



Foreign Institutional Ownership and Firm Value: The Mediating-Moderating Role of Firm Risk in Indonesian Manufacturing Companies

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Abstract. This study examines the influence of foreign institutional ownership (FIO) on firm value, with firm risk serving simultaneously as a mediating and moderating variable, among manufacturing companies listed on the Indonesia Stock Exchange during 2021–2025. Firm value is measured using Tobin's Q, while firm risk is proxied by annual stock return volatility. Using a purposive sampling technique, 128 companies were selected, yielding 640 firm-year panel observations. Data were analyzed through panel data regression, following the Baron and Kenny causal-steps procedure to test mediation and moderated regression analysis with mean-centered interaction terms to test moderation. Model selection tests indicate that the random effects model best fits the ownership–risk relationship, while the fixed effects model is more appropriate for models involving firm value as the dependent variable. The results show that FIO significantly reduces firm risk, consistent with its monitoring role under agency theory. However, firm risk does not significantly affect firm value, and neither the mediating nor the direct effect of FIO on firm value is statistically supported. The interaction between FIO and firm risk is only marginally significant, with a direction opposite to the hypothesized pattern, suggesting a flight-to-quality behavior among foreign investors during periods of elevated risk. These findings imply that FIO functions primarily as a risk-mitigating governance mechanism rather than a direct driver of firm value in the Indonesian manufacturing sector, carrying implications for corporate disclosure strategy and foreign investment policy.

Keywords: Agency Theory; Firm Risk; Firm Value; Foreign Institutional Ownership; Signaling Theory.

1. INTRODUCTION

Firm value has consistently served as a key indicator of financial management success, as it reflects the market's overall assessment of a company's prospects and performance rather than its historical performance alone. One governance mechanism consistently linked to firm value formation is ownership structure, particularly ownership held by foreign institutional investors. Foreign investors are widely believed to bring stricter monitoring standards, broader access to information, and higher transparency demands than domestic investors, so their presence is expected to encourage governance improvements and, ultimately, raise firm value.

Academic interest in this topic continues to grow alongside the increasing internationalization of corporate ownership structures worldwide (Roedder & Schmid, 2026). The empirical evidence on this relationship, however, remains far from consistent. Cross-country studies by Drobetz et al. (2025), covering 27 capital markets, and Loncan (2020), covering 23 developing economies, found that FIO positively affects firm value and performance. In the Indonesian context, by contrast, Sitorus & Hanif Arbi (2026), who examined manufacturing companies on the Indonesia Stock Exchange, found that FIO's effect on firm performance was not significant. This inconsistency suggests that the relationship

between FIO and firm value may not be direct, but instead operates through, or depends on, other mechanisms that prior studies have rarely accounted for simultaneously.

One mechanism that may help explain this inconsistency is firm risk, proxied in this study by annual stock return volatility. Under agency theory, the presence of foreign institutional investors functions as an external monitoring mechanism that reduces information asymmetry between management and shareholders, thereby lowering stock price volatility (Sasikirono et al., 2020; Vo, 2015). This reduction in volatility can then be interpreted by the market as a credible quality signal, consistent with signaling theory (Ross, 1977; Spence, 1973), potentially raising firm value. In other words, firm risk may act as a mediating variable in the relationship between FIO and firm value. At the same time, the level of risk a firm faces may also moderate the strength of that relationship, as Singh et al. (2025) found among Indian companies, where stock return volatility moderated the link between governance and firm performance. These two possible roles, mediation and moderation, are rarely tested simultaneously within a single research framework, leaving it unclear how risk actually shapes the relationship between foreign ownership and firm value. This is the gap the present study seeks to address, by positioning firm risk as both a mediating and a moderating variable rather than testing only one role, as prior research has typically done.

The urgency of this research is further reinforced by conditions in Indonesia's post-pandemic capital market, which reveal tension between real-sector recovery and capital market uncertainty. Indonesia's manufacturing Purchasing Managers' Index (PMI) reached 51.9 in January 2025, its highest level since June 2024, indicating expanding real-sector activity. Volatility in the Jakarta Composite Index (IHSG), however, tells a different story after easing from its 2020 peak of 25.90%, it climbed back to 18.75% in 2025, still well above the pre-pandemic average of 11.28%. This tension between real-sector expansion and capital market uncertainty makes the 2021–2025 period a timely window for re-examining how foreign ownership interacts with risk in shaping firm value, particularly in the manufacturing sector, one of the principal pillars of Indonesia's real economy.

Based on this discussion, the present study aims to examine the effect of foreign institutional ownership on firm risk, the effect of firm risk on firm value, the mediating role of firm risk in the relationship between foreign institutional ownership and firm value, the direct effect of foreign institutional ownership on firm value, and the moderating role of firm risk in strengthening or weakening the relationship between foreign institutional ownership and firm

value, among manufacturing companies listed on the Indonesia Stock Exchange during the 2021–2025 period.

2. THEORETICAL REVIEW

The relationship between ownership structure and firm value is conventionally explained through agency theory (Jensen & Meckling, 1976), which views the separation of ownership and control in modern corporations as a potential source of conflict of interest between management and shareholders. Foreign institutional ownership (FIO) is positioned as one external monitoring mechanism capable of curbing this conflict, since foreign investors typically bring governance standards and transparency expectations from their home jurisdictions that tend to be relatively stricter. This study defines FIO inclusively, following Dahlquist & Robertsson (2001), to cover all foreign legal entities holding shares rather than conventional financial institutions alone, consistent with Indonesia's foreign investment regulations.

Signaling theory (Ross, 1977; Spence, 1973), meanwhile, explains how a firm's particular actions or conditions can serve as quality signals that the market picks up on under conditions of information asymmetry. Firm value in this study is measured through Tobin's Q, chosen for its forward-looking nature: it captures the market's expectations of a firm's future prospects rather than merely its recorded historical performance (Aydoğmuş et al., 2022; Suhartini et al., 2024).

Firm risk, proxied by annual stock return volatility, occupies a more complex analytical position here than in prior studies, which have generally assigned it only a single role. In this study, firm risk simultaneously functions as the dependent variable in its relationship with FIO, an independent variable affecting firm value, a mediating variable linking FIO to firm value, and a moderating variable that alters the strength of that direct effect.

The presence of foreign investors as significant shareholders places structural pressure on management to improve the quality and frequency of information disclosure. As disclosure standards improve, interpretive differences among market participants narrow, easing the return volatility that such differences generate. This pattern holds consistently across two Southeast Asian emerging markets: foreign ownership has been shown to reduce stock price volatility in Vietnam (Vo, 2015) and to significantly reduce stock return volatility in Indonesia (Sasikirono et al., 2020), while at the regional level, foreign investor presence is associated with reduced excessive corporate risk-taking (Thi Lan Anh & Thi Hai Yen, 2025). Based on

this evidence, the first hypothesis is formulated: foreign institutional ownership has a negative effect on firm risk (H1).

Under standard asset-pricing logic, a rise in the market's perceived uncertainty about a firm leads investors to demand a higher rate of return, which in turn reduces the present value of projected cash flows and is reflected in lower market valuation. In India, stock return volatility has been shown to moderate the relationship between ESG performance and firm value (Dash & Rout, 2025) and to be consistently associated with lower valuations (Singh et al., 2025), while in Vietnam, stock return volatility significantly affects corporate financial stability (Vuong et al., 2024). On this basis, the second hypothesis is formulated: firm risk has a negative effect on firm value (H2).

The information-asymmetry-reducing mechanism under agency theory and the quality-signal-strengthening mechanism under signaling theory can be viewed as a single, sequential causal chain. Monitoring by foreign investors reduces information asymmetry and lowers volatility, and this decline in volatility is then read by the market as confirmation of a credible quality signal, prompting a rise in valuation. Firm risk is therefore expected to mediate the effect of foreign institutional ownership on firm value (H3).

Beyond this indirect pathway, FIO is also expected to affect firm value directly, through oversight of management's strategic decisions, including investment choices, dividend policy, and resource allocation, independent of changes in volatility conditions. Supporting evidence comes from a review of 27 global capital markets, which found that independent institutional investors are consistently associated with higher firm value through stricter monitoring (Drobetz et al., 2025) from 23 developing economies, where FIO has been shown to increase cash contributions to firm value by mitigating agency costs (Loncan, 2020), and from emerging-market contexts institutionally similar to Indonesia, where foreign ownership positively affects manufacturing firm performance as measured, among other things, by Tobin's Q (Din et al., 2022). This direction of effect is not universal across emerging markets, however. Among family-controlled firms in Brazil, for instance, foreign institutional ownership has instead been linked to lower firm value, driven by the short-termism foreign investors bring, particularly during periods of high political uncertainty (Caixe et al., 2024). Based on this evidence, the fourth hypothesis is formulated: foreign institutional ownership has a positive effect on firm value (H4).

The effectiveness of FIO's monitoring function is also unlikely to be constant, but instead contingent on the level of uncertainty a firm faces, consistent with the conditionality

perspective within agency theory (Aguilera & Ruiz Castillo, 2025). Under high volatility, information asymmetry between management and the market tends to intensify, making the presence of foreign investors, who are independent of local pressures, more valuable, with their monitoring function more urgently needed. Empirical precedent for this pattern comes from India, where stock return volatility was found to significantly moderate the relationship between corporate governance mechanisms and firm value as measured by Tobin's Q (Singh et al., 2025). On this basis, the fifth hypothesis is formulated: firm risk moderates the effect of foreign institutional ownership on firm value (H5).

3. RESEARCH METHOD

Design and Research Object

This study uses a quantitative, causal-associative approach with secondary panel data to examine cause-and-effect relationships among variables over the 2021–2025 period. The research object comprises manufacturing-sector companies listed on the Indonesia Stock Exchange, classified according to the IDX Industrial Classification (IDX-IC) Guide v1.1, with data drawn from companies' annual reports via idx.co.id and daily stock price data via Yahoo Finance.

Population and Sample

The population comprises all manufacturing companies listed on the Indonesia Stock Exchange during the observation period. The sample was determined using purposive sampling based on four criteria: consistent listing throughout the observation period, complete annual reports, complete and valid data for all research variables, and foreign institutional ownership above 0% in at least one observed year. From an initial population of 185 companies, after excluding 21 companies with incomplete annual reports, 33 companies with incomplete or invalid data, and 3 companies with no foreign ownership, the final sample consisted of 128 companies, yielding 640 panel observations over the five-year period.

Operational Definitions and Variable Measurement

Table 1. Defenisi Operasional Variabel.

Variable	Measurement	Skala
Firm Value	Tobin's Q = (Market Value of Equity + Book Value of Total Debt) / Book Value of Total Assets	Ratio
Foreign Institutional Ownership	(Shares held by foreign institutions / Shares outstanding) × 100%	Ratio
Firm Risk	Standard deviation of daily returns, annualized using the actual number of trading days per year	Ratio

Data Analysis Technique

Data were first analyzed descriptively to obtain an overview of the research variables, followed by inductive analysis using panel data regression.

Panel Regression Model

The mediation hypotheses were tested following the causal-steps procedure of Baron & Kenny (1986) through four regression models, plus one additional model to test moderation:

$$TQ_{it} = \alpha_0 + \alpha_1 FIO_{it} + \varepsilon_{it}$$

$$FRISK_{it} = \beta_0 + \beta_1 FIO_{it} + \varepsilon_{it}$$

$$TQ_{it} = \gamma_0 + \gamma_1 FRISK_{it} + \varepsilon_{it}$$

$$TQ_{it} = \delta_0 + \delta_1 FIO_{it} + \delta_2 FRISK_{it} + \varepsilon_{it}$$

$$TQ_{it} = \theta_0 + \theta_1 FIO_C_{it} + \theta_2 FRISK_C_{it} + \theta_3 (FIO_C \times FRISK_C)_{it} + \varepsilon_{it}$$

Where TQ denotes firm value, FIO denotes foreign institutional ownership, and FRISK denotes firm risk for company *i* in year *t*; α , β , and ε denote the constant, regression coefficients, and error term, respectively; and the subscript *c* indicates variables that have undergone mean-centering following Aiken & West (1991) to avoid structural multicollinearity in the interaction model.

Model Selection and Classical Assumption Tests

The best-fitting estimation model for each equation was selected through a sequence of Chow, Hausman, and Lagrange Multiplier tests, to identify the most appropriate model among the common effect, fixed effect, and random effect models. Classical assumption testing covered multicollinearity, assessed through variance inflation factor values; heteroskedasticity, assessed through the Breusch-Pagan test (Breusch & Pagan, 1980) or a modified Wald test depending on the model type and autocorrelation, assessed through the Durbin-Watson statistic compared against lower- and upper-bound critical values for large samples (Savin & White, 1977), since standard Durbin-Watson tables do not cover a sample size as large as this study's. Where an assumption violation was found, correction was carried out using clustered standard errors, with the clustering dimension adjusted to each model's estimation method following Colin Cameron & Miller (2015) recommendation.

Hypothesis Testing

The significance of each coefficient was tested using the t-test, overall model significance using the F-test, and explanatory power using adjusted R^2 , compared only across models sharing the same dependent variable. Mediation testing followed the four prerequisites

of Baron & Kenny (1986), while moderation testing was based on the significance of the interaction coefficient in Model V.

4. RESULTS AND DISCUSSION

Results

Research data were collected from manufacturing companies' annual reports published via idx.co.id and from daily stock price data via Yahoo Finance, covering the 2021–2025 observation period. The sample selection process yielded 128 companies and 640 panel observations, dominated by the Basic Materials (46 companies, 35.94%) and Consumer Non-Cyclicals (32 companies, 25.00%) sectors, which together account for more than 60% of the total sample. This composition points to greater representation from raw-material-processing and primary consumer-goods manufacturing than from high-technology manufacturing.

Descriptive Statistics

Table 2. Descriptive Statistics of Research Variables.

	TQ	FIO	FRISK
Mean	1.5446	0.2584	0.4589
Median	0.9645	0.1453	0.4081
Maximum	57.9140	0.9978	1.6932
Minimum	0.2350	0.0000	0.0829
Std.Dev.	3.0090	0.2928	0.2356

Source : processed by the author (2026)

Mean Tobin's Q stood at 1.5446, yet the median was only 0.9645, with a standard deviation (3.0090) that exceeds the mean itself, pointing to a right-skewed distribution driven by a small number of extreme observations. FIO showed a wide range (0%–99.78%), with a median well below the mean, suggesting that most sample companies held moderate levels of foreign ownership even though a handful of observations reached very high concentrations. Firm Risk was the most symmetrically distributed of the three variables, with average annual volatility of 45.89%.

Model Selection and Classical Assumption Tests

The Chow test rejected the Common Effect Model across all equations ($p = 0.0000$). The Hausman test then split the five models into two groups: Models I and II ($p = 0.3997$ and 0.0591) pointed to the Random Effect Model, further confirmed by the Lagrange Multiplier

test ($p = 0.0000$ for both), while Models III, IV, and V ($p = 0.0220, 0.0340$, and 0.0329) pointed to the Fixed Effect Model. Classical assumption testing found no evidence of multicollinearity (VIF values ranging from 1.008 to 1.022, well below the threshold of 10) or heteroskedasticity ($p > 0.05$ across all models); positive autocorrelation was detected in all five models, however, with Durbin-Watson statistics falling below the critical dL value. This violation was corrected using clustered standard errors: cross-sectional clustering (128 companies) for Models I and II, and period clustering (5 years) for Models III, IV, and V, since the 127 firm fixed-effect dummies in the Fixed Effect Model would otherwise leave the cluster covariance matrix without full rank if clustered on the same dimension (Colin Cameron & Miller, 2015).

Hypothesis Testing Results

Table 3. Panel Data Regression Estimation Results.

Model	Model I	Model II	Model III	Model IV	Model V
Constant	1.4556*** (0.2882)	0.4927*** (0.0220)	2.0297** (0.6027)	2.4746** (0.8802)	1.5221*** (0.1838)
FIO	0.3445 (0.7145)	-0.1306** (0.0564)	—	-1.5954 (1.1043)	—
FRISK	—	—	-1.0570 (0.9770)	-1.1282 (1.0141)	—
FIO_C	—	—	—	—	-1.5381 (0.9698)
FRISK_C	—	—	—	—	-1.1855 (1.0193)
FIO × FRISK	—	—	—	—	-2.7066* (1.2025)
Adj. R ²	-0.0009	0.0090	0.1912	0.1907	0.1909
F-stat (prob.)	0.4241 (0.5151)	6.8125 (0.0093)	2.1803 (0.0000)	2.1673 (0.0000)	2.1599 (0.0000)
Estimator	REM	REM	FEM	FEM	FEM
N	640	640	640	640	640

Source: processed by the author (2026)

Note: figures in parentheses are cluster-corrected standard errors; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Source: Eviews 14 data processing output (2026).

Table 4. Summary of Hypothesis Testing Results.

Hypothesis	Statement	Prob.	Decision
H1	FIO → FRISK (negative)	0.0222	Supported
H2	FRISK → TQ (negative)	0.3402	Not supported
H3	FRISK mediates FIO → TQ	3 of 4 conditions fail	Not supported
H4	FIO → TQ (positive)	0.6305 (total) / 0.2221 (controlled)	Not supported
H5	FRISK moderates FIO → TQ	0.0876	Not supported

Source: processed by the author (2026)

The F-test for Models III, IV, and V was significant ($p = 0.0000$), but this significance warrants a cautious reading, since the FRISK and FIO coefficients in these three models were not individually significant. The F-test's significance is driven mainly by the 127 firm fixed-effect dummies rather than by the two research variables themselves. This pattern is further confirmed by the near-stagnant adjusted R^2 across Model III (0.1912), Model IV (0.1907), and Model V (0.1909), indicating that adding FIO or its interaction with FRISK contributes little additional explanatory power for firm value.

Discussion

The Effect of Foreign Institutional Ownership on Firm Risk

The H1 test results show an FIO coefficient of -0.1306 with a probability of 0.0222, significant at the 5% level and in the predicted direction. The robustness of this finding to standard error correction is worth noting: before cluster correction, the probability was even smaller (0.0091), and it remained below the 0.05 threshold after correction, indicating that the result is not an artifact of biased standard errors. This finding is consistent with patterns documented in two Southeast Asian contexts, Sasikirono et al. (2020) in Indonesia and Vo (2015) in Vietnam, and extends both findings to the post-pandemic Indonesian manufacturing sector for 2021–2025. In economic terms, each 10-percentage-point increase in foreign ownership is associated with a decrease in annual stock return volatility of approximately 1.31 percentage points, a moderate effect but one that remains practically meaningful against the sample's average annual volatility of 45.89%.

The Effect of Firm Risk on Firm Value

The FRISK coefficient for H2 was -1.0570 , with a probability of 0.3402: in the predicted direction, but not significant. Vuong et al. (2024), the primary reference for this variable, demonstrated that stock return volatility significantly affects financial distress, a condition already concretely manifested in financial statements, unlike Tobin's Q, which reflects forward-looking market expectations and is therefore more susceptible to disruption along its transmission path. A comparison with Dash & Rout (2025) and Singh et al. (2025) in India, a market with a more mature domestic institutional investor base, suggests that how effectively risk signals transmit into valuation may depend on the institutional maturity of the capital market in question. The 2025 IHSG volatility figure of 18.75%, still well above the pre-pandemic baseline of 11.28%, further suggests that elevated volatility has become a structural feature of Indonesia's capital market rather than a signal that distinguishes one firm from another.

The Mediating Role of Firm Risk in the Relationship between Foreign Institutional Ownership and Firm Value

Mediation testing through the four steps of Baron & Kenny (1986) failed on three of the four prerequisites: only the second prerequisite (FIO $\rightarrow$ Firm Risk, Model II) was met, while the first (Model I, $p = 0.6305$), third (Model III, $p = 0.3402$), and fourth (Model IV, $p = 0.3283$) were not. The broken link lies precisely in the path from Firm Risk to Firm Value, the same underlying issue behind H2's non-significance, rather than in the path from FIO to Firm Risk, which proved robust under H1. In other words, FIO's monitoring function successfully suppresses firm risk at the first stage of the causal chain predicted by agency theory and signaling theory, but the second stage, linking reduced risk to higher valuation, is disrupted by structural conditions operating at a scale larger than any single firm's governance dynamics.

The Direct Effect of Foreign Institutional Ownership on Firm Value

The FIO coefficient reversed direction between the total-effect test (Model I: 0.3445, $p = 0.6305$) and the controlled test (Model IV: -1.5954 , $p = 0.2221$), but since neither is significant, this shift in direction reflects statistical noise rather than a meaningful change in the underlying relationship. The most fundamental explanation lies in the relatively dispersed concentration of foreign ownership (median 14.53%; mean 25.84%), a level that may be too thin to generate strong governance pressure, particularly given that Indonesian manufacturing ownership structures generally remain concentrated among domestic controlling shareholders. This finding is directly supported by Sitorus & Hanif Arbi (2026), who examined 147 IDX manufacturing companies over 2018–2023, an almost identical context, and likewise found no significant effect of FIO on firm performance. The consistency between these two studies, conducted on closely related objects and periods, reinforces the interpretation that this result reflects a pattern inherent to the ownership structure of Indonesian manufacturing firms rather than a mere sample anomaly.

The Moderating Role of Firm Risk in the Relationship between Foreign Institutional Ownership and Firm Value

The FIO $\times$ FRISK interaction coefficient was -2.7066 , with a probability of 0.0876: significant at the 10% level but not at 5%, and in a direction fully opposite to the prediction in H5. Rather than intensifying monitoring under high-risk conditions as the conceptual framework predicted, this pattern in the data points to the opposite possibility, that foreign institutional investors tend to reduce their exposure as volatility rises. Such flight-to-quality behavior has been documented by Giofré (2022), who found that foreign investors withdrew

significant capital from developing economies toward advanced economies during periods of high uncertainty. Since most foreign investors are, at their core, institutional investors, this tendency can reasonably be extended to the firm level: the governance capacity foreign investors bring tends to shrink precisely when a firm enters a high-risk state, exactly when its monitoring function is needed most.

5. CONCLUSION AND RECOMMENDATIONS

This study examined the effect of foreign institutional ownership (FIO) on firm value, with firm risk positioned simultaneously as a mediating and moderating variable, among 128 manufacturing companies listed on the Indonesia Stock Exchange during the 2021–2025 period. Of the five hypotheses tested, only one was empirically supported: FIO was found to have a significant negative effect on firm risk (H1), while the effect of firm risk on firm value (H2), the mediating role of firm risk (H3), the direct effect of FIO on firm value (H4), and the moderating role of firm risk (H5) were all unsupported at the established 5% significance level.

This pattern of findings consistently shows that foreign institutional ownership effectively performs a monitoring function that dampens firm risk, consistent with agency theory's predictions, but that this success does not carry through into higher firm value via any of the tested pathways, whether direct, mediated, or moderated by risk. In the context of Indonesian manufacturing during this period, then, FIO is more accurately understood as a risk-suppressing governance mechanism than as a direct driver of firm value.

Several limitations should be kept in mind when interpreting these findings. Period clustering, which covers only five years of observation in Models III, IV, and V, may affect the reliability of statistical inference, particularly for results close to the significance threshold, such as H5. The moderate median level of foreign ownership (14.53%) also limits how far these findings can be generalized to contexts with more concentrated foreign ownership, and a five-year observation window may not be long enough to capture FIO's direct effects, which likely operate through longer-term strategic decisions.

For manufacturing company management, these findings suggest that foreign institutional ownership should not be viewed solely as a driver of valuation, but as a risk-stabilizing mechanism whose benefits for firm value need to be supported by a more active information disclosure strategy. For foreign institutional investors, the flight-to-quality pattern identified here, while individually rational, risks forfeiting the benefits of a monitoring function that is most needed precisely when risk is high. For policymakers, foreign investment liberalization alone is insufficient to raise manufacturing firm value, so policies that encourage

long-term foreign investor engagement should be considered alongside stronger protection for minority shareholders. Future research is encouraged to extend the observation period, consider more robust standard-error correction methods such as the Wooldridge test or Driscoll-Kraay standard errors, and test the flight-to-quality pattern more directly using data on changes in foreign ownership over time.

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