance of regime awareness in risk management and portfolio allocation (Cao & Vo, 2025). In tranquil periods, domestic fundamentals remain central to asset valuation, but during heightened uncertainty, exchange-rate adjustments and global sentiment dominate. For policymakers, the evidence underscores the importance of cross-market coordination between monetary, fiscal, and macroprudential authorities. Joint monitoring of equity and currency movements can serve as an early warning system for capital flow reversals or systemic stress. The mild but persistent conditional heteroskedasticity observed across several regimes reinforces the need for adaptive policy instruments capable of addressing volatility without distorting market functioning.

Academically, the study contributes to the literature on financial integration by providing long-term evidence of evolving interaction between domestic and global variables in an emerging-market context. The confirmation of stability across models and the robustness of the short-run dynamics strengthen the empirical validity of the findings. The results extend previous research by showing that Indonesia's market no longer functions merely as a recipient of global shocks but increasingly co-moves with international uncertainty, reflecting the behavioral and institutional maturity of its financial system.

In summary, the discussion highlights a progressive evolution of Indonesia's financial interconnectedness. Domestic resilience, policy credibility, and investor behavior have jointly shaped how global uncertainty influences national markets. The evidence provides a nuanced understanding that can guide investors in managing risk exposure and assist policymakers in designing responsive frameworks that sustain stability within an increasingly interconnected global environment.

CONCLUSION

This study investigated the dynamic interactions among Indonesia's stock market (IHSG), the exchange rate, and global economic policy uncertainty (GEPU) using monthly data from 2000 to 2025. The analysis identified no statistically stable long-run equilibrium among the variables, yet revealed significant short-run interdependencies that differ across economic regimes. These findings indicate that Indonesia's financial market has progressively evolved from being primarily reactive to global shocks toward exhibiting synchronized movements with broader emerging-market sentiment, reflecting both increased financial integration and greater exposure to global risk factors.

For investors, the results highlight that stock market behavior in Indonesia is increasingly influenced by shifts in global uncertainty and currency movements, reinforcing the importance of diversified portfolios and dynamic risk management strategies that account for international developments. For policymakers, the close linkage between equity and exchange-rate fluctuations underscores the need for coordinated macroprudential and monetary policy responses to reduce contagion risk during episodes of heightened volatility.

Several limitations should be acknowledged. First, the use of monthly data may miss higher-frequency transmission dynamics that occur at daily or weekly intervals, especially during acute stress episodes. Second, the three-variable VAR system excludes potentially relevant factors such as domestic interest rates, commodity prices, global equity indices, capital flows, and monetary-policy indicators. Third, the subperiod estimations, particularly R2 and R4, rely on relatively small samples for a VAR(3) specification, so the regime-specific results should be interpreted cautiously. Fourth, Granger causality identifies predictive ordering, not structural causation. The IHSG-to-GEPU result therefore reflects synchronization with global sentiment rather than a direct causal channel from Indonesia to global uncertainty. Fifth, GEPU is a globally aggregated uncertainty measure; an Indonesia-specific EPU index would allow a more precise assessment of domestic uncertainty transmission. Finally, the analysis is in-sample and does not evaluate out-of-sample forecasting performance.

Future research could extend the analysis using nonlinear or time-varying models, such as threshold VAR or time-varying parameter VAR, to capture regime shifts more directly. Sectoral decomposition of IHSG would also clarify whether financial, commodity, consumer, or manufacturing sectors respond differently to uncertainty and exchange-rate shocks. Cross-country comparisons across ASEAN economies could identify whether Indonesia's adjustment pattern is unique or part of a broader regional mechanism. Further work could also develop and apply an Indonesia-specific EPU index, use higher-frequency data, and distinguish between positive and negative uncertainty shocks to examine asymmetric market responses.

REFERENCES

Ahmadian-Yazdi, F., Sokhanvar, A., Roudari, S., & Tiwari, A. K. (2025). Dynamics of the relationship between stock markets and exchange rates during quantitative easing and tightening. *Financial Innovation, 11*(51). https://doi.org/10.1186/s40854-024-00694-4

Akaike, H. (1973). Information theory and an extension of the maximum likelihood principle. In B. N. Petrov & F. Csáki (Eds.), *Second International Symposium on Information Theory* (pp. 267–281). Akadémiai Kiadó. https://doi.org/10.1007/978-1-4612-1694-0_15

Al-Mujaddid, T. F., & Suwito, S. (2024). Adapting to the global economic downturn in Indonesia: Harnessing fiscal and monetary instruments. *International Journal of Humanities Education and Social Sciences, 3*(6). https://doi.org/10.55227/ijhess.v3i6.920

Andaiyani, S., & Falianty, T. A. (2018). Spillover effect of global financial cycle to asset markets in ASEAN-5 countries: A structural VAR approach. *AFEBI Economic and Finance Review, 2*(2). https://doi.org/10.47312/aefr.v2i02.97

Andrews, D. W. K. (1993). Tests for parameter instability and structural change with unknown change point. *Econometrica, 61*(4), 821–856. https://doi.org/10.2307/2951764

Apaitan, T., Luangaram, P., & Manopimoke, P. (2021). Uncertainty in an emerging market economy: Evidence from Thailand. *Empirical Economics, 62*, 933–989. https://doi.org/10.1007/s00181-021-02054-y

Astaíza-Gómez, J. G. (2025). Uncertainty, risk, and opaque stock markets. *International Journal of Financial Studies, 13*(1), 35. https://doi.org/10.3390/ijfs13010035

Aziza, M., Suryadi, & Syuliswati, A. (2021). The effect of fundamental and macroeconomic factors on agricultural sector company stock prices listed in the Indonesia Stock Exchange on the 2016–2018 period. *Advances in Economics, Business and Management Research, 183*, 138–141. Atlantis Press. https://doi.org/10.2991/aebmr.k.210717.029

Baker, S. R., Bloom, N., & Davis, S. J. (2016). Measuring economic policy uncertainty. *The Quarterly Journal of Economics, 131*(4), 1593–1636. https://doi.org/10.1093/qje/qjw024

Bhattarai, S., Chatterjee, A., & Park, W. Y. (2019). *Global spillover effects of US uncertainty* (Working Paper 2017-17a). UNSW Economics. http://dx.doi.org/10.2139/ssrn.3072128

Bollerslev, T. (1986). Generalized autoregressive conditional heteroskedasticity. *Journal of Econometrics, 31*(3), 307–327. https://doi.org/10.1016/0304-4076(86)90063-1

Breusch, T. S. (1978). Testing for autocorrelation in dynamic linear models. *Australian Economic Papers, 17*(31), 334–355. https://doi.org/10.1111/j.1467-8454.1978.tb00635.x

Cao, P. T., & Vo, D. H. (2025). Market responses to geopolitical risk and economic policy uncertainty: Evidence from Vietnam. *Heliyon, 11*(4), Article e42703. https://doi.org/10.1016/j.heliyon.2025.e42703

Davis, S. J. (2016). *An index of global economic policy uncertainty* (NBER Working Paper 22740). National Bureau of Economic Research. https://ideas.repec.org/p/nbr/nberwo/22740.html

Engle, R. F. (1982). Autoregressive conditional heteroskedasticity with estimates of the variance of United Kingdom inflation. *Econometrica, 50*(4), 987–1007. https://doi.org/10.2307/1912773

Fama, E. F. (1970). Efficient capital markets: A review of theory and empirical work. *The Journal of Finance, 25*(2), 383–417. https://doi.org/10.2307/2325486

Frankel, J. A. (1992). Monetary and portfolio balance models of exchange rate determination. *International Economic Policies and their Theoretical Foundations*, 793-832. https://doi.org/10.1016/B978-0-12-444281-8.50038-6

Granger, C. W. J. (1969). Investigating causal relations by econometric models and cross-spectral methods. *Econometrica*, *37*(3), 424–438. https://doi.org/10.2307/1912791

Hannan, E. J., & Quinn, B. G. (1979). The determination of the order of an autoregression. *Journal of the Royal Statistical Society. Series B (Methodological)*, *41*(2), 190–195. https://doi.org/10.1111/j.2517-6161.1979.tb01072.x

Hansen, B. E. (1992). Testing for parameter instability in linear models. *Journal of Policy Modeling, 14*(4), 517–533. https://doi.org/10.1016/0161-8938(92)90019-9

Hashmi, S. M., Gilal, M. A., & Wong, W.-K. (2021). Sustainability of global economic policy and stock market returns in Indonesia. *Sustainability, 13*(10), 5422. https://doi.org/10.3390/su13105422

Hu, M., & Yuan, X. (2025). Dollar shocks and cross-border capital flows: Evidence from 33 emerging economies. *PLoS ONE, 20*(3), Article e0319570. https://doi.org/10.1371/journal.pone.0319570

Huynh, T. L. D., Nasir, M. A., & Nguyen, D. K. (2023). Spillovers and connectedness in foreign exchange markets: The role of trade policy uncertainty. *The Quarterly Review of Economics and Finance, 87*, 191–199. https://doi.org/10.1016/j.qref.2020.09.001

Indrawati, S. M., Diop, N., Ikhsan, M., & Kacaribu, F. N. (2020). Enhancing resilience to turbulent global financial markets: An Indonesian experience. *Economics and Finance in Indonesia*, *66*(1), 47–63. Available at https://scholarhub.ui.ac.id/efi/vol66/iss1/4/

Indonesia Stock Exchange. (2025). *Equity market statistics: Indonesia Stock Exchange (IDX) monthly reports, January 2000 – July 2025* [Data set]. Indonesia Stock Exchange. Retrieved August 15, 2025, from https://www.idx.co.id/id/data-pasar/laporan-statistik/statistik

International Monetary Fund. (2025). *International Financial Statistics (IFS): Exchange rate, Indonesia (IDR per USD), monthly data, January 2000 – July 2025* [Data set]. International Monetary Fund. Retrieved August 15, 2025, from https://data.imf.org/

Jarque, C. M., & Bera, A. K. (1980). Efficient tests for normality, homoscedasticity and serial independence of regression residuals. *Economics Letters, 6*(3), 255–259. https://doi.org/10.1016/0165-1765(80)90024-5

Newey, W. K., & West, K. D. (1987). A simple, positive semi-definite, heteroskedasticity and autocorrelation consistent covariance matrix. *Econometrica, 55*(3), 703–708. https://doi.org/10.2307/1913610

Quaye, I., Mu, Y., Abudu, B., & Agyare, R. (2016). Review of stock markets' reaction to new events: Evidence from Brexit. *Journal of Financial Risk Management, 5*(4), 281-314. http://dx.doi.org/10.4236/jfrm.2016.54025

Rath, P.K. (2023). Nexus between Indian financial markets and macro-economic shocks: A VAR approach. *Asia-Pacific Financial Markets, 30*, 131–164. https://doi.org/10.1007/s10690-022-09372-w

Schwarz, G. (1978). Estimating the dimension of a model. *The Annals of Statistics*, *6*(2), 461–464. http://www.jstor.org/stable/2958889

Sims, C. A. (1980). Macroeconomics and reality. *Econometrica*, *48*(1), 1–48. https://doi.org/10.2307/1912017

Yan, L. (2023). Explore the impact of international monetary policy uncertainty on global financial markets. *Advances in Economics, Management and Political Sciences, 44*, 213-220. https://doi.org/10.54254/2754-1169/44/20232234