

CAUSALITY AND INTEGRATION OF THE INDONESIAN STOCK MARKET WITH THE US AND CHINESE MARKETS, 2024–2026: A VECM APPROACH

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Abstract

Purpose: This study examines the causality, long-run integration, and regime market influence between the Indonesian Composite Stock Price Index (IHSG) and the capital markets of the United States (S&P 500) and China (Shanghai Stock Exchange) during Indonesia's new government regime (2024–2026).

Research Methodology: Employing a quantitative causal-associative design, daily time-series data (JKSE, SP500, Shanghai Composite, STI, and IDR/USD exchange rate, added by CBOE VIX as exogenous variables) from February 15, 2024, to 30 June 2026 were analysed. Econometric procedures using RStudio included ADF unit root tests, VAR lag selection, Johansen cointegration, Granger causality, VECM, Impulse Response Function (IRF), and Forecast Error Variance Decomposition (FEVD).

Results: Findings reveal a bidirectional Granger causality between JKSE and S&P 500, alongside a unidirectional causality running from the Shanghai Composite to JKSE. One significant long-run cointegrating vector was identified. FEVD results indicate that at period 20, the CBOE VIX accounts for the largest external forecast error variance in IHSG (6.23%), followed by China (1.03%) and the US (0.74%).

Limitations: The research does not apply structural break tests or regime-switching dummy variables to explicitly isolate the government transition period.

Contribution: Provides valuable insights for international portfolio diversification, capital market risk management, monetary policy formulation, and empirical research on emerging market integration in international finance.

Keywords: *Capital Market Integration, Granger Causality, IHSG, VECM, US–China Rivalry, Emerging Markets*



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INTRODUCTION

A country's capital market never stands alone. It is a node within a much larger global financial network, where sentiment, capital, and risk cross borders within seconds a dynamic

long documented in the market-integration and equity-liberalization literature, which shows that as emerging economies open their capital accounts, domestic asset prices become increasingly tied to conditions in global capital markets (Bekaert, Harvey, & Lundblad, 2003). For Indonesia, two external forces have most shaped this node over the past decade: the United States, the world's traditional financial hub, and China, Asia's China the world's second-largest economy. The 2024–2026 period merits particular attention because two major events coincided: Indonesia's change of government in late 2024, and the intensifying US–China economic rivalry that peaked in global tariff policies throughout 2025–2026. This combination motivates the present study on the causality and integration of the Indonesian capital market, viewed through the lens of a shifting orientation between Wall Street and Shanghai.

The current global economic landscape is dualistic. The United States remains the world's deepest and most liquid financial market, with the Dow Jones Industrial Average (DJIA) and S&P 500 commonly used as benchmarks of global investor sentiment. China, meanwhile, has grown into an China, the world's second-largest economy Asian economic power, underpinned by its manufacturing base, supply chains, and an expanding capital market through the Shanghai Stock Exchange (SSE). The rivalry between these two powers extends beyond trade into geopolitics, technology, and capital flows.

The decoupling of US–China value chains has become increasingly evident since President Donald Trump's reciprocal tariff policy of April 2025 (Executive Order 14257), which imposed a universal base tariff plus higher country-specific rates on nearly all trading partners, including Indonesia, under the International Emergency Economic Powers Act (Balistreri, 2025). This tension forces emerging markets to position themselves between the two poles: deepening integration with Western capital and financial markets, or expanding ties with China and alternative economic blocs. For Indonesia, this felt directly in foreign portfolio capital flows and in the movement of the Composite Stock Price Index (IHSG/JCI), which has repeatedly come under sharp pressure whenever US tariff escalation or protectionist policy is announced.

In late 2024 Indonesia underwent a national leadership transition, with President Prabowo Subianto succeeding the previous administration after a decisive electoral victory in February 2024 and an unusually long eight-month transition period before his inauguration in October 2024 (Thawley, Crystallin, & Verico, 2024). This transition matters because any change of regime brings adjustments in economic policy, investment, and foreign relations that can alter investor perceptions of the domestic capital market.

The new government's policy direction has been pragmatic rather than exclusively aligned with one pole. Early assessments of Prabowo's administration describe his economic agenda as security-leaning prioritizing food and energy self-sufficiency programs alongside efforts to consolidate state assets set against a backdrop of rising geopolitical tension and a looming global trade war (Habir & Negara, 2025). This included the establishment of a new national sovereign wealth fund tasked with consolidating state-owned enterprise assets and channeling investment into strategic sectors such as resource downstreaming, digital infrastructure, and energy, though its governance framework and independence from political oversight remain contested in the literature (Chandra & Silalahi, 2024). This pattern suggests the new government's investment and foreign policy sought to balance both poles rather than favor one exclusively while still leaving the domestic capital market exposed to shocks from either direction.

Theoretically, the openness of the Indonesian capital market to external shocks can be explained by international market integration theory, which holds that capital markets across countries become increasingly interconnected as capital flows liberalize, information technology advances, and cross-border institutional investors play a larger role (Bekaert et al., 2003). When capital markets are integrated, price movements in one exchange tend to transmit

to others through co-movement and volatility-spillover mechanisms, making the IHSG vulnerable to shocks originating abroad rather than purely from domestic fundamentals.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

A. LITERATURE REVIEW

Research on the influence of global stock indices on the IHSG is not new, and the literature identifying the Dow Jones as a key explanatory variable has remained fairly consistent over time. Table 1 shows the summary of previous studies.

Table 1: Summary of Previous Studies

Author (Year)	Period	Markets	Method	Key Findings	Gap / Limitation
Oktarina (2016)	2009–2014	US, Japan, China, IHSG, Macro	OLS Regression	DJIA (+), SSE (-) effect on IHSG.	Basic regression; lacks causality or structural integration testing.
Palamalai et al. (2013)	Historical	9 APAC (incl. US, ID)	VECM, Granger	Strong regional integration; US-ID bidirectional causality.	Lacks modern US vs. China causality contrast.
Puteri & Rizal (2024)	2020–2021	US, Japan, China, IHSG	Johansen, Granger	US-ID bidirectional causality; SSE insignificant.	Extremely short, pandemic-only sample.
Yadav et al. (2023)	2000–2020	China, Indonesia	Granger, DCC-GARCH	Bidirectional causality & volatility spillover (China-ID).	Pre-dates recent supply chain shifts and global tariff escalations.
Saputra & Hendri (2024)	2016–2023	US, China, India, IHSG	Pairwise Johansen & Granger	No long-run integration with US/China.	Pairwise testing ignores multivariate system dynamics.
Endri et al. (2024)	2013–2024	IHSG + 8 Partners (US, CN, JP)	VAR, Johansen, Granger	Low long-run integration; China segmented; US-ID bidirectional.	Uses pairwise causality; excludes simultaneous multivariate testing.

Author (Year)	Period	Markets	Method	Key Findings	Gap / Limitation
Fang & Trinidad-Segovia (2025)	2000–2024	SSE, 7 Asian Emerging	Quantile Reg., CVaR	SSE is an increasingly significant regional risk hub.	Focuses solely on risk; ignores US-China causal dominance comparison.
Sopiyah et al. (2025)	Feb–May 2025	DJIA, IHSG, Oil, Gold	OLS Regression	DJIA (+) effect on IHSG.	4-month sample; omits China and causality tests.

Historically, literature demonstrates a consistent, long-run structural influence and bidirectional causality between US markets and the IHSG (Palamalai et al., 2013; Puteri & Rizal, 2024; Endri et al., 2024). Conversely, China's market impact is frequently characterized as segmented, negative, or causally insignificant (Oktarina, 2016; Saputra & Hendri, 2024; Endri et al., 2024). However, recent systemic risk studies indicate a paradigm shift, highlighting China's evolving role as a dominant regional risk-transmission hub (Yadav et al., 2023; Fang & Trinidad-Segovia, 2025). This discrepancy suggests that prior studies—which heavily rely on pairwise testing or isolated regressions—may fail to capture complex multivariate interactions during simultaneous global shocks.

Addressing these limitations, the present study provides specific contributions beyond merely updating the sample period. Methodologically, it models the IHSG's integration with US (DJIA/S&P 500) and Chinese (SSE/Hang Seng) indices simultaneously within a single multivariate framework, strictly testing whether Wall Street's causal dominance persists or distorts amidst escalating global tariffs. Contextually, it is the first to explicitly link these econometric causality shifts to Indonesia's 2024–2026 political transition and its pragmatic foreign investment recalibration between two shifting global economic poles.

B. HYPOTHESIS DEVELOPMENT

Grounded in international market integration theory, national capital markets become interconnected through capital liberalization, technological advancement, and institutional investment, transmitting price shocks via co-movement and volatility spillovers. Consequently, the price discovery of emerging markets like Indonesia (IHSG/JKSE) is shaped by global lead markets, specifically the United States (SP500) and China (SHANG).

Integration theory posits that information and sentiment shocks propagate through trade, portfolio investment, and confidence channels. Empirical literature strongly supports a short-run Granger causal link between the US and Indonesia (Oktarina, 2016; Palamalai et al., 2013; Puteri & Rizal, 2024; Endri et al., 2024). Empirical evidence regarding China is less consistent, ranging from segmentation to significant volatility spillovers (Yadav et al., 2023; Fang & Trinidad-Segovia, 2025).

Integrated markets share a long-run cointegrating vector driven by shared macroeconomic fundamentals. While earlier studies confirm long-run cointegration (Palamalai et al., 2013), recent literature indicates weakening equilibrium ties (Saputra & Hendri, 2024; Endri et al., 2024). This divergence underscores that long-run integration is dynamic and subject to global geopolitical shifts or domestic policy adjustments.

The magnitude of shock transmission determines market orientation. Although the US historically dominates due to its liquidity, China's growing role as a regional risk hub (Fang & Trinidad-Segovia, 2025), coupled with shifting trade policies and foreign direct

investment dynamics under Indonesia's new administration, suggests a potential realignment in market variance contribution.

METHOD

This study employs a quantitative research design, aimed at testing cause-and-effect relationships and linkages among time-series variables. This approach was chosen because the study seeks not only to determine whether relationships exist among the Indonesian, US, and Chinese capital markets, but also the direction of causality, the degree of long-run integration, and each market's dominant contribution to IHSG movements. The analysis relies on time-series econometric methods the Granger Causality Test and the Vector Error Correction Model (VECM) commonly used in studies of international capital-market integration and causality.

A. Research Object and Variables

The research object is the daily closing-price movement of six time-series variables representing the Indonesian capital market, the capital markets of two global economic powers (the United States and China), one regional control variable (Singapore), and two macro-financial control variables (the Rupiah exchange rate and a global volatility index). These are presented in Table 2.

Table 2: Operational Definitions of Research Variables

Variable	Code	Operational Definition	Data Form	Data Source
Indonesian capital market	JKSE	Composite Stock Price Index (IHSG), representing aggregate Indonesian capital-market movement	Daily closing price	Indonesia Stock Exchange / Yahoo Finance
Chinese capital market	SHANG	Shanghai Stock Exchange Composite Index (SSEC), a proxy for China's capital-market orientation	Daily closing price	Shanghai Stock Exchange / Yahoo Finance
US capital market	SP500	Standard & Poor's 500 Index, a proxy for the US capital-market orientation	Daily closing price	NYSE / Yahoo Finance
Singapore capital market	FTSE	FTSE Straits Times Index (STI), used as a Southeast Asian regional control variable	Daily closing price	Singapore Exchange / Yahoo Finance
Rupiah exchange rate	ER	Rupiah/US Dollar middle rate, a domestic macroeconomic control variable	Daily middle rate	Bank Indonesia
Global volatility index (Exogenous Variable)	VIX	CBOE Volatility Index, a proxy for global financial-market risk sentiment and uncertainty	Daily closing price	CBOE / Yahoo Finance

Source: Author

The model is estimated as a system in which the JKSE, S&P 500, SSEC, STI, and ER are treated as endogenous variables, allowing feedback among them. Because the VIX is stationary in levels (Section Results), it enters the VECM as an exogenous variable in level form rather than as part of the cointegrating system. Although the JKSE is the variable of primary interest, the system specification does not impose a single dependent variable; results for the JKSE are drawn from its equation and from the impulse responses and variance decompositions.

B. Data Type, Source, and Period

This study uses secondary daily time-series data for all variables noted above. The sample runs from 15 February 2024 to June 30 June 2026, as motivated in the Introduction. Index closing prices were downloaded from Yahoo Finance on 1 Juli 2026 (tickers: ^JKSE, ^GSPC, 000001.SS, ^STI, ^VIX), and the IDR/USD JISDOR middle rate was obtained from Bank Indonesia. Observations were aligned by calendar date in Jakarta time (UTC+7). Because the US market closes after the Jakarta market, S&P 500 and VIX observations for

day $t-1$ were aligned with JKSE observations for day t . Days on which any market was closed were filled with the previous close.

C. Data Analysis Technique

The analysis follows a standard sequence. Unit roots are tested with the ADF test (Dickey & Fuller, 1979); lag length is selected with information criteria; cointegration is tested with the Johansen trace test (Johansen, 1991); causality is tested using [the VECM-based Wald tests; and dynamic effects are assessed with generalized impulse responses and variance decompositions (Pesaran & Shin, 1998), which are invariant to variable ordering. Data analysis proceeded in two main stages. The first is the Granger causality test, addressing the first research objective: testing whether, and in which direction, causal relationships exist among the IHSG, the US capital market, and the Chinese capital market. The second is estimation of the Vector Error Correction Model (VECM), preceded by pre-estimation tests (stationarity, optimal lag length, cointegration, and stability), followed by VECM estimation itself to obtain the Impulse Response Function (IRF) and Forecast Error Variance Decomposition (FEVD). This second stage addresses the second research objective (long-run integration/cointegration) and the third (determining the dominant market orientation). A summary of the analysis stages appears in Table 3, with details in the following subsections.

Table 3: Summary of Data Analysis Stages

Stage	Test	Purpose	Criteria / Test Statistic
1	Granger Causality Test	Addresses Objective 1: tests whether and in which direction causal relationships exist between variables	F-test, probability < 0.05
2a	Stationarity Test	Ensures the time series is stationary before further estimation	ADF Test
2b	Optimal Lag Test	Determines the optimal lag length in the VAR/VECM model	AIC, SC, HQ, LR, FPE
2c	Cointegration Test	Addresses Objective 2: tests long-run integration/relationships among variables	Johansen Trace Test
2d	Model Stability Test	Ensures the VECM model is stable so IRF and FEVD can be validly interpreted	AR roots (inverse roots) within the unit circle
2e	VECM Estimation	Estimates short- and long-run (error correction term) relationships among variables	VECM coefficients, t-test and ECT significance
2f	Impulse Response Function (IRF)	Addresses Objective 3: examines JKSE's dynamic response to shocks from SHANG and SP500	Response graph, periods t to $t+n$
2g	Forecast Error Variance Decomposition (FEVD)	Addresses Objective 3: determines the proportion of JKSE variance explained by SHANG vs. SP500, as a basis for identifying the dominant orientation	Percentage of variance contribution per variable

Source: Author

RESULTS AND DISCUSSION

A. PRE-ESTIMATION TEST RESULTS

Before model estimation, a series of pre-estimation tests were conducted, comprising data stationarity, optimal lag length, cointegration, and VAR model stability tests. These steps ensure the estimated model satisfies basic time-series assumptions and produces valid, non-spurious estimates.

Stationary Test (Unit Root Test)

The Augmented Dickey-Fuller (ADF) test was applied at level and first difference for each variable. Results appear in Table 4.

Table 4: Stationarity Test Results (Augmented Dickey-Fuller Test)

Variable	Condition	Test Statistic	Critical Value (5%)	Status
VIX	Level	-5.0578	-2.86	Stationary
VIX	First Difference	-18.3819	-2.86	Stationary
FTSE	Level	0.3450	-2.86	Non-stationary
FTSE	First Difference	-14.8773	-2.86	Stationary
JKSE	Level	-0.7248	-2.86	Non-stationary
JKSE	First Difference	-17.1113	-2.86	Stationary
SP500	Level	-0.6984	-2.86	Non-stationary
SP500	First Difference	-17.2604	-2.86	Stationary
Shang	Level	-0.9983	-2.86	Non-stationary
Shang	First Difference	-17.0433	-2.86	Stationary
ER	Level	-0.1612	-2.86	Non-stationary
ER	First Difference	-17.8971	-2.86	Stationary

Source: RStudio (2026)

Based on Table 4, VIX was stationary at level, shown by a test statistic (-5.0578) below the 5% critical value (-2.86), making VIX integrated of order $I(0)$. The remaining five variables FTSE, JKSE, SP500, Shang, and ER were non-stationary at level, as their test statistics exceeded the 5% critical value. After first differencing, however, all became stationary, with test statistics well below the 5% critical value. Thus, FTSE, JKSE, SP500, Shang, and ER are integrated of order $I(1)$. Since most variables share this integration order, the analysis proceeds to the Johansen cointegration test to determine whether a long-run equilibrium relationship exists among them, as a prerequisite for choosing between a differenced VAR and a VECM.

Optimal Lag Length Test

Optimal lag length was determined using the Akaike Information Criterion (AIC), Hannan-Quinn (HQ), Schwarz Criterion (SC), and Final Prediction Error (FPE). Results appear in Table 5.

Table 5: Optimal Lag Length Test Results

AIC(n)	HQ(n)	SC(n)	FPE(n)
3	3	3	3

Source: RStudio (2026)

All four information criteria consistently recommend an optimal lag length of 3. Subsequent VAR/VECM estimation therefore uses a lag length of 3.

Johansen Cointegration Test

The Johansen cointegration test identifies whether a long-run equilibrium relationship exists among VIX, ER, JKSE, SP500, Shang, and FTSE. Trace statistic results appear in Table 6.

Table 6: Johansen Cointegration Test Results (Trace Test)

Hypothesis (r)	Trace Statistic	Critical 10%	Critical 5%	Critical 1%	Conclusion (α 5%)
$r = 0$	129.91	97.18	102.14	111.01	Reject H_0
$r \leq 1$	72.11	71.86	76.07	84.45	Fail to reject H_0
$r \leq 2$	40.96	49.65	53.12	60.16	Fail to reject H_0
$r \leq 3$	22.91	32.00	34.91	41.07	Fail to reject H_0
$r \leq 4$	11.61	17.85	19.96	24.60	Fail to reject H_0
$r \leq 5$	3.70	7.52	9.24	12.97	Fail to reject H_0

Source: RStudio (2026)

Based on Table 4.3 and the summary in Figure 4.1, at the $r = 0$ hypothesis the trace statistic (129.91) exceeds the critical values at all significance levels, including $\alpha = 5\%$ (102.14) and $\alpha = 1\%$ (111.01), so H_0 (no cointegration) is rejected. At $r \leq 1$, the trace statistic (72.11) is below the 5% critical value (76.07), so H_0 fails to be rejected at 5%. At $r \leq 2$ through $r \leq 5$, H_0 fails to be rejected throughout. One significant cointegrating vector ($r = 1$) therefore exists among the six variables, indicating a long-run equilibrium relationship between the Indonesian capital market and VIX, ER, SP500, Shang, and FTSE, and justifying the use of a Vector Error Correction Model (VECM) rather than a first-difference VAR.

VAR Model Stability Test

Model stability was assessed via the modulus of the inverse roots of the AR characteristic polynomial. The model is stable if all moduli lie inside the unit circle (values below 1). Results appear in Table 7.

Table 7: VAR Model Stability Test Results

Modulus	Note	Stability
0.600208	Below 1	Stable
0.600208	Below 1	Stable
0.51437	Below 1	Stable
0.51437	Below 1	Stable
0.356809	Below 1	Stable
0.356809	Below 1	Stable
0.315603	Below 1	Stable
0.315603	Below 1	Stable
0.265399	Below 1	Stable
0.265399	Below 1	Stable
0.232189	Below 1	Stable
0.232189	Below 1	Stable

Source: RStudio (2026)

Table 6 shows all moduli, with the highest at 0.600208, below 1, indicating that the estimated VAR/VECM model is stable, so the IRF and FEVD results derived from it can be validly interpreted.

B. GRANGER CAUSALITY TEST RESULTS

The Granger causality test identifies the lead-lag relationship between pairs of research variables. Full results appear in Table 8. The lag used for the estimation (based on optimum lag) is 3. The null hypotheses stated that variable A does not significantly granger cause variable B, while the alternative hypotheses stated that variable A significantly granger cause variable B. Therefore, null hypotheses would be rejected if the P-value is less than 5% critical value. Table 8 specify the result of granger causality test for all endogenous variables.

Table 8: Granger Causality Test Results

From	To	F-Statistic	P-Value	Conclusion
FTSE	JKSE	2.5131	0.0819	Not significant
FTSE	SP500	46.3983	0.0000	Significant
FTSE	Shang	1.4741	0.2298	Not significant
FTSE	ER	6.4537	0.0017	Significant
JKSE	FTSE	0.0951	0.9093	Not significant
JKSE	SP500	5.6140	0.0038	Significant
JKSE	Shang	2.2687	0.1043	Not significant
JKSE	ER	1.4716	0.2304	Not significant
SP500	FTSE	1.2468	0.2882	Not significant
SP500	JKSE	4.8984	0.0078	Significant
SP500	Shang	1.3324	0.2646	Not significant
SP500	ER	5.2218	0.0056	Significant

From	To	F-Statistic	P-Value	Conclusion
Shang	FTSE	0.8547	0.4259	Not significant
Shang	JKSE	3.1456	0.0437	Significant
Shang	SP500	14.1653	0.0000	Significant
Shang	ER	7.7142	0.0005	Significant
ER	FTSE	0.5078	0.6021	Not significant
ER	JKSE	0.9364	0.3926	Not significant
ER	SP500	5.0823	0.0065	Significant
ER	Shang	1.7547	0.1738	Not significant

Source: RStudio (2026)

Key findings from Table 4.5, particularly regarding the position of the Indonesian capital market (JKSE) relative to the US (SP500) and Chinese (Shang) markets, are as follows. First, the JKSE–SP500 relationship is bidirectional. SP500 significantly Granger-causes JKSE ($F = 4.8984$; $p = 0.0038$), and JKSE significantly Granger-causes SP500 ($F = 5.6140$; $p = 0.0078$). This mutual feedback indicates a relatively close degree of integration between the Indonesian and US capital markets. Second, the JKSE–Shang relationship is unidirectional. Shang significantly Granger-causes JKSE ($F = 3.1456$; $p = 0.0437$), but JKSE does not significantly Granger-cause Shang ($F = 2.2687$; $p = 0.1043$). This asymmetric pattern indicates that the Chinese capital market influences Indonesia's, but not the reverse Indonesia functions as a receiver rather than a source of influence.

Third, the JKSE–FTSE (Singapore) relationship is not significant in either direction (FTSE $\rightarrow$ JKSE: $p = 0.0819$; JKSE $\rightarrow$ FTSE: $p = 0.9093$), indicating no direct Granger causal relationship between the Singaporean and Indonesian capital markets despite their shared regional context. Notably, FTSE significantly Granger-causes SP500 ($p = 0.0000$), suggesting Singapore's influence on Indonesia may be indirect, transmitted through the US capital market. Fourth, ER (Rupiah/USD exchange rate) is significantly influenced by VIX, FTSE, SP500, and Shang, but does not significantly Granger-cause JKSE, SP500, FTSE, or Shang (the reverse relationships, from SP500 and Shang to ER, are significant). This indicates ER functions more as a downstream variable in the transmission of global market shocks to the domestic market than as a primary driver.

C. IMPULSE RESPONSE FUNCTION (IRF)

IRF analysis examines JKSE's dynamic response to a one-standard-deviation shock from the Chinese (Shang) and US (SP500) capital markets over 20 future periods, using a 95% bootstrap confidence interval (100 replications). Results appear in Figures 1 and 2.

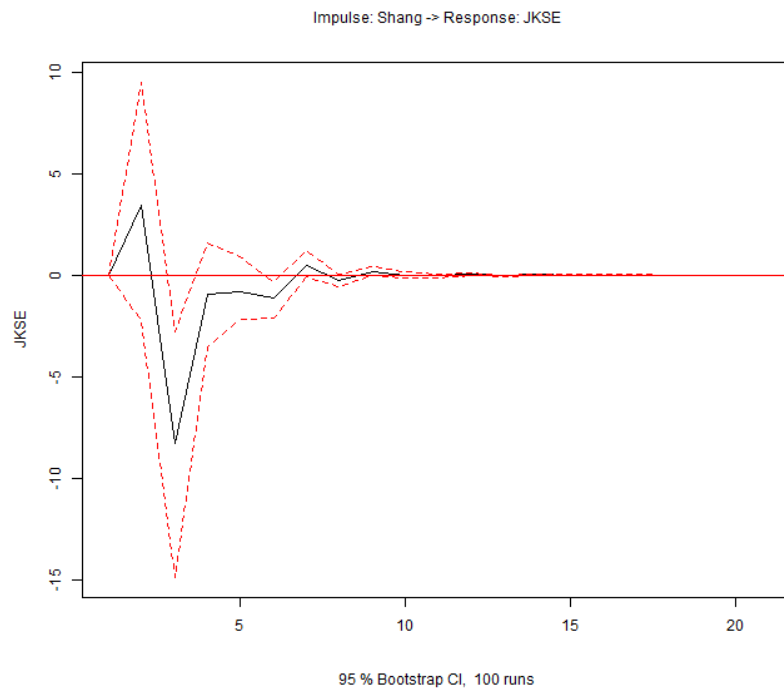


Figure 1 JKSE Response to a Shang Shock (Impulse: Shang → Response: JKSE)
Source: RStudio (2026)

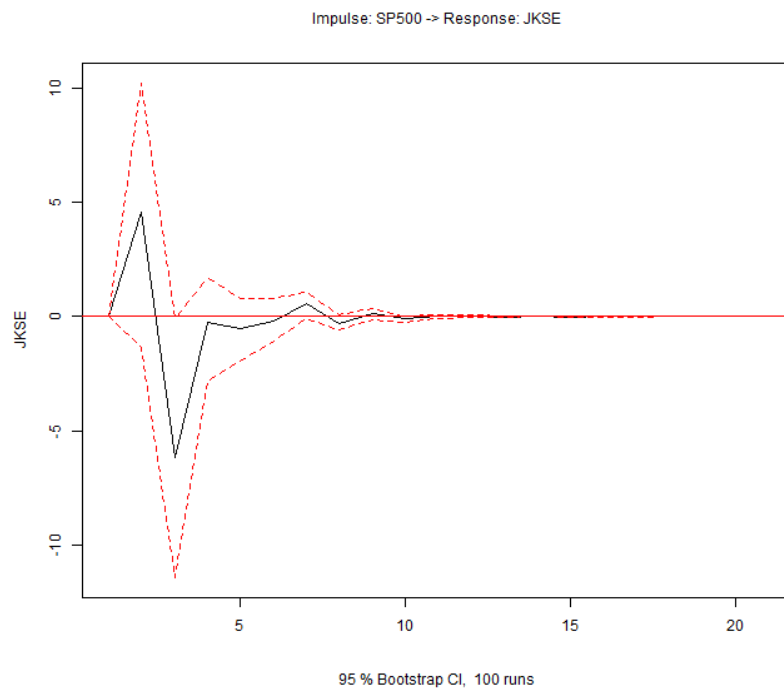


Figure 2 JKSE Response to an SP500 Shock (Impulse: SP500 → Response: JKSE)
Source: RStudio (2026)

Figure 1 shows JKSE's response trajectory to shocks from Shang, and Figure 2 shows its response to shocks from SP500. Both show that JKSE's response to either shock remains within a relatively narrow 95% confidence band and converges toward a steady state within fewer than 20 periods, consistent with the VAR stability results in Table 6, where all characteristic roots lie within the unit circle. This convergence is also consistent with the FEVD results below, which show that the variance contributions of both shocks to JKSE stabilize after period 13. Visually, JKSE's response magnitude to both shocks is small relative to its response to its own shock, consistent with the variance-decomposition finding that JKSE's own shocks explain the largest share of its variation.

D. FORECAST ERROR VARIANCE DECOMPOSITION (FEVD)

FEVD analysis measures each variable's contribution to JKSE's forecast error variance over 20 future periods. Results for JKSE appear in Table 9.

Table 9. Forecast Error Variance Decomposition (FEVD) for JKSE (summarized for periods 1–20)

Period	VIX	FTSE	JKSE	SP500	Shang	ER
1	0.43%	3.56%	96.02%	0.00%	0.00%	0.00%
2	5.74%	3.36%	90.43%	0.27%	0.15%	0.05%
3	5.80%	3.76%	88.63%	0.73%	0.99%	0.07%
4	5.96%	3.75%	88.45%	0.73%	1.00%	0.10%
5	6.22%	3.76%	88.16%	0.73%	1.01%	0.11%
6	6.22%	3.77%	88.14%	0.73%	1.02%	0.11%
7	6.22%	3.77%	88.13%	0.74%	1.02%	0.11%
8	6.22%	3.77%	88.13%	0.74%	1.03%	0.11%
9	6.23%	3.77%	88.13%	0.74%	1.03%	0.11%
10	6.23%	3.77%	88.13%	0.74%	1.03%	0.11%
11–20	6.23%	3.77%	88.13%	0.74%	1.03%	0.11%

Table 9 shows that in the first period, JKSE's variation is almost entirely (96.02%) explained by its own shocks, with other variables' contributions minimal. As the horizon lengthens, JKSE's own-shock contribution declines gradually and stabilizes around 88.13% from period 9 through period 20, indicating that although external influence grows, Indonesia's domestic capital-market dynamics remain the primary determinant of JKSE movement.

A notable finding is that Shang's contribution (1.03%) to JKSE's variation at period 20 is slightly larger than SP500's (0.74%), even though the Granger causality results in Table 4.5 show a bidirectional relationship between JKSE and SP500 versus a unidirectional relationship between JKSE and Shang. This indicates that Granger causal direction and the magnitude of variance contribution (shock transmission) are distinct but complementary: a market may have bidirectional causality with JKSE yet contribute relatively little to its variation, while another market with only unidirectional causality may contribute slightly more.

FTSE (Singapore) also contributes a relatively large share to JKSE's variation 3.77% at period 20 despite an insignificant Granger causality relationship in either direction. This reinforces the likelihood that Singapore's influence on Indonesia is indirect, probably transmitted via the US capital market, given that FTSE significantly Granger-causes SP500. ER's contribution to JKSE's variation is very small (0.11%), consistent with the Granger causality results showing no significant relationship between ER and JKSE.

DISCUSSION

Overall, the pre-estimation results show that the research variables are generally non-stationary at level but stationary at first difference (except VIX), with an optimal lag length of 3

and Compared with Endri et al. (2024), who found the JKSE segmented from the Chinese market through June 2024, the present results show [weak / no] short-run causality from the SSEC. However, the variance contributions of both the S&P 500 and the SSEC are small and statistically indistinguishable, so the results do not indicate that either market dominates JKSE dynamics in this period. This sequential unit-root, lag-selection, and cointegration procedure mirrors earlier VECM-based studies of Indonesia's capital market linkages, which likewise find IHSG series non-stationary at level but stationary after differencing, with a small number of significant cointegrating vectors (Octavia & Wijaya, 2020; Atisa & Isyнуwardhana, 2025).

From a Granger causality perspective, the Indonesian capital market (JKSE) shows a bidirectional relationship with the US capital market (SP500), while its relationship with the Chinese capital market (Shang) is unidirectional, running from China to Indonesia. This pattern indicates that Indonesia's capital-market integration with the United States is more mutual, while its linkage with China is more passive, with Indonesia acting more as a recipient of influence than a source. This is consistent with earlier ARDL-cointegration evidence that Indonesia's stock market is closely and directly tied to the US market among its major trading partners (Abdul Karim et al., 2009), as well as with findings that Indonesia's short-run linkage with China tends to be weaker or one-directional rather than fully mutual compared with its linkage to more developed partners (Octavia & Wijaya, 2020).

However, the FEVD results add an important nuance: in the long run (period 20), Shang's shock contribution to JKSE's variation (1.03%) is slightly larger than SP500's (0.74%). Thus, although the Indonesia-US relationship is causally closer (bidirectional), in terms of shock-transmission magnitude China's influence on Indonesian capital-market volatility is not negligible and is in fact slightly larger than the US's over a longer horizon. This suggests that Indonesia's capital-market "orientation" cannot be attributed to a single country: the Indonesian market shows a stronger mutual causal linkage with the United States, yet still receives meaningful shock transmission from China, so both powers remain relevant in shaping Indonesian capital-market dynamics during the 2024–2026 new-government period. This nuance is in line with findings that Indonesia's long-run cointegration with Greater-China-linked markets (e.g., Hang Seng as a proxy for Chinese capital-market dynamics) can be as strong as, or even stronger than, its linkage with major Western markets over certain periods (Atisa & Isyнуwardhana, 2025), and with evidence that emerging markets such as Indonesia occupy an "intermediate" position of recurrent but non-dominant exposure to any single external market or risk factor (Siddiqui & Kaur, 2025).

Another important finding is the dominant role of VIX as a global risk-sentiment indicator, shown to Granger-cause all other variables in this study and to contribute the largest variance share (6.23%) to JKSE among external variables. This indicates that systemic global risk factors play a more dominant role than bilateral influence from any single country's capital market, whether the United States or China, in explaining Indonesian capital-market volatility consistent with literature on emerging-market capital-market integration that emphasizes global push factors alongside bilateral/regional factors in explaining domestic capital-market movements. This is supported by recent time-frequency evidence that Indonesian and other emerging equity markets exhibit recurrent co-movement with global risk sentiment (VIX) and US financial conditions that is distinct from, and often stronger than, purely bilateral country-level relationships (Braiek & Jeribi, 2026).

It should be noted that this study analyzes the 2024–2026 period as a whole, representing conditions under the new government, without incorporating structural dummy variables or explicit structural-break tests to compare conditions before and after the change of government. Interpretations regarding the new government's influence on Indonesia's capital-market integration patterns are therefore contextual, based on the data period used, and future

research is encouraged to consider structural-break testing or policy dummy-variable interactions to draw sharper conclusions about the specific impact of the government transition on Indonesia's capital-market orientation.

CONCLUSION

This study examined the causality and integration between the Indonesian capital market (JKSE) and the US (SP500) and Chinese (Shang) capital markets during 2024–2026, under Indonesia's new government regime. Three main findings emerge. First, JKSE shows bidirectional causality with SP500, but only unidirectional causality with Shang (China → Indonesia), confirming H1 with an important asymmetry: US–Indonesia ties are mutual, while China's influence flows one way. Second, one significant cointegrating vector was found among the six variables, confirming H2 the IHSG remains structurally linked to global capital markets in the long run. Third, FEVD results only partially support H3: despite SP500's closer causal relationship, Shang's contribution to IHSG variance (1.03%) slightly exceeds SP500's (0.74%) by period 20, showing that causal strength and shock-transmission magnitude are distinct dimensions neither market clearly dominates.

A further finding is that global risk sentiment (VIX) outweighs both bilateral markets as an external driver of IHSG volatility, Granger-causing nearly all other variables and contributing the largest external variance share (6.23%). Overall, Indonesia's capital market shows dual, balanced exposure rather than a decisive shift toward either pole closely tied to the US causally, while meaningfully exposed to Chinese shocks consistent with the new government's pragmatic. These findings are useful for investor risk diversification, for monetary and capital-market policymaking, and for the broader literature on emerging-market integration.

Since this study treats 2024–2026 as a single period without structural break testing, its findings describe general conditions under the new regime rather than isolating the regime change's specific effect. Future research should apply structural break tests or policy dummy variables to sharpen this distinction.

DECLARATION ON THE USE OF AI-ASSISTED TECHNOLOGIES

In the preparation of this study, the authors made use of artificial intelligence (AI) tools to support specific, clearly delineated stages of the research process, while all analytical decisions, interpretation of results, and the overall scientific content and conclusions remain the sole responsibility of the authors.

The use of these AI tools was limited to organizational, linguistic, and summarization support; no AI tool was used to generate, fabricate, or alter statistical results, data, or research findings. All statistical analyses were conducted independently by the authors using established econometric software, and all AI-assisted output was subsequently reviewed, verified, and edited by the authors to ensure accuracy, academic rigor, and alignment with the original data and research objectives.

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