

Ownership Type and Political Risk Transmission: Evidence from Indonesian Equity Markets

Priscilia Adrian Limadinata^{1*}, William Santoso¹, Hermeindito¹ 

¹Universitas Ciputra

CitraLand CBD Boulevard, Surabaya City, East Java 60219, Indonesia

*Corresponding Email: plimadinata@magister.ciputra.ac.id

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Political shocks can be transmitted asymmetrically across firms, depending on their ownership structure, while aggregate indices, such as the Jakarta Composite Index (JCI), may mask divergent firm-level reactions. This study examines whether ownership type (State-Owned Enterprises (SOEs) versus private firms) moderates political risk transmission to stock returns and conditional volatility in the Indonesian equity market. Employing a quantitative event study with GARCH (1,1) volatility modeling, this study analyzes 46 firms across four political shocks in 2025 using a 2 x 2 framework (domestic vs. international shocks x ownership type). Results show that domestic political shocks generated significant positive CAR for SOEs (mean = 4.67%, $t = 1.893$, $p = 0.036$), consistent with mean-reversion. For international shocks, a significant episode x ownership interaction emerged ($F = 16.425$, $p < 0.001$, $\eta^2 = 0.157$), while the ownership main effect on CAR was not significant at the 5% level ($p = 0.054$). Although international γ values were positive, the between-group difference was insignificant ($p = 0.922$), and the overall volatility model showed no ownership, shock-type, or interaction effects ($F = 0.222$, $p = 0.881$). These findings suggest that political risk in Indonesia is transmitted primarily through return direction rather than ownership-specific volatility amplification.

Keywords: Abnormal Returns; Event Study; Ownership Structure; Political Shock; Volatility

JEL Classification: G14; G32; G15; P31; L32; G17

INTRODUCTION

The stock market is widely regarded as a key barometer of economic conditions, reflecting the dynamics of a country's economic activity (Bimenyimana et al., 2025). In Indonesia, this role is reflected in the Jakarta Composite Index (JCI), a key indicator of national economic performance in the Asian region (Fauzi & Wijoyo, 2025). Furthermore, macroeconomic shocks tend to affect the equity market asymmetrically, with negative shocks typically triggering a stronger response than positive shocks of the same magnitude (Ronal et al., 2023).

In 2025, the Indonesian capital market experienced significant turmoil due to two domestic political shocks. The first shock occurred on August 29, 2025, when large-scale demonstrations culminated in civil unrest, disrupting the country's stability and triggering sharp volatility in the Jakarta Composite Index (JCI), with extreme price movements. This event has not been studied in the literature, thus creating a new research gap in understanding how domestic political risk is transmitted to the Indonesian stock market. The second shock occurred on September 8, 2025, when President Prabowo Subianto announced a reshuffle of the finance minister (Pangestu & Armstrong, 2025), leading to a sharp decline in the JCI. Unfortunately, this phenomenon contradicts previous research that found that ministerial changes do not have a statistically significant long-term impact on the JCI (Angelita & Geraldina, 2023).

Recent Indonesian equity market research also reveals an apparent paradox from international political shocks. Several previous studies have shown that Indonesian stock market volatility is not entirely driven by external macroeconomic factors, but the JCI also experiences significant abnormal returns following various international geopolitical shocks (Hasyim et al., 2024; Rahmawati & Maharani, 2023; Raihan et al., 2023; Saputra et al., 2023). The series of political events in 2025 presents a rare opportunity to observe a broad market response within the context of Indonesia's increasingly diversified economy, which has 3 notable gaps. First, the aggregate JCI response is rarely broken down into state-owned and private sector components, making it difficult to bridge identifiable resilience with sector findings that demonstrate significant impacts. Second, the majority of studies analyze domestic and international political shocks separately without positioning ownership type as an explicit moderating channel. Third, most studies stop at analyzing abnormal returns without examining volatility by ownership type and the source of the shock.

This three-objective research framework has several important advantages. Firstly, for the first time, this study presents a clear 2×2 comparison between state-owned enterprises and private companies in response to domestic and international shocks. The goal is to determine whether the pattern of state-owned enterprises being more vulnerable to domestic shocks (Angelita & Geraldina, 2023; Saputra et al., 2023) but relatively resilient to international shocks is consistent or merely incidental (Fianto et al., 2025; Hasyim et al., 2024; Tetuko et al., 2025). Secondly, in addition to examining abnormal returns, this study also analyzes volatility dynamics using the GARCH (1,1) model to measure the rate of uncertainty reduction and volatility resilience. This will be differentiated based on ownership type and shock origin to distinguish the response of conditional volatility across ownership groups and shock types. Another option is whether specific characteristics of each company determine volatility responses. Lastly, this paper divides the aggregate JCI response into two groups (SOEs and private). This seemingly strong JCI pattern can be deceptive because, underlying, there is a tendency for differences in the fate of SOEs and private companies that only become apparent when the JCI is broken down by ownership type.

This study addresses these gaps by examining whether ownership type (SOEs versus private firms) moderates the transmission of political shocks on stock returns and conditional volatility in the Indonesian equity market. Using a 2 × 2 event study and GARCH (1,1) design across four political events in 2025, this study provides the first simultaneous decomposition of the JCI response by ownership type across both domestic and international shocks while also examining the volatility dimension. The findings are significant because they reveal why aggregate indices such as the JCI appear resilient even when firm-level responses diverge substantially by ownership type. Practically, the results provide a basis for ownership-based portfolio strategies and inform regulators on how implicit state guarantees transmit political risk in an emerging market.

LITERATURE REVIEW

Signaling Theory

Political events function as information signals that can trigger abnormal returns because they convey new messages to investors in an environment of information asymmetry, where investors are not fully aware of future policy directions. Political actions, such as leadership changes, policy changes, or unrest, are interpreted as signals about future policy direction and the stability of political institutions (Connelly et al., 2025; Ghozzi & Chaibi, 2021; Mariyani et al., 2025). These signals are not interpreted the same by the market for SOEs and private companies, leading to heterogeneous market impacts across the two groups. For example, a reshuffle of the economic minister directly impacts SOEs and the credibility of state support. International conflicts affect private companies through capitalization, trade, and commodity prices (Angelita & Geraldina, 2023; Saputra et al., 2023; Teoh et al., 2021). In conclusion, this framework provides a theoretical basis for observing how the market interprets different political signals for SOEs and private company stocks, as reflected in the Abnormal Returns (AR) and Cumulative Abnormal Returns (CAR).

Political Risk Premium Theory

In conditions of heightened political uncertainty, investors demand higher risk compensation by raising the discount rate on future cash flows. Consequently, stock valuations decline, and negative CARs emerge, particularly during times of weak macroeconomic conditions (Souffargi & Boubaker, 2024). Cross-country evidence suggests that increased economic policy uncertainty is accompanied by declining stock prices and a surge in volatility (Caldara & Lacoviello, 2022). Within the Indonesian context, this theory suggests that domestic political shocks directly impact local policies and regulatory sustainability, resulting in larger negative CARs and sharper volatility spikes than international shocks. Consequently, these effects are spread over a longer period and tend to take longer to subside. If uncertainty decreases, the discount rate may return to normal levels, leading to a partial recovery in stock prices through a short-term mean reversion process.

Soft Budget Constraint (SBC)

SBC theory provides a basis for how stock markets systematically respond to political risk, emphasizing that corporate ownership structure determines how risk is transmitted to individual issuers. Governments tend to provide protection to state-owned enterprises (SOEs) through easier access to financing, regulatory easing, and potential rescues. This allows SOEs to survive even when fundamentals are weakening. During specific periods, this expectation of state support will differentiate the risk profiles of SOEs from those of private companies (Kornai et al., 2003). International shocks are more likely to tighten global financing conditions and disrupt trade channels, which significantly impact

private companies. Meanwhile, domestic political shocks that undermine government legitimacy will erode the credibility of implicit guarantees for SOEs (Ding et al., 2021; Wadhwa & Goodell, 2024). In emerging markets like Indonesia, the SBC theory considers ownership type to be a natural moderator in the transmission of political risk to the stock market.

Event study

Abnormal returns are estimated by comparing actual stock returns against a benchmark index, thereby isolating the impact of a specific news event from general market movements (Brown & Warner, 1985). Thus, event studies have become a standard method for assessing stock reactions to specific events. This paper follows that approach by computing abnormal returns for SOEs and private firms around domestic and international political shocks, and by estimating GARCH (1,1) processes before and after events to measure ownership-specific changes in volatility persistence.

Political or Geopolitical Risk & Indonesian Stock Market

Geopolitical factors have an effect on the stock market in Indonesia, even though sometimes the effects are not coherent with each other. Geopolitical risk from Russia and China tends to raise JCI through commodity price channels, whereas risk originating from the US and Ukraine depresses the index (Saputra et al., 2023). Moreover, Islamic and conventional indices exhibit different degrees of volatility persistence during conflicts, suggesting heterogeneous resilience across index types (Hasyim et al., 2024). Event-specific studies further highlight that external political shocks can generate significant AR and volatility in particular market segments. However, none of these studies explicitly decomposes responses by SOE vs private ownership across both domestic and international shocks, leaving a gap that remains to be addressed.

Hypotheses Development

Domestic Political Shocks and SOE CAR

Domestic political shocks in Indonesia generate a market-wide panic response that affects both firm-level returns and conditional volatility. The overreaction hypothesis (Bondt & Thaler, 1985) and the uncertain information hypothesis (Brown & Warner, 1985) predict that dramatic and unexpected events initially trigger sharp price depression across all issuers, followed by mean reversion as uncertainty subsides. For SOEs specifically, implicit government backing under the soft budget constraint theory (Kornai et al., 2003) reinforces this recovery, such that CAR over the full event window is expected to be significantly positive. At the same time, because systemic domestic shocks generate broadly uniform panic across ownership groups, conditional shock return volatility is not expected to differ significantly between SOEs and private firms, rendering ownership type an irrelevant differentiating factor for volatility (Angelita & Geraldina, 2023; Saputra et al., 2023; Souffargi & Boubaker, 2024).

H1: Domestic political shocks significantly generate positive CAR for SOEs in the Indonesian equity market.

International Political Shocks, Ownership Type, and Aggregate CAR

International political shocks such as tariff announcements and geopolitical conflicts are transmitted to the Indonesian equity market through capital flows, risk sentiment, and trade channels. SOEs may experience relatively more resilient or even positive CAR during some international episodes because implicit government guarantees and SBC provide policy support and financing backstops (Ding et al., 2021; Fu et al., 2024; Wadhwa & Goodell, 2024). By contrast, private firms are more exposed to capital flow reversals and trade disruptions (Fu et al., 2024), which can depress CAR through higher

risk premia and weaker external demand (Giovanni & Hale, 2022). At the aggregate index level, however, the opposing responses of SOEs and private firms may offset each other, producing near-zero and statistically insignificant CAR, consistent with the proximity hypothesis that distant shocks generate muted net effects on the overall market.

H2: International political shocks generate significantly different CARs between state-owned and private firms, while aggregate market CARs remain close to zero.

Ownership Type as Moderator of Domestic Shock Effects on CAR

Domestic political shocks, such as large-scale unrest or cabinet reshuffles, are highly salient for local investors and can trigger market-wide overreaction that affects all listed firms simultaneously. In such systemic episodes, circuit breakers and broad shifts in sentiment can limit firm-specific differentiation, making ownership structure less relevant in explaining cross-sectional CAR patterns (Bondt & Thaler, 1985). Although SBC theory predicts that state ownership should increase sensitivity to domestic political events, domestic shocks that resemble system-wide disturbances may generate similar CAR responses across SOEs and private firms once market-wide panic is taken into account.

H3: Ownership type does not significantly moderate domestic shock impact on CAR (null hypothesis).

Interaction of International Political Shocks and Ownership Type on CAR

Different categories of international political shocks can affect SOEs and private firms through distinct channels. Trade-policy shocks and tariff disputes may benefit SOEs in strategic or commodity-linked sectors that enjoy state backing, while military conflicts or security crises can harm SOEs more heavily when their operations and funding structures are closely tied to the state (Aizenman et al., 2024; Kornai et al., 2003). At the same time, some shocks may disproportionately affect private firms through capital flow reversals and external financing constraints. These asymmetries imply that the effect of international shocks on CAR depends jointly on the type of episode and the ownership structure, generating a crossing interaction pattern between SOEs and private firms across different international events.

H4: International political shocks interact with ownership type such that CAR differ between SOEs and private firms across international shock episodes.

Ownership Type, Shock Origin, and Conditional Stock Return Volatility

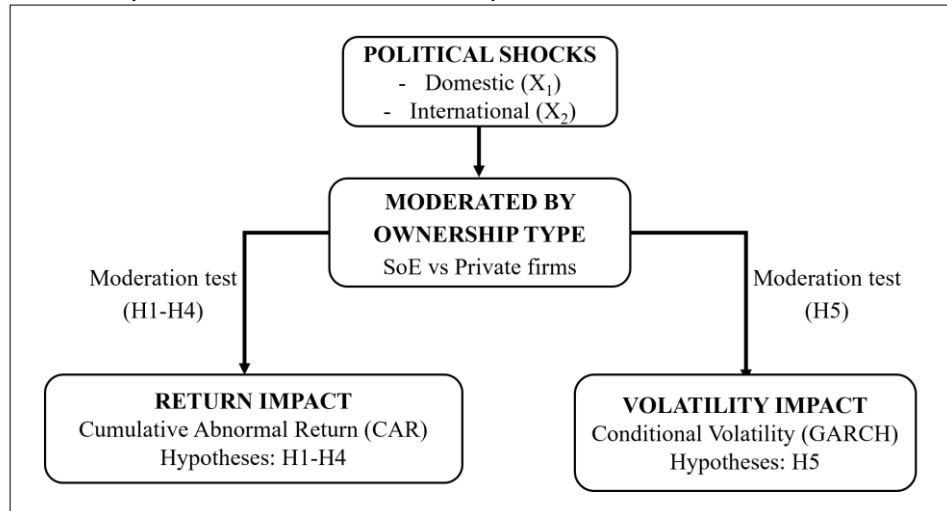
Conditional stock return volatility in emerging markets is often driven more by firm-specific characteristics than by broad ownership categories or the origin of shocks. Although SBC theory suggests that state ownership should increase firms' sensitivity to political events, empirical evidence for Indonesia indicates that domestic and international political shocks do not systematically raise conditional volatility for either SOE or private firms (Wadhwa & Goodell, 2024). Instead, cross-sectional variation in the GARCH event-dummy coefficient appears to be dominated by issuer-level fundamentals, implying that political shocks primarily operate through short-term adjustments rather than persistent changes in volatility by ownership type or shock origin.

H5: Neither ownership type nor shock origin has a significant main or interaction effect on conditional stock return volatility; cross-sectional volatility differences are dominated by firm-specific heterogeneity.

Conceptual Framework

Figure 1 presents the conceptual framework that guides this study's analysis of how domestic and international political shocks are transmitted to stock returns and volatility through the moderating role of ownership type.

Figure 1. Conceptual Framework: Ownership-Based Political Risk Transmission



In this conceptual framework, domestic and international political shocks (X_1 and X_2) are expected to influence firm-level stock returns, measured by CAR, and conditional volatility, captured by GARCH event-dummy coefficients. Ownership type (SOEs versus private firms) is modeled as a moderating variable that shapes how shocks are transmitted to returns (H1-H4) and to conditional volatility (H5), within a 2×2 design that compares domestic and international shocks across SOEs and private firms.

RESEARCH METHOD

Research Design

This study employs a quantitative, non-experimental research design combining event study methodology and GARCH (1,1) volatility modeling. The event study framework estimates firm-level CAR around four political shock events in 2025 (Brown & Warner, 1985; MacKinlay, 1997). The market-adjusted model (MAM) is adopted as the expected-return benchmark, given its robustness in emerging markets where OLS-based beta estimates are unreliable during politically turbulent periods (MacKinlay, 1997). Ownership type (SOE vs private) serves as the primary moderating variable, and a 2×2 design (domestic vs international shocks x SOE vs private firms) structures the comparative hypothesis tests.

Event Selection and Observation Windows

Four political events occurring in 2025 are selected based on their documented significance for Indonesian equity markets and their clearly identifiable event dates. Two domestic events are selected: (1) the civil unrest of 29 August 2025 and (2) the ministerial reshuffle of 8 September 2025. Two international events are selected: (3) the Trump tariff announcement (Liberation Day) on 2 April 2025 and (4) the US-Iran military conflict on 21 June 2025. The observation windows for each event are detailed in Table 1. The two domestic events are combined into a single composite CAR window to prevent double-counting of returns arising from the sequential and overlapping nature of the events (Brown & Warner, 1985).

Table 1. Event Timeline and Observation Windows for Impact Study

No.	Scope	Event	Event Date	Observation Window	
				AR & CAR	GARCH
1	Domestic	Civil unrest	29-Aug-2025	25-Aug-2025 to 28-Aug-2025 (before); 01-Sep-2025 to 04-Sep-2025 (after)	03-Feb-2025 to 28-Aug-2025 (before); 01-Sep-2025 to 13-March-2026 (after)
2		Ministerial changing	08-Sep-2025	01-Sep-2025 to 04-Sep-2025 (before); 09-Sep-2025 to 12-Sep-2025 (after)	10-Feb-2025 to 04-Sep-2025 (before); 09-Sep-2025 to 27-Mar-2026 (after)
3	International	Trump tariff (Liberation Day announcement)	02-Apr-2025	25-Mar-2025 to 28-Mar-2025 (before); 08-Apr-2025 to 11-Apr-2025 (after)	12-Sept-2024 to 28-Mar-2025 (before); 08-Apr-2025 to 23-Oct-2025 (after)
4		International military conflict between the United States and Iran	21-Jun-2025	17-Jun-2025 to 20-Jun-2025 (before); 23-Jun-2025 to 26-Jun-2025 (after)	15-Nov-2024 to 20-Jun-2025 (before); 23-Jun-2025 to 30-Dec-2025 (after)

The two domestic events (civil unrest and the ministerial reshuffle) create a sequential events problem whereby the price effects of the first shock may not have fully resolved before the second shock occurs. Based on standard guidance on overlapping events, the two domestic episodes are therefore combined into a single composite CAR window to prevent double-counting of returns and ensure that the measured CAR reflects the net impact of domestic political risk as a class, rather than the isolated effect of either individual event (Brown & Warner, 1985).

Volatility shocks from the US market are typically transmitted to Indonesia with a one-trading-day lag due to time-zone differences, consistent with prior research (Nathania & Sumani, 2023; Prameswari & Manurung, 2024). The post-event window, beginning at t+1, therefore captures this delayed transmission. For domestic events, no geographic lag is assumed. The GARCH (1,1) specification inherently captures lagged effects through the ARCH term (α) and GARCH term (β), making explicit distributed-lag modeling unnecessary for the volatility hypotheses.

Sample and Data

Sample Criteria

The sample comprises firms listed on the Indonesia Stock Exchange (IDX) during all observation periods that satisfy the following eligibility criteria. First, firms must have complete daily closing price and trading volume data throughout all relevant windows; any issuer with a trading suspension exceeding one trading day is excluded. Second, firms must not have undertaken corporate actions, including dividend distributions or stock splits, during the CAR and AR event windows. Third, firms must not have been subject to the Full Call Auction (FCA) mechanism during any observation periods. Finally, firms must rank among the largest by market capitalization within their respective ownership group. Applying these criteria yields a balanced final sample of 23 SOEs (as a limited group) and 23 private firms (46 firms in total), with the number of private firms restricted to match the 23 SOEs that meet all screening criteria, based on market capitalization stratification rather than sector affiliation. All data are obtained from the official IDX database.

Sample Composition

The final sample consists of 23 SOEs and 23 private companies, as detailed in Table 2 by ownership type and ticker symbol.

Table 2. Companies Selected by Ownership Type (SOE vs Private)

No	State-owned Enterprises	Ticker	Private companies	Ticker
1	PT Adhi Commuter Properti Tbk	ADCP	Barito Renewables Energy Tbk.	BREN
2	PT Adhi Karya (Persero) Tbk	ADHI	Bank Central Asia Tbk.	BBCA
3	PT Bank Raya Indonesia Tbk	AGRO	Dian Swastatika Sentosa Tbk	DSSA
4	PT Bank Negara Indonesia (Persero) Tbk	BBNI	Bayan Resources Tbk.	BYAN
5	PT Bank Tabungan Negara (Persero) Tbk	BBTN	PT Sinar Mas Multiartha Tbk.	SMMA
6	PT Bank Pembangunan Daerah Jawa Barat dan Banten Tbk	BJBR	Amman Mineral Internasional Tbk.	AMMN
7	PT Bank Pembangunan Daerah Jawa Timur Tbk	BJTM	Barito Pacific Tbk.	BRPT
8	PT Bank Syariah Indonesia Tbk	BRIS	PT Capital Financial Indonesia Tbk.	CASA
9	PT Elnusa Tbk	ELSA	Astra International Tbk.	ASII
10	PT Vale Indonesia Tbk	INCO	Petrindo Jaya Kreasi Tbk.	CUAN
11	PT Jasa Marga (Persero) Tbk	JSMR	Pantai Indah Kapuk Dua Tbk.	PANI
12	PT Dayamitra Telekomunikasi Tbk (Mitratel)	MTEL	PT Sumber Alfaria Trijaya Tbk.	AMRT
13	PT Perusahaan Gas Negara Tbk (PGN)	PGAS	PT Hanjaya Mandala Sampoerna Tbk.	HMSP
14	PT Pertamina Geothermal Energy Tbk	PGEO	Bank Permata Tbk.	BNLI
15	PT Pembangunan Jaya Ancol Tbk	PJAA	PT Charoen Pokphand Indonesia Tbk.	CPIN
16	PT PP Presisi Tbk	PPRE	Bumi Resources Minerals Tbk.	BRMS
17	PT PP (Persero) Tbk	PTPP	Bumi Resources Tbk.	BUMI
18	PT Semen Baturaja Tbk	SMBR	Indoritel Makmur Internasional Tbk.	DNET
19	PT Semen Indonesia (Persero) Tbk	SMGR	PT GoTo Gojek Tokopedia Tbk.	GOTO
20	PT Telkom Indonesia (Persero) Tbk	TLKM	Petrosea Tbk.	PTRO
21	PT Asuransi Tugu Pratama Indonesia Tbk	TUGU	United Tractors Tbk.	UNTR
22	PT Wijaya Karya Bangunan Gedung Tbk.	WEGE	Unilever Indonesia Tbk.	UNVR
23	PT Wijaya Karya Beton Tbk	WTON	Indofood CBP Sukses Makmur Tbk.	ICBP

Variables

Dependent Variables

The market-adjusted model (MAM) is selected as the primary expected-return benchmark for four reasons. First, beta estimates derived from pre-event windows are highly unstable during political shocks and regime changes, particularly in emerging markets; the MAM eliminates this source of bias (MackKinlay, 1997). Second, this study covers four political events in close proximity and creates a risk that the Market Model's estimation window is contaminated by adjacent political noise. The MAM requires no estimation period and therefore, produces cleaner abnormal returns. Third, for short event windows of trading days for CAR estimation, both MAM and market model produce very similar CAR results and conclusions (Brown & Warner, 1985). Fourth, the MAM is the widely accepted standard for event studies in emerging markets, where Ordinary Least Squares (OLS)-based beta estimates are unreliable (MackKinlay, 1997).

Abnormal Return (AR) represents the excess of the actual stock return over its expected return.

$$AR_{i,t} = R_{i,t} - R_{m,t}$$

Here, $R_{i,t}$ denotes the observed log return on stock i at day t , and $R_{m,t}$ represents the corresponding log return on the market index (JCI) at the same date.

CAR represents the total effect of a political event on a firm's value, summed over the days included in the specified event window. For firm i , CAR over the interval from day t_1 to day t_2 is defined as:

$$CAR_i(t_1, t_2) = \sum_{t=t_1}^{t_2} AR_{i,t}$$

Conditional volatility is estimated using a GARCH (1,1) model that incorporates an event dummy in the variance equation.

$$\sigma_{i,t}^2 = \omega_i + \alpha_i \varepsilon_{i,t-1}^2 + \beta_i \sigma_{i,t-1}^2 + \gamma_i D_t$$

where $\varepsilon_{i,t}$ is the return innovation for stock i , and D_t is a binary event dummy that equals 1 on all days in the event window (pre-event and post-event) and 0. γ_i is the marginal change in conditional variance attributable to the political shock for each stock i . Separate GARCH models are performed for domestic and international episodes to allow comparison of volatility responses across shock origins and ownership types.

Independent Variables

Shock origin (domestic=1, international=0) and ownership (SOE=1, private=0). Interaction terms are used for moderation testing. These groups are used as grouping variables in the CAR tests and as episode-ownership factors in the two-way ANOVA. In the GARCH (1,1) variance equation, political shocks are represented by event dummies $D_{dom,t}$ and $D_{int,t}$ (equal to 1 on event-window days and 0 otherwise), whose coefficients $\gamma_{dom,i}$ and $\gamma_{int,i}$ measure change in stock volatility.

Data Analysis

A two-way ANOVA is applied for CAR from the two international episodes to test the main and interaction effects of shock origin and ownership type on stock returns (H2 and

H4). For the null hypothesis H3, an independent samples t-test compares SOEs versus private-firms CAR in the domestic context. Non-parametric alternatives (Wilcoxon and Mann-Whitney U tests) are used as robustness checks given the non-normal distribution of the data. Domestic CARs are computed using the single composite domestic episode defined to address the overlapping events of the two domestic shocks and to avoid double-counting of returns. All calculations are performed using IBM SPSS Statistics version 31 and Eviews version 13.

For the volatility hypotheses, GARCH (1,1) models are estimated individually by incorporating event dummies into the variance equation. The resulting γ coefficients are then combined and evaluated using a combination of one-sample t-tests, Welch's tests with Mann-Whitney U tests as robustness checks, and two-way factorial ANOVA to test the main and interaction effects of ownership type and shock origin on conditional stock return volatility.

In addition, the empirical strategy is complemented by robustness checks, which are reported in the Results section, to address overlapping events and potential confounding announcements.

RESULTS

Normality Test

Before the research was conducted, a normality test was carried out. Although Shapiro-Wilk tests reject normality for all four subgroups (Table 3), the Central Limit Theorem and prior research suggest that t-tests are reasonably robust for a sample of this size.

Table 3. Shapiro–Wilk Normality Test Results by Scope and Ownership

Group	W Shapiro-Wilk	p-value	Distribution
DOM & SOE	0.787	<0.001	Not normal
DOM & Private	0.900	0.026	Not normal
INT & SOE	0.949	0.044	Not normal
INT & Private	0.896	<0.001	Not normal

Therefore, t-tests are retained as primary tests and complemented by non-parametric robustness checks (Brown & Warner, 1985).

Hypothesis H1

Table 4. One-Sample Tests for Domestic SOE CAR

Test	Statistic	p-value	Decision
One sample t-test (H: CAR>0)	t=1.893	0.036	Significant
Wilcoxon Signed-Rank (non-parametric)	W=185	0.076	Not significant (borderline/marginal)

Based on Table 4, one-sample t-test (H1: CAR>0) for domestic SOEs produces $t = 1.893$ with $p = 0.036$ ($\alpha = 0.05$), which indicates that the mean CAR of 4.67% after domestic shocks is significantly greater than zero. Moreover, the Wilcoxon Signed-Rank test provides marginally consistent evidence ($W = 185$, $p = 0.076$), indicating a similar positive direction, although not statistically significant at the 5% level. Therefore, H1 is accepted: domestic political shocks generate a significant positive CAR for SOEs.

Hypothesis H2

Table 5. Ownership Main Effect on CAR in International Episodes

Ownership Group	Mean	Std Dev.	Test Statistic	p-value	η^2	Decision
SOE	+1.67%	7.17%	-	-	-	-
Private	-1.32%	8.66%	-	-	-	-
Two-way ANOVA	-	-	F = 3.825	0.054	0.042	Not supported

Based on Table 5, the two-way ANOVA was conducted to examine whether ownership type significantly affects CAR in the context of international political shock episodes, consistent with prior evidence that political shocks affect stock returns and volatility across global capital markets. Descriptive statistics indicate that SOEs recorded a mean of CAR total of 1.67% (SD = 7.17%), while private firms recorded a mean CAR total of -1.32% (SD = 8.66%). The formal test results reveal that the main effect of ownership is only marginally significant (F = 3.825, $p = 0.054$, $\eta^2 = 0.042$). Given that the p-value is greater than α (0.05), there is insufficient evidence to reject the null hypothesis of equal mean total CAR for SOEs and private firms at the 5% level. Using the market model as a robustness check, the ownership main effect during international episodes remains statistically insignificant, so H2 is not supported.

Hypothesis H3

Table 6. Descriptive Statistics for Domestic vs Private Firms

Group	Mean CAR total	Std.dev
DOM SOE	4.67%	11.84%
DOM Private	-1.11%	10.55%
Difference	5.79%	-

Table 7. Independent Samples Tests between Domestic SOE and Private Firms

Test	Statistic	p-value	Decision
Levene's test (variance homogeneity)	F=0.1	0.753	Equal variance
Independent samples t-test	t=1.750	0.087	Not significant
Welch t-test (equal variance not assumed)	t=1.750	0.087	Not significant
Mann-Whitney (Non-parametric)	U=189	0.097	Not significant

Based on Table 6 and Table 7

Table 7, descriptive statistics show that SOEs recorded a higher domestic mean CAR (4.67%) than private firms (-1.11%), with a difference of 5.79 percentage points. An initial Levene's test was employed to check whether the variances were equal, as required for the subsequent independent-samples t-test. The result indicates no significant difference in variances between the two groups (F = 0.1, $p = 0.753$), satisfying the assumption of equal variances. The independent-samples t-test yields $t = 1.750$ with a two-tailed p-value of 0.087, indicating no statistically significant difference between SOE CAR and private-firm CAR in the domestic shock context. Therefore, the H3 null hypothesis is supported. The Welch t-test produces an identical result, and the Mann-Whitney test also yields a consistent result (U = 189, $p = 0.097$). When H3 is tested using the market model as a robustness test, the conclusion remains the same: domestic political shocks do not generate statistically significant ownership-based differences in CAR.

Hypothesis H4

Table 8. Descriptive Statistics by Episode and Ownership

Episode	Ownership	Mean CAR	Standard Deviation	Difference (SOE-Private)
INT1	SOE	5.56%	7.38%	9.19
INT1	Private	-3.63%	7.32%	
INT2	SOE	-2.22%	4.36%	-3.21
INT2	Private	0.99%	9.41%	

Table 9. Two-Way ANOVA: Episode × Ownership Interaction

Source	F	p-value	η^2	Decision
Episode × Ownership (interaction)	16.425	<0.001	0.157	Significant

Based on [Table 8](#) and [Table 9](#), the two-way ANOVA shows that the interaction between the factors reaches statistical significance ($F = 16.425$, $p < 0.001$, $\eta^2 = 0.157$). The effect size ($\eta^2 = 0.157$) for the interaction is classified as large, exceeding the conventional threshold of 0.14 ([Lakens, 2022](#)). Thus, H4 is accepted. Furthermore, the crossing interaction pattern is clear. SOEs outperform private firms by 9.19 percentage points (pp) in the Trump Tariff episode, but underperform by -3.21 pp in the US-Iran conflict episode. When H4 is tested using the market model specification, the episode × ownership interaction on international CAR remains highly significant, indicating that the result is robust.

Hypothesis H5

Conditional volatility is modeled using a GARCH (1,1) specification with an event dummy because this model is widely regarded as a parsimonious but highly effective benchmark for capturing volatility clustering in financial return series ([Lakens, 2022](#)).

Table 10. One-Sample Tests for International Volatility Coefficients

Test	Statistic	p-value	Decision
One-sample t-test	$t = 0.351$	0.727	Not significant

Regarding the volatility dimension of domestic shocks, based on [Table 11](#), there is no difference between the two ownership groups (the mean γ_{dom} for SOE is 0.000289 and for private firms is 0.000056). The mean difference in γ_{dom} between SOEs and private firms is trivially small (Cohen's d is 0.139), indicating no statistically significant difference between the two ownership groups. Consistent with this, the parametric test ($t = 0.351$, $p = 0.727$ in [Table 10](#)), does not reject the null of equal volatility, and the robustness test using the Mann-Whitney U confirms the absence of statistically significant differences in conditional volatility between ownership groups. This pattern supports the null volatility hypothesis (H5), namely that domestic political shocks do not generate significantly different conditional stock return volatility between SOEs and private firms.

Table 11. Group Means of γ_{dom} Between SOEs and Private Firms

Group	Mean γ_{dom}	Decision
SOEs	0.000289	Not a significant difference
Private	0.000056	

Table 12. Tests of Group Differences (γ_{dom})

Test	Statistic	p-value (two-tailed)	Decision
Welch t-test	$t(21.196) = 0.418$	0.680	Not significant
Mann-Whitney U	$U = 244.500, Z = -1.179$	0.238	Not significant

Based on Table 11 and Table 12, an independent sample t-test shows no significant difference in γ_{dom} between state-owned and private companies. The Mann-Whitney test also confirms no significant difference between the two groups. This indicates that ownership type does not significantly moderate the effect of domestic political shocks on conditional stock return volatility.

Table 13. International Shock Volatility for SOE and Private

Group	Mean γ_{int}	One Sample t-test	p-value	Decision
SOE	0.000028	Significant	0.00003	Significant
Private	0.000016	Significant	0.00002	Significant
Between-group difference	-	Not significant	0.922	No difference between SOE and private

Note: p-value of between group is based on the independent samples t-test (Welch two-sided p = 0.922 equal variances assumed p = 0.920). The non-parametric Mann-Whitney test also confirms no significant difference (p = 0.900).

According to Table 13, the independent two-sample t-test shows no significant difference in γ between SOEs (mean = 0.000028) and private companies (mean = 0.000016), with consistent results from Welch's t-test and the Mann-Whitney U-test. The mean difference in γ_{int} between SOEs and private firms is trivially small (Cohen's d = 0.139), and the corresponding between-group p-value of approximately 0.922 indicates no systematic difference in conditional volatility responses between the two ownership groups. One-sample tests further confirm that γ_{int} is significantly greater than zero for both SOEs (p = 0.00003) and private firms (p = 0.00002), indicating that international shocks do elevate conditional volatility; however, this elevation is statistically indistinguishable between ownership groups.

Table 14. Mean γ by Group

Ownership	γ_{dom}	γ_{int}
SOE	0.000289	0.000028
Private	0.000056	0.000016

Table 15. Effects of Ownership Type and Shock on γ

Source	F-statistic	p-value	η^2	Decision
Ownership (SOE vs private)	0.213	0.646	0.002	Not significant
Shock type (domestic vs international)	0.322	0.572	0.004	Not significant
Interaction (ownership x shock type)	0.171	0.680	0.002	Not significant
Corrected model	0.222	0.881	0.008	Not significant

Based on Table 14 and Table 15, the two-way GLM Univariate ANOVA on the GARCH event-dummy coefficients shows that neither ownership type nor shock origin produces a significant main effect on conditional volatility (γ) (for shock origin, p = 0.572), and the interaction between ownership and shock origin is also insignificant (p = 0.680). The overall corrected model yields F = 0.222, p = 0.881 with $R^2 = 0.008$, meaning that the two-factor specification explains only 0.8% of the variation in γ , while the remaining 99.2% is captured by the residual term. Group-level means for the four combinations: SOE-domestic ($\gamma = 0.000289$), SOE-international ($\gamma = 0.000028$), private-domestic ($\gamma = 0.000056$), and private-international ($\gamma = 0.000016$) confirm a nearly uniform volatility pattern across ownership types and shock origins. This overall test reconciles the group-

level γ_{int} results with H5: positive within-group volatility coefficients do not imply significant ownership-based or shock-origin differences.

Taken together, the evidence from Table 11-Table 15 supports H5: neither ownership type nor shock origin has a significant main or interaction effect on conditional stock return volatility, and cross-sectional volatility differences are dominated by firm-specific heterogeneity.

The outcomes of all hypothesis tests conducted in this study are summarized in Table 16.

Table 16. Summary of Hypothesis Testing Results

Hypothesis	Description	Test used	Test statistic (p-value)	Decision
H1	Domestic political shocks generate positive CAR for SOEs (recovery effect)	One-sample t-test on domestic SOE CAR	$t = 1.893$ ($p = 0.036$)	Supported
H2	International political shocks generate ownership differences in CAR (SOEs vs private), with aggregate CAR close to zero	Two-way ANOVA (ownership main effect in international episodes)	$F = 3.825$ ($p = 0.054$, $\eta^2 = 0.042$)	Not supported at 5% (directionally small effect)
H3	Ownership type does not significantly moderate the impact of domestic shocks on CAR	Independent-samples t-test (SOE vs private, domestic CAR)	$t = 1.75$ ($p = 0.087$)	Supported (null not rejected)
H4	International political shocks exhibit a significant episode \times ownership interaction effect on CAR	Two-way ANOVA (episode \times ownership interaction)	$F = 16.425$ ($p < 0.001$, $\eta^2 = 0.157$)	Supported (large effect)
H5	Conditional volatility (γ) is not significantly affected by ownership type, shock origin, or their interaction; firm-specific heterogeneity dominates	Two-way GLM ANOVA on γ (ownership, shock type, interaction)	$F = 0.222$ ($p = 0.881$, $R^2 = 0.008$)	Supported (null hypothesis)

Robustness Check

To ensure that the empirical findings are not driven by the overlapping timing of domestic events or by confounding announcements, the empirical design also incorporates a series of robustness checks, including separate event windows for domestic shocks and placebo CAR tests in clean pre-event periods.

Table 17. Robustness Check: Separate vs. Combined Domestic Event CAR

Specification	Group	Mean CAR	SD	t-stat	p-value	Sig.
Civil Unrest (separate)	SOE	0.0259	0.0740	1.677	0.108	Not significant
Ministerial Change (separate)	SOE	0.0267	0.0590	2.172	0.041	Positive and significant
Civil Unrest (separate)	Private	-0.0083	0.0773	-0.516	0.611	Not significant
Ministerial Change (separate)	Private	-0.0055	0.0564	-0.465	0.647	Not significant

Combined DOM	SOE	0.0467	0.1184	1.893	0.0358	Positive and significant
Combined DOM	Private	-0.0111	0.1055	-0.506	0.6181	Not significant

Table 17 reports CAR estimates for civil unrest and the ministerial change when the two domestic events are analyzed in separate event windows, alongside the combined domestic specification. For SOEs, civil unrest does not generate a statistically significant CAR, whereas the ministerial reshuffle yields a positive and significant CAR ($t = 2.172$, $p = 0.041$). For private firms, neither civil unrest nor the ministerial change produces a significant CAR, and the combined domestic specification continues to show a positive and significant CAR only for SOEs, consistent with the main H1 and H3 results.

Table 18. Placebo or Clean-Period CAR Test

Episode	Ownership	Mean CAR	t-stat	p-value	Status	Implication
Domestic (combined)	SOE	0.0090	0.825	0.4182	Not significant	No evidence of leakage (before window validity confirmed)
Domestic (combined)	Private	-0.0132	-1.083	0.2903	Not significant	No evidence of leakage (before window validity confirmed)
International (Trump Tariff)	SOE	0.0556	3.614	0.0020	Significant	Indication of pre-event leakage / confounding
International (Trump Tariff)	Private	-0.0363	-2.383	0.0260	Significant	Indication of pre-event leakage / confounding
International (US–Iran)	SOE	-0.0222	-2.446	0.0230	Significant	Indication of pre-event leakage / confounding
International – US–Iran	Private	0.0099	0.503	0.6200	Not significant	No evidence of leakage (before window validity confirmed)

Table 18 presents placebo CAR tests using clean pre-event windows. For the domestic episode, pre-event CARs are not statistically significant for either SOEs or private firms, indicating no evidence of pre-event leakage and supporting the validity of the domestic event windows. In contrast, several international episodes exhibit significant pre-event CARs for both SOEs and private firms, except for private firms in the US-Iran conflict, suggesting that some international shocks were at least partially anticipated by the market prior to the event date.

DISCUSSION

H1: Domestic Political Shocks and SOE CAR

H1 is accepted. Domestic political shocks produce a positive CAR for SOE, which is consistent with the overreaction hypothesis. This overreaction hypothesis explains that dramatic market reactions on event days represent investor overreaction, followed by mean reversion as uncertainty subsides (Bondt & Thaler, 1985). For the hypothesis of H1, when the market model is applied, the previously positive CAR for domestic SOEs

is no longer statistically significant ($t = -1.088$, $p = 0.144$). This difference does not mean that the MAM result is necessarily too high; it may instead reflect a weakness of the market model. In this sample, β is estimated from a relatively short pre-event window during a market downturn, so the market model can set the expected return for SOEs too high and mechanically reduce the measured AR in the recovery period. The β errors in a short estimation window can make the market model understate CAR after large shocks (Brown & Warner, 1985). Thus, the sensitivity check does not overturn the MAM-based conclusion, but it shows that inferences for high-beta portfolios in volatile markets depend strongly on the chosen benchmark model.

Moreover, domestic political shocks do not cause statistically significant differences in conditional stock return volatility between SOEs and private companies. The market appears to react through general panic, increasing uncertainty across all issuers, so no distinct volatility response is observed for SOEs relative to private firms, despite SBC theory suggesting that state ownership should increase sensitivity to political events (Kornai et al., 2003). Even when the analysis is disaggregated to the firm level, both ownership groups display the same overall pattern: no difference in conditional volatility in the context of domestic political shocks. These results show that domestic political shocks in Indonesia are transmitted primarily through short-run return adjustments and broad market-wide panic rather than through ownership-specific volatility channels.

H2: Ownership Main Effect in International Shock Episodes

H2 is not supported. The result approaches significance at the 10% level, and the effect size indicates that ownership type accounts for approximately 4.2% of the variance in total CAR, which represents a small-to-medium practical effect; this is broadly consistent with the mixed empirical evidence on whether state ownership systematically translates into higher firm-level performance. Consistent with MAM, the evidence only suggests a small and directionally favorable, but statistically weak CAR advantage for SOEs in international shocks. Suggesting a directional difference whereby state-owned enterprises tend to exhibit more resilient market performance relative to private firms following international shocks because SOEs enjoy better access to financing and policy support during adverse events.

This directional but insignificant result is broadly consistent with prior evidence that the impact of political risk on stock markets is weaker in emerging economies and that the return premium associated with political uncertainty is smaller when uncertainty is diffuse across market participants (Ghozzi & Chaibi, 2021; Pástor & Veronesi, 2013).

H3: Domestic Shock Effects by Ownership Type

H3 is supported because the null hypothesis of no ownership-based domestic CAR difference is not rejected. This finding supports the theoretical argument that soft budget constraint mechanisms are inactive in the domestic shock, especially when domestic shocks affect all firms indiscriminately through market-wide panic and uncertainty, regardless of ownership type. The evidence suggests that soft budget constraint mechanisms may be more relevant in the international shock channel. In this scenario, SOEs record a positive mean CAR (1.67%) in contrast to private firms (-1.32%), whereas in the domestic channel, both ownership groups are similarly affected by market-wide panic. However, as both results do not reach conventional significance, this interpretation needs further investigation with larger samples (Kornai et al., 2003; Souffargi & Boubaker, 2024).

Although the mean difference reaches 5.79 percentage points, the high variability in both groups prevents statistical significance, consistent with prior event study evidence that

market-wide panic during domestic political shocks can produce heterogeneous firm-level returns regardless of ownership structure. This robustness arises because domestic shocks behave as system-wide disturbances that affect SOEs and private firms in a broadly similar way, leaving the SOE–private difference in domestic CAR statistically insignificant even though absolute CAR levels shift. This finding is consistent with prior evidence that domestic political shocks generate broad market-wide uncertainty regardless of firm characteristics and that large market shocks tend to produce homogeneous overreaction before heterogeneous mean reversion patterns emerge (Bondt & Thaler, 1985; Souffargi & Boubaker, 2024).

H4: Episode × Ownership Interaction in International Shocks

H4 is accepted. Ownership type does not merely create differences in CAR levels; it also fundamentally reverses the direction of response depending on the type of international shock. This is consistent with evidence that different categories of geopolitical and policy shocks trigger distinct market reactions by firm ownership type. This confirms that the soft budget constraint mechanism operates through distinct channels for different shock types (Kornai et al., 2003).

The same crossing pattern emerges because the underlying interaction effect is large; both expected-return models strip out the common market component while preserving the SOE-private ranking within each episode, and the shift from the market-adjusted to the market model specification is essentially a near-linear beta correction that changes the scale of CAR but not the pattern of differences across episodes and ownership groups.

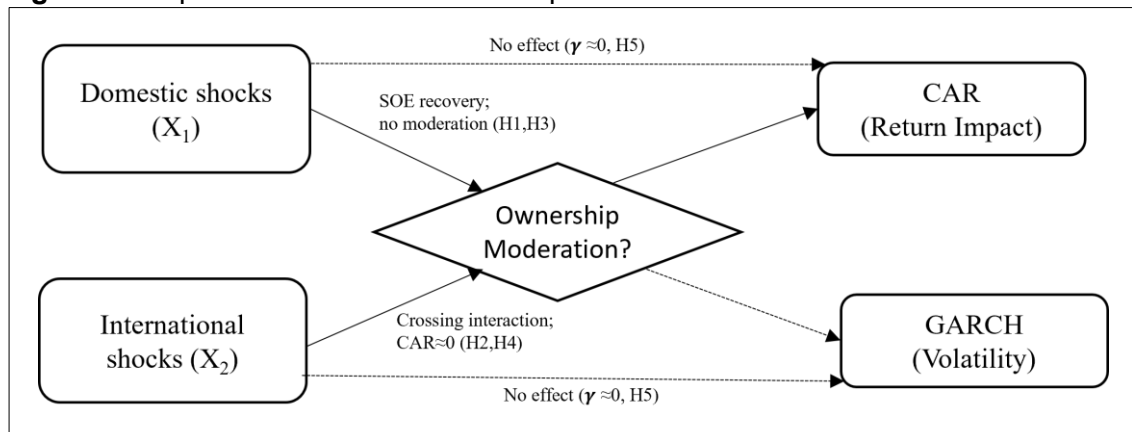
H5: Conditional Volatility by Ownership Type and Shock Origin

H5 is supported because ownership type, shock origin, and their interaction do not significantly explain γ . The two-way GLM ANOVA on the GARCH event-dummy coefficients shows that neither ownership type nor shock origin produces a significant main effect on conditional volatility (γ), and the interaction between these two factors is also insignificant ($F = 0.222$, $p = 0.881$, $R^2 = 0.008$). Group means for SOE-domestic ($\gamma = 0.000289$), SOE-international ($\gamma = 0.000028$), private-domestic ($\gamma = 0.000056$), and private-international ($\gamma = 0.000016$) are all very small and close to zero, confirming a nearly uniform volatility pattern across ownership categories and shock origins. A one-sample t-test on the pooled international volatility coefficient γ_{int} ($t = 0.351$, $p = 0.727$) indicates that the average international volatility effect is not significant at the full-sample level. Although Table 13 shows positive within-group γ_{int} values for both SOEs and private firms, the between-group difference is not statistically significant. Taken together, these results support the volatility null hypothesis that ownership type and shock origin do not systematically explain firm-level conditional stock return volatility, and that observed variation in γ is dominated by idiosyncratic firm-specific heterogeneity in GARCH persistence and issuer characteristics.

Taken together with the CAR evidence, the volatility findings reveal an important asymmetry in the transmission of political risk. Under international shocks, the H2 and H4 CAR tests identify directional and episode-dependent return effects across ownership groups, including a strong crossing interaction where SOEs outperform private firms in the Trump tariff episode but underperform them in the US-Iran conflict. By contrast, γ_{int} and γ_{dom} remain small and statistically indistinguishable across ownership types, with the two-way ANOVA showing no significant main or interaction effects and an R^2 of only 0.8% for the volatility model. This asymmetry implies that Indonesian equity risk is transmitted primarily via return dispersion rather than ownership-specific volatility amplification.

In summary, Figure 2 presents an integrated framework linking political shocks, ownership type, CAR, and GARCH-based volatility. Political shocks affect firm-level returns through ownership-based transmission channels, especially in international episodes where SOEs and private firms exhibit episode-dependent CAR patterns (H1–H4). In contrast, conditional volatility remains largely unaffected by ownership and shock origin, consistent with H5.

Figure 2. Empirical Evidence of Ownership-Based Political Risk Transmission



Overall, Figure 2 shows that political risk transmission in the Indonesian equity market operates differently across return and volatility dimensions. The CAR results indicate significant and episode-dependent ownership effects, particularly under international shocks, whereas the GARCH-based results show that conditional volatility responses remain small, diffuse, and largely idiosyncratic. For domestic shocks, ownership type does not generate a significant difference in γ_{dom} , while for international shocks, γ_{int} does not differ significantly between SOEs and private firms. The two-way ANOVA further confirms that neither ownership type nor shock origin explains a meaningful proportion of γ variation ($F = 0.222$, $p = 0.881$, $R^2 = 0.008$). Therefore, political risk in Indonesia is manifested primarily in the direction and level of stock returns rather than in sustained ownership-specific volatility amplification.

Robustness Checks

Two robustness checks were conducted to verify the validity of the main specifications. First, to verify that combining the two domestic events into a single composite episode does not distort the findings, CARs were estimated separately for the civil unrest and ministerial change events (Table 17). Civil unrest does not generate a statistically significant CAR for SOEs, whereas the ministerial reshuffle produces a positive and significant CAR; both events remain insignificant for private firms. The direction and significance patterns remain consistent with the combined domestic episode reported under H1 and H3, confirming that the composite specification does not distort the findings (Brown & Warner, 1985).

Second, to address the risk of confounding events, each event window was manually reviewed for concurrent material announcements, and no systematic concurrent events of comparable magnitude were identified. A placebo or clean-period CAR test was also conducted by examining pre-event CARs across all episodes and ownership groups (Table 18). For the domestic episode, pre-event CARs were not statistically significant for either SOEs or private firms, confirming the absence of pre-event leakage. However, several international episodes show significant pre-event CARs, except for private firms in the US-Iran conflict, suggesting that the market had already begun to anticipate or

react before the event date. As a consequence, post-event CAR estimates for these episodes may underestimate the true market impact and should be interpreted as a methodological limitation.

CONCLUSION

This study examined how ownership type moderates the transmission of domestic and international political shocks to stock returns and conditional volatility in the Indonesian equity market, using an event study and GARCH (1,1) modeling across 46 firms and four political events in 2025.

On the return dimension, domestic shocks generate significantly positive CARs for SOEs (mean = 4.67%, $t = 1.893$, $p = 0.036$), consistent with a mean-reversion recovery effect. Ownership type does not moderate the domestic CAR response ($H3$, $p = 0.087$). For international shocks, no significant main effect of ownership is found ($H2$, $p = 0.054$), but a strong episode-by-ownership interaction emerges ($H4$, $F = 16.425$, $p < 0.001$, $\eta^2 = 0.157$): SOEs outperformed private firms by 9.19 pp during the Trump tariff episode but underperformed by 3.21 pp during the US-Iran conflict. On the volatility dimension, the overall GLM shows no significant ownership, shock-type, or interaction effect on conditional variance ($F = 0.222$, $p = 0.881$), indicating that firm-specific heterogeneity dominates and confirming $H5$ at the individual firm level.

These findings have practical implications: Investors may consider ownership-based rotation between SOE and private stocks during international shocks to manage return differences, without necessarily assuming ownership-specific volatility spikes. For regulators, the evidence indicates that implicit state guarantees mainly stabilize returns rather than volatility, a pattern that should be considered when designing ownership-based market policies.

LIMITATION

This study is constrained by the small firm sample and four political events observed within a single year using short event windows, which limits statistical power and the ability to capture longer-term and cross-cycle dynamics. In addition, firm-specific heterogeneity and the use of a binary SOE-private ownership classification mean that volatility responses may be driven more by unobserved firm and sector characteristics than by ownership type alone.

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DECLARATION OF CONFLICTING INTERESTS

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ABOUT THE AUTHOR(S)

1st Author

Priscilia Adrian Limadinata is a graduate student at the School of Business Management, Universitas Ciputra Surabaya. She earned her Bachelor of Science (B.Sc.) in Chemistry and her Doctor of Philosophy (Ph.D.) in Chemical and Biomolecular Engineering from the National University of Singapore (NUS). She is currently pursuing her Master of Management (M.M.) at Universitas Ciputra Surabaya. Her research interests include financial and equity markets.

Email: plimadinata@magister.ciputra.ac.id

2nd Author

William Santoso is a lecturer and researcher at the School of Business Management, Universitas Ciputra. He earned his Bachelor of Economics (S.E.) from Universitas Ciputra Surabaya, his Master of Accounting (M.Ak.) from Universitas Surabaya, and his doctorate (Dr.) from Universitas Katolik Widya Mandala Surabaya. He holds professional certifications as a Certified Data Manager (CDM) and Certified Business Analyst Professional (CBAP). He has over 10 years of professional experience in the financial industry prior to his academic career, and his research has been published in international journal. His research interests include financial accounting, management accounting, and business analytics.

Email: wiliam.santoso@ciputra.ac.id

3rd Author

Hermeindito is a lecturer and researcher at the School of Business Management Universitas Ciputra. He earned his Bachelor of Economics (S.E.) from Universitas Airlangga, Master of Management from Universitas Brawijaya, and Doctorate (Dr.) from Universitas Gadjah Mada. His research interests include corporate finance, capital markets, and financial management.

Email: hermeindito@ciputra.ac.id

ORCID ID: <https://orcid.org/0000-0002-5236-9841>