

OPTIMIZING RISK MANAGEMENT DISCLOSURE IN INDONESIAN BANKING: THE ROLE OF INTERNAL GOVERNANCE AND GOVERNANCE-COMPLIANCE QUALITY

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ABSTRACT: This study examines the effects of managerial ownership, independent commissioners, and risk monitoring committee activity on risk management disclosure, with governance-compliance quality as a moderating variable. Drawing on Agency Theory and a contingency perspective, the study analyzes 123 bank-year observations from 41 Indonesian listed banks during 2022–2024. Random-effects panel regression incorporates year effects and bank-clustered standard errors. The findings reveal that risk monitoring committee activity and governance-compliance quality positively influence risk management disclosure, whereas managerial ownership and independent commissioners show no significant effects. Governance-compliance quality does not significantly moderate these relationships, while the negative interaction involving committee activity lacks robustness. These findings extend corporate governance literature by demonstrating that active risk oversight and regulatory compliance operate as distinct, largely additive mechanisms rather than complementary governance functions. Bank managers should prioritize effective risk oversight and sustained regulatory compliance to strengthen risk disclosure transparency.

Keywords: Managerial Ownership; Independent Commissioners; Risk Monitoring Committee; Risk Management Disclosure; Governance-Compliance Quality

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INTRODUCTION

Banking is one of the sectors that plays a strategic role in a country's economic system because banks function as financial intermediaries that mobilize funds from the public and channel them back into the economy through loans and various other financial services. As an essential component of the national financial system, the banking sector contributes to economic growth, financial stability, and development across multiple sectors. As the business environment evolves and banking activities become increasingly complex in the era of globalization, banks are exposed to a wide range of risks that may affect their performance and long-term viability. Accordingly, sound corporate governance and an effective risk management system are essential to ensure that banking operations remain prudent, transparent, and accountable (Mukhibad et al., 2020).

The mobilization of public funds, lending activities, financial-market transactions, and the growing use of digital technology expose banks simultaneously to credit, market, liquidity, operational, legal, reputational, strategic, and compliance risks. Failures in banking risk management can affect not only the performance of individual banks but also customer confidence and the stability of the national financial system. In the context of post-pandemic economic dynamics and global market volatility, risk management disclosure in annual reports serves as a vital mechanism for reducing information asymmetry between management (the agent) and shareholders (the principal), thereby helping to minimize agency costs (Jensen & Meckling, 1976; Syadali et al., 2023).

Although the Indonesian banking industry operates within a highly regulated supervisory environment, the breadth and depth of risk-profile information disclosed in annual reports vary considerably across institutions. Measured with the 25-item risk management disclosure (RMD) index used as the dependent variable in this study, the index ranged from 0.60 to 0.96 across listed banks in 2022 (mean = 0.743) and from 0.72 to 1.00 in 2024 (mean = 0.844). The four largest banks were already close to the ceiling: Bank Central Asia (BBCA), Bank Mandiri (BMRI), and Bank Negara Indonesia (BBNI) rose from 0.96 in 2022 to full disclosure (1.00) in 2023 and 2024, and Bank Rakyat Indonesia (BBRI) reached 0.96. Many smaller banks, by contrast, disclosed only two-thirds to three-quarters of the items even in 2024.

Differences in the speed at which banks approach full transparency, together with variation in the number of risk indicators disclosed to the public, suggest that disclosure practices are not driven solely by OJK requirements, which apply uniformly to all listed banks. They are also shaped by the effectiveness of banks' internal corporate governance mechanisms and by how fully each bank implements those requirements. In this context, inconsistent empirical findings in previous studies concerning managerial ownership, independent commissioners, and risk monitoring committee activity create a research gap. Although all banks operate under the same framework—POJK No. 55/POJK.03/2016 and, from September 2023, POJK No. 17/2023, with the governance self-assessment conducted under OJK Circular Letter No. 13/SEOJK.03/2017 throughout 2022–2024 (Otoritas Jasa Keuangan, 2017, 2023)—they differ in the quality with which they implement it, and this bank-level variation is summarized in the GCG composite rating each bank reports. This study therefore treats governance-compliance quality, rather than the strength of external regulation itself, as a contingency factor that may strengthen or weaken the disclosure effect of internal governance mechanisms. This study examines these interactions across all banking issuers listed on the IDX during 2022–2024.

THEORETICAL REVIEW

Agency Theory and the Contingency Approach

Agency Theory, developed by Jensen and Meckling (1976), provides a foundation for understanding the contractual relationship between capital owners (principals) and management (agents). Agents generally have superior access to operational information, creating information asymmetry and opportunities for managers to conceal risk exposure to protect bonuses, reputation, or personal compensation. To discipline agents and reduce agency costs, corporate governance structures need to be strengthened through both internal incentives, such as managerial ownership, and independent monitoring mechanisms, such as independent

commissioners and risk monitoring committees (Fama & Jensen, 1983). In a banking industry characterized by high systemic risk, however, internal governance does not operate in isolation; it interacts with the external regulatory environment. From a contingency perspective, which holds that the effectiveness of an organizational arrangement depends on the conditions in which it operates (Donaldson, 2001), the relationship between internal governance and the quality of risk reporting depends partly on the governance-compliance condition in which internal mechanisms operate. This condition varies across banks not because the regulations differ, but because banks differ in how fully and substantively, they implement common OJK governance requirements.

The two families of governance mechanisms examined here are expected to respond differently to this condition. Incentive-alignment mechanisms, such as managerial ownership, reduce agency costs by giving managers a personal financial stake in firm value; their effect operates through private wealth and does not depend on external enforcement. Monitoring mechanisms, such as independent commissioners and risk monitoring committees, reduce agency costs by observing and challenging managerial reporting; their effect depends on the authority, information, and standards available to the monitors (Fama & Jensen, 1983). Stronger governance compliance supplies monitors with enforceable benchmarks, documented procedures, and supervisory backing, whereas it adds little to an owner-manager's private incentive and may even partly substitute for it. This asymmetry gives the model its theoretical identity: governance-compliance quality is expected to amplify monitoring mechanisms clearly, but ownership-based incentives only weakly. Based on the theoretical review and conceptual model, the hypotheses are formulated as follows.

H1: Managerial ownership has a positive effect on risk management disclosure.

Equity ownership by management, including directors and commissioners, is expected to align managers' economic interests more closely with those of shareholders. Managers who hold shares bear part of the financial consequences of inadequately mitigated risks and may therefore be more motivated to improve the transparency of risk reporting in order to preserve long-term firm value and market confidence (Jensen & Meckling, 1976).

H2: Independent commissioners have a positive effect on risk management disclosure.

Independent commissioners act as objective monitors who are free from affiliated conflicts of interest within the board structure. Their presence is theoretically expected to strengthen board oversight, discourage information hoarding by management, and protect the rights of public shareholders by promoting credible disclosure of the bank's risk profile (Utami & Cahyono, 2023).

H3: The risk monitoring committee has a positive effect on risk management disclosure.

The risk monitoring committee is a specialized body under the board of commissioners responsible for reviewing, evaluating, and overseeing the bank's compliance with internal risk limits. A high level of committee activity, reflected in the frequency of annual meetings, indicates active monitoring of deviations in risk management and is expected to improve the completeness and breadth of risk indicators disclosed in the annual report (Fama & Jensen, 1983).

H4: Governance-compliance quality strengthens the positive effect of managerial ownership on risk management disclosure.

A high level of governance-compliance quality, reflected in a strong GCG composite rating, creates a disciplined compliance environment. Such an environment may strengthen the incentive of manager-shareholders to disclose risk accountability proactively and to reduce the potential cost of regulatory non-compliance. However, because ownership-based incentives operate through managers' private wealth rather than through supervisory channels, this amplifying effect is expected to be weaker than for monitoring mechanisms, and strong compliance may substitute for, rather than complement, ownership incentives. H4 is therefore tested as a directional but comparatively weak expectation.

H5: Governance-compliance quality strengthens the positive effect of independent commissioners on risk management disclosure.

Binding OJK governance requirements provide an external legal foundation that can reinforce the authority of independent commissioners to demand transparency from management. Banks that implement these requirements more fully give independent commissioners better access to

information, clearer escalation procedures, and stronger supervisory backing. Higher governance-compliance quality is therefore expected to transform normative monitoring into more substantive oversight and disclosure practices.

H6: Governance-compliance quality strengthens the positive effect of the risk monitoring committee on risk management disclosure.

Clear OJK compliance requirements provide standardized benchmarks for assessing risk limits and risk governance. In banks that implement these requirements more fully, these benchmarks can serve as a structured guide for the risk monitoring committee, enabling committee meetings and evaluations to produce more comprehensive recommendations for risk management disclosure.

RESEARCH METHOD

Research Design

This study employs a quantitative approach to examine the effects of managerial ownership, independent commissioners, and the risk monitoring committee on risk management disclosure, with governance-compliance quality serving as a moderating variable. Secondary data were obtained from the annual reports and GCG implementation reports of banking companies listed on the Indonesia Stock Exchange (IDX) for the 2022–2024 period. The hypotheses were tested using hierarchical moderated panel regression. The estimators and tests were implemented in Python 3 (NumPy and SciPy) following Wooldridge (2010).

Research Context and Setting

The study focuses on banking companies listed on the IDX during 2022–2024. The banking sector was selected because of its high risk exposure and its close supervision by the Financial Services Authority (OJK), particularly with respect to corporate governance and risk management disclosure. Banks are therefore required to disclose risk information more transparently as part of the implementation of good corporate governance principles and compliance with applicable regulations (Otoritas Jasa Keuangan, 2020).

The observation window coincides with a revision of the governance regulation: POJK No. 17/2023, issued and effective on 14 September 2023, replaced POJK No. 55/POJK.03/2016 (Otoritas Jasa Keuangan, 2023). The implementing circular that governs the governance self-assessment, SEOJK No. 13/SEOJK.03/2017, nevertheless remained in force throughout the study period; it was revoked only by SEOJK No. 14/SEOJK.03/2025, effective 24 June 2025, under which the first self-assessment applies to the December 2025 position (Otoritas Jasa Keuangan, 2017, 2025). All GCG composite ratings used in this study were therefore produced with the same 11-factor methodology and the same five-point scale, so the moderator is comparable across 2022–2024. Because the change in the governing regulation may still have shifted disclosure expectations, all models include year effects, and a robustness check re-estimates the model on the 2023–2024 subsample.

Population and Sample

The population of this study comprised all banking companies listed on the Indonesia Stock Exchange (IDX) during 2022–2024. Purposive sampling was employed based on four criteria: continuous listing on the IDX throughout the observation period, absence of delisting or merger and acquisition activities, availability of complete annual reports, and sufficient data covering all research variables. These criteria yielded a final sample of 41 banking companies, representing a balanced panel of 123 bank-year observations. The study utilized secondary data obtained through documentation and literature review. Financial and governance-related data were collected from the banks' annual reports and Good Corporate Governance (GCG) implementation reports published during 2022–2024. Meanwhile, relevant scholarly literature, previous empirical studies, and Financial Services Authority (OJK) regulations were reviewed to establish the theoretical foundations, support variable operationalization, and contextualize the empirical analysis within Indonesia's banking governance framework.

Variable Measurement and Research Instruments

The operational definitions and measurements of the research variables are presented in Table 1.

Table 1. Variable Measurements			
Variable	Measurement	Scale	Symbol
Risk Management Disclosure	RMD = Number of risk items disclosed by the company / 25 (dichotomous 1/0 coding)	Ratio	Y
Managerial Ownership	MO = Number of shares owned by management / Total shares outstanding	Ratio	X ₁
Independent Commissioners	IC = Number of independent commissioners / Total members of the board of commissioners	Ratio	X ₂
Risk Monitoring Committee	RMC = Total frequency of official RMC meetings in one year	Ratio	X ₃
Governance-Compliance Quality (GCQ)	GCQ = 6 – GCG Composite Rating (5 = very good; higher = stronger compliance)	Ordinal	Z

Risk management disclosure was measured through content analysis of the annual reports using a 25-item checklist based on the ISO 31000 risk management framework, following the index applied to IDX-listed banks by Rajak et al. (2026). The complete item list and coding protocol are provided as a supplementary file. Each item was scored dichotomously (1 = disclosed; 0 = not disclosed) without weighting, and the index equals the number of disclosed items divided by 25; it therefore moves in steps of 0.04. An item was coded as disclosed only when the report contained a specific statement about that item; generic statements that did not identify the risk or how it is managed were coded 0. When the annual report did not settle whether an item was disclosed, the bank's separate risk exposure and capital publication report was consulted, and items that remained unclear were coded 0 to keep the index conservative. All reports were coded by a single coder (the first author) using the same checklist; because no second coder was involved, inter-coder reliability could not be computed, and this is acknowledged as a limitation.

Governance-compliance quality is measured by the GCG composite rating that each bank obtains from its governance self-assessment under SEOJK No. 13/SEOJK.03/2017 (Otoritas Jasa Keuangan, 2017). The self-assessment covers governance structure, process, and outcome across 11 factors: (1) the duties and responsibilities of the board of directors; (2) the duties and responsibilities of the board of commissioners; (3) the completeness and functioning of committees; (4) the handling of conflicts of interest; (5) the compliance function; (6) the internal audit function; (7) the external audit function; (8) risk management, including internal control; (9) the provision of funds to related parties and large exposures; (10) the transparency of financial and non-financial conditions, governance reporting, and internal reporting; and (11) the bank's strategic plan. These factors are combined into a single composite rating on a five-point scale. Because the original scale is inverse (1 = very good), it is transformed as $Z = 6 - \text{rating}$, so that higher values indicate stronger compliance: $Z = 5$ corresponds to a rating of 1 (very good), $Z = 4$ to a rating of 2 (good), and $Z = 3$ to a rating of 3 (fairly good). No bank in the sample received a rating of 4 or 5; the observed range of Z is therefore 3–5.

Because the assessment explicitly covers the board of commissioners (factor 2), committees (factor 3), risk management (factor 8), and transparency (factor 10), the composite rating may share information with the governance predictors and with disclosure itself. Three features limit, but do not remove, this overlap. First, the rating is a judgment-based composite over many factors, not a mechanical function of the proportion of independent commissioners or the number of committee meetings. Second, the predictors are objective structural or activity measures, whereas the rating reflects assessed implementation quality. Third, the overlap is examined empirically. Z is essentially uncorrelated with managerial ownership ($r = -0.007$, $p =$

.939) and independent commissioners ($r = -0.113$, $p = .213$), but it is strongly correlated with risk monitoring committee meetings ($r = 0.642$, $p < .001$), because the banks with the most active committees are also the large banks with the best ratings. Variance inflation factors are therefore reported for every term (Table 4), and the moderation results are re-estimated with a residualized moderator—the residual of Z regressed on X_1 , X_2 , and X_3 —so that the moderator no longer contains the variation shared with the predictors (Table 7).

Data Analysis Technique

Because the data comprise 41 banks observed over three years, they form a balanced panel in which observations from the same bank are not independent. The hypotheses were therefore tested with moderated panel regression rather than pooled ordinary least squares. The estimator was selected using the Chow (F) test (pooled vs. fixed effects), the Breusch–Pagan Lagrange multiplier test (pooled vs. random effects), and the Hausman test (fixed vs. random effects) (Hausman, 1978; Wooldridge, 2010). The fixed-effects estimator is not informative for this research question: managerial ownership does not vary within any bank over 2022–2024 and is absorbed entirely by the bank effects, the moderator changes within only two banks, and the proportion of independent commissioners within only six. The random-effects estimator, which uses both between-bank and within-bank variation, is therefore the main specification. Because the Hausman test rejects the random-effects assumption (Section 4.1.2), a correlated random-effects (Mundlak) specification that separates within-bank from between-bank effects is reported as a robustness check (Mundlak, 1978). All models include year dummies, and standard errors are clustered by bank to account for within-bank dependence and heteroskedasticity (Petersen, 2009). The model was estimated hierarchically: Model 1 contains the main effects of X_1 , X_2 , X_3 , and Z ; Model 2 adds the three interaction terms:

$$RMD_{it} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 Z_{it} + \beta_5 (X_1 \times Z)_{it} + \beta_6 (X_2 \times Z)_{it} + \beta_7 (X_3 \times Z)_{it} + \sum \gamma_t \text{Year}_t + u_i + \varepsilon_{it} \quad (1)$$

In the model, i indexes banks and t indexes years; α denotes the constant, β_1 – β_7 represent the regression coefficients, γ_t are year effects, u_i is the bank-specific effect, and ε_{it} is the idiosyncratic error. Including the main effect of Z (β_4) respects the hierarchical principle that every interaction is accompanied by its constituent terms (Aiken & West, 1991). X_1 , X_2 , X_3 , and Z were mean-centered before the product terms were formed, so β_1 – β_3 are the effects of each governance mechanism at the mean level of compliance, and non-essential collinearity is reduced. The interaction terms $X_1 \times Z$, $X_2 \times Z$, and $X_3 \times Z$ test whether governance-compliance quality strengthens or weakens the effects of managerial ownership, independent commissioners, and the risk monitoring committee on risk management disclosure.

H1–H3 were evaluated from the coefficients of X_1 – X_3 , and H4–H6 from the sign and significance of β_5 – β_7 together with the change in R^2 between Model 1 and Model 2. Because the significance of a product term alone does not show how an effect changes, the conditional (simple) effect of each governance mechanism was computed at each observed value of Z (3, 4, and 5) and plotted (Aiken & West, 1991; Hayes, 2018). Results are reported as coefficients with bank-clustered standard errors, t -statistics, p -values, and 95% confidence intervals. All tests used a 5% significance level ($\alpha = .05$).

Validity, Reliability, and Trustworthiness

Diagnostics appropriate to the panel specification were used instead of cross-sectional classical assumption tests. Serial correlation was tested with the Wooldridge test for panel data (Drukker, 2003; Wooldridge, 2010), heteroskedasticity with the Breusch–Pagan (Koenker) test on the random-effects residuals, and multicollinearity with variance inflation factors (VIF) for all terms, including the product terms. Bank-clustered standard errors are robust to both heteroskedasticity and within-bank serial correlation. The distributions of the moderator and of the risk monitoring committee variable were inspected for restricted range, skewness, and influential observations.

Six robustness checks were performed. First, because RMD is a bounded proportion concentrated between 0.60 and 1.00, the model was re-estimated as a fractional logit with bank-

clustered standard errors (Papke & Wooldridge, 1996), which respects the [0, 1] bounds and the ceiling at 1.00. Second and third, because RMC meeting frequency is strongly right-skewed, the model was re-estimated with $\ln(1 + \text{RMC})$ and with RMC winsorized at the 5th and 95th percentiles (4 and 24.9 meetings). Fourth, the moderator was replaced by its residual from a regression on X_1 – X_3 to address its overlap with the governance predictors. Fifth, the model was re-estimated on the 2023–2024 subsample to check sensitivity to the 2023 regulatory revision. Sixth, a correlated random-effects model adds the bank means of all time-varying regressors, so that the coefficients on the original regressors capture within-bank effects only.

The research procedure began by identifying issues related to risk management disclosure among banking companies during 2022–2024. Agency Theory, OJK regulations, and prior empirical studies were then reviewed to develop the conceptual framework and hypotheses. Secondary data were collected from annual reports and analyzed using descriptive statistics and moderated panel regression. The results were subsequently interpreted to assess the effects of the research variables and the moderating role of governance-compliance quality.

This methodology has several limitations. First, it relies on secondary data from annual reports, meaning that the quality of the analysis depends on the completeness of information disclosed by the companies. Second, governance-compliance quality is proxied by the Good Corporate Governance (GCG) Composite Rating, which is a bank-level self-assessment that may partly overlap with the governance predictors and does not measure the strength of external regulation itself. Third, the study is limited to listed banking companies during 2022–2024, which restricts the generalizability of the findings to other industries or observation periods.

RESULTS

Sample Description and Descriptive Statistics

The study uses 123 bank-year observations collected over the 2022–2024 period. Descriptive statistics are presented in Table 2.

Table 2. Descriptive Measurement

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Managerial Ownership (X_1)	123	0.02	0.34	0.1695	0.0906
Independent Commissioners (X_2)	123	0.5	0.67	0.5587	0.07308
Risk Monitoring Committee (X_3)	123	4	40	7.6585	7.17787
Risk Management Disclosure (Y)	123	0.6	1.0	0.7993	0.10864
OJK Regulatory Compliance (Z)	123	3	5	4.0732	0.46467

Source: Processed data, 2026.

The mean values of managerial ownership, independent commissioners, the risk monitoring committee, risk management disclosure, and governance-compliance quality are reported together with their dispersion measures. Overall, the descriptive statistics indicate relatively limited variation in several variables, although the frequency of risk monitoring committee meetings shows greater dispersion across banks.

Three features of these distributions matter for the moderation analysis. First, the moderator takes only three values, and 78.0% of observations fall at the middle value (Table 3); higher values indicate stronger compliance. Second, the proportion of independent commissioners varies only between 0.50 and 0.67, close to the regulatory minimum of 50%. Such restricted ranges make interaction estimates imprecise, which is why conditional effects are

reported only at the observed values of Z. Third, RMC meeting frequency is strongly right-skewed (mean = 7.66; SD = 7.18; maximum = 40; skewness = 2.95). Nine bank-years record more than 20 meetings, all belonging to three large state-owned banks (BBNI, BBRI, and BMRI); these values were retained, and their influence is examined in the robustness analysis (Table 7). In addition, one observation (MCOR, 2023) has an RMD value of 0.95, which cannot arise from a 25-item index. It was retained as recorded, and the main results are unchanged when it is set to 0.92 or 0.96.

Table 3. Frequency reports

Z (GCG)	GCG rating	Meaning	Frequency	Percent
5	1	Very good	18	14.6%
4	2	Good	96	78.0%
3	3	Fairly good	9	7.3%
Total	—	—	123	100.0%

Source: Processed data, 2026.

Data Quality and Preliminary Analysis

The results of the panel specification and diagnostic tests are summarized in Table 4.

Table 4. Model Selection Results

Test	Purpose	Result	Conclusion
Chow (F) test	Pooled OLS vs. fixed effects	$F(40, 74) = 37.58$; $p < .001$	Bank effects present; pooled OLS rejected
Breusch–Pagan LM test	Pooled OLS vs. random effects	$\chi^2(1) = 90.62$; $p < .001$	Random effects preferred to pooled OLS
Hausman test	Fixed vs. random effects	$\chi^2(8) = 825.36$; $p < .001$; robust (Mundlak) $\chi^2(6) = 60.37$; $p < .001$	RE assumption rejected; RE retained with CRE check (Section 3.6)
Wooldridge test	First-order serial correlation within banks	$F(1, 40) = 0.10$; $p = .753$	No serial correlation
Breusch–Pagan (Koenker) test	Heteroskedasticity of RE residuals	$\chi^2(9) = 23.34$; $p = .005$	Heteroskedasticity present; bank-clustered SE
VIF (mean-centered)	Multicollinearity, incl. product terms	$X_1 = 1.09$; $X_2 = 1.23$; $X_3 = 10.50$; $Z = 2.26$; $X_1 \times Z = 1.11$; $X_2 \times Z = 1.53$; $X_3 \times Z = 8.59$	Max. VIF = 10.50 (X_3); 3.68 with $\ln(1 + \text{RMC})$

Source: Processed data, 2026.

The Chow and Breusch–Pagan tests show that bank-specific effects are substantial, so pooled OLS is inappropriate. The Hausman test rejects the random-effects assumption, also in its cluster-robust Mundlak form. The correlated random-effects estimates (Table 7) show that this rejection comes mainly from the risk monitoring committee: its between-bank association with disclosure is strong, whereas year-to-year changes in meeting frequency within a bank are not associated with disclosure. Because the fixed-effects estimator cannot identify managerial ownership and relies on very few banks for the moderator, the random-effects model is retained as the main specification, and its coefficients are interpreted as associations that are driven largely by differences between banks. The Wooldridge test does not indicate first-order serial correlation ($p = .753$), whereas the Breusch–Pagan test indicates heteroskedasticity ($p = .005$); both are handled by bank-clustered standard errors. After mean-centering, all VIFs are below 3 except those of RMC (10.50) and $\text{RMC} \times Z$ (8.59), which reflect the concentration of very high meeting

frequencies in the three banks with the best ratings; with $\ln(1 + \text{RMC})$, the maximum VIF falls to 3.68, and the results are unchanged (Table 7).

Main Analysis: Moderated Panel Regression

The results of the hierarchical moderated panel regression are presented in Table 5.

Table 5. Panel Regression Result

Variable	Model 1 β (SE)	Model 2 β	SE	<i>t</i>	<i>p</i>	95% CI
Constant	0.7464*** (0.0139)	0.7620***	0.0167	45.59	< .001	[0.7282; 0.7958]
Managerial ownership (X_1)	-0.0890 (0.1335)	-0.1000	0.1252	-0.80	.429	[-0.3530; 0.1530]
Independent commissioners (X_2)	-0.0773 (0.0757)	-0.0560	0.1068	-0.52	.603	[-0.2719; 0.1599]
Risk monitoring committee (X_3)	0.0051*** (0.0013)	0.0106***	0.0026	4.12	< .001	[0.0054; 0.0157]
Governance-compliance quality (Z)	0.0287* (0.0116)	0.0212	0.0170	1.25	.218	[-0.0131; 0.0555]
$X_1 \times Z$	—	0.1789	0.1358	1.32	.195	[-0.0955; 0.4534]
$X_2 \times Z$	—	0.0543	0.1334	0.41	.686	[-0.2154; 0.3239]
$X_3 \times Z$	—	-0.0064†	0.0033	-1.96	.057	[-0.0131; 0.0002]
Year 2023	0.0631*** (0.0047)	0.0611***	0.0048	12.75	< .001	[0.0514; 0.0707]
Year 2024	0.0956*** (0.0046)	0.0926***	0.0053	17.46	< .001	[0.0819; 0.1033]
Observations / banks	123 / 41	123 / 41				
R^2 (overall)	0.548	0.617				
ΔR^2 ; joint test of $X \times Z$ terms	—	0.069; $\chi^2(3) = 4.50$, $p = .213$				
Wald χ^2 (p)	799.4 (< .001)	978.2 (< .001)				

Notes: random-effects (GLS) estimates; X_1 , X_2 , X_3 , and Z mean-centered before forming interactions; bank-clustered standard errors; base year 2022; † $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Source: Processed data, 2026.

Model 1 shows that, controlling for year effects, risk management disclosure is positively associated with risk monitoring committee activity ($\beta = 0.0051$, $p < .001$) and with governance-compliance quality ($\beta = 0.0287$, $p = .018$), but not with managerial ownership ($\beta = -0.0890$, $p = .509$) or independent commissioners ($\beta = -0.0773$, $p = .314$). One additional committee meeting per year is associated with a 0.5 percentage-point higher disclosure index, and a one-step better GCG rating with a 2.9 percentage-point higher index. The strong year effects (+6.3 and +9.6 percentage points in 2023 and 2024 relative to 2022) show that disclosure rose across the whole sector over the period. Adding the interaction terms in Model 2 raises R^2 from 0.548 to 0.617, but the three interaction terms are not jointly significant ($\chi^2(3) = 4.50$, $p = .213$). Individually, neither the interaction of governance-compliance quality with managerial ownership ($\beta = 0.1789$, $p = .195$) nor that with independent commissioners ($\beta = 0.0543$, $p = .686$) is significant. The interaction with the risk monitoring committee is negative and only marginally significant ($\beta = -0.0064$, $p = .057$). In Model 2, the main effect of RMC remains positive and significant ($\beta = 0.0106$, $p < .001$), whereas the main effect of Z is no longer significant ($p = .218$) once its interactions are included.

Because Z takes only the values 3, 4, and 5, Table 6 reports the conditional effect of each governance mechanism at these observed levels of compliance, and Figure 1 plots the interactions for independent commissioners and the risk monitoring committee. Managerial ownership and independent commissioners have no significant effect at any level of compliance. The effect of the risk monitoring committee is positive and significant at all three levels but

becomes smaller as compliance improves: 0.0175 ($p = .005$) at $Z = 3$, 0.0110 ($p < .001$) at $Z = 4$, and 0.0046 ($p = .004$) at $Z = 5$. Committee activity is therefore associated with disclosure most strongly in banks with weaker governance ratings. Because 78.0% of observations are at $Z = 4$, the slope at this level describes the typical bank, whereas the slopes at $Z = 3$ ($n = 9$) and $Z = 5$ ($n = 18$) rest on few observations and should be read with caution. Both models are jointly significant (Model 1: Wald $\chi^2(6) = 799.4$; Model 2: Wald $\chi^2(9) = 978.2$; both $p < .001$) and explain 54.8% and 61.7% of the variation in risk management disclosure (overall R^2), respectively.

Table 6. The Effect of Governance Mechanism

Governance mechanism	Z = 3 (rating 3)	Z = 4 (rating 2)	Z = 5 (rating 1)
Managerial ownership (X_1)	-0.2920 (0.1861)	-0.1131 (0.1250)	0.0658 (0.1830)
Independent commissioners (X_2)	-0.1142 (0.0826)	-0.0599 (0.0990)	-0.0057 (0.2199)
Risk monitoring committee (X_3)	0.0175** (0.0059)	0.0110*** (0.0028)	0.0046** (0.0015)

Notes: conditional effect (bank-clustered SE) of each mechanism on RMD at each observed value of Z, computed from Model 2; * $p < .05$, ** $p < .01$, *** $p < .001$.

Source: Processed data, 2026.

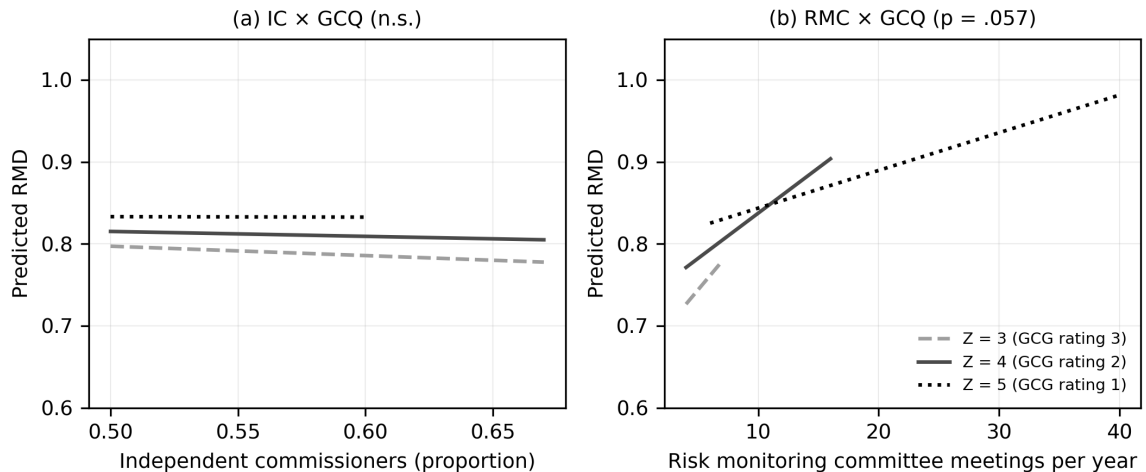


Figure 1. Predicted risk management disclosure by (a) independent commissioners and (b) risk monitoring committee meetings at each observed level of governance-compliance quality (Model 2; each line is drawn over the range observed in that group; year effects averaged)

Robustness Checks

Table 7 reports the robustness checks. The positive association between risk monitoring committee activity and disclosure is the most stable result: it holds in the fractional logit (average marginal effect = 0.0297 per meeting), with $\ln(1 + \text{RMC})$, with winsorized RMC, with the residualized moderator, and in the 2023–2024 subsample. It does not, however, hold within banks: in the correlated random-effects model, the within-bank coefficient of RMC is small and insignificant, whereas the coefficient on the bank mean of RMC is positive and significant ($\beta = 0.0247$, $p = .006$). Managerial ownership and the interaction of managerial ownership with compliance are insignificant in every specification. Independent commissioners are insignificant everywhere except in the 2023–2024 subsample, where the coefficient is negative ($p = .025$). The negative RMC $\times$ Z interaction is not robust: it disappears with $\ln(1 + \text{RMC})$, with winsorized RMC, and in the fractional logit, and it turns positive and significant when the moderator is residualized. Setting the anomalous MCOR 2023 value to 0.92 or 0.96 leaves all conclusions unchanged (p of RMC $\times$ Z = .096 and .048). Overall, the evidence supports a positive between-bank association of committee activity and governance-compliance quality with disclosure, but it provides no robust evidence that compliance moderates any governance mechanism.

Table 7. Robustness Results

Specification	X ₁	X ₂	X ₃	X ₁ ×Z	X ₂ ×Z	X ₃ ×Z
Main model (Table 5, Model 2)	-0.100	-0.056	0.011***	0.179	0.054	-0.0064†
Fractional logit (log-odds)	-0.787	-1.040	0.185***	-0.315	-0.420	-0.092
RMC as ln(1 + RMC)	-0.084	-0.021	0.114***	0.172	0.087	-0.010
RMC winsorized (5th/95th)	-0.099	-0.032	0.012***	0.148	0.098	-0.0038
Residualized Z	-0.069	-0.0068	0.0093***	0.199	0.185†	0.015***
2023–2024 subsample (n = 82)	-0.159	-0.307*	0.014***	-0.054	-0.217	-0.0083†
Correlated RE, within-bank effects	-0.129	-0.031	-0.0034	0.091	0.049	-0.011

Notes: coefficients; † $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$. All specifications include year effects and bank-clustered standard errors. The X₁ coefficient in the correlated RE model is a between-bank effect because managerial ownership is time-invariant.

Source: Processed data, 2026.

DISCUSSION

The findings indicate that managerial ownership does not affect risk management disclosure in listed Indonesian banks. This suggests that managerial share ownership is not a primary driver of risk disclosure transparency. One possible interpretation is that the proportion of shares held by management is relatively small compared with controlling shareholders, limiting management's ownership-based influence over disclosure policy. Because the model does not include controlling ownership, however, this explanation cannot be tested here and remains a proposition for future research. In addition, risk management disclosure in banking is strongly shaped by mandatory OJK requirements, which may reduce the marginal influence of managerial ownership.

Among the monitoring mechanisms, only the risk monitoring committee is associated with disclosure. Banks whose committees meet more often disclose more risk items, which is consistent with the view that a specialized committee that actively reviews risk limits generates documented risk information that can be reported. The association is, however, a between-bank one: banks with persistently active committees disclose more, but year-to-year changes in meeting frequency within a bank do not move disclosure. Committee activity may therefore reflect a stable risk-governance culture—often in larger banks—rather than a lever whose adjustment produces immediate disclosure gains. The proportion of independent commissioners, by contrast, is not associated with disclosure. Its narrow range (0.50–0.67), clustered at the 50% regulatory minimum, suggests that board independence in Indonesian banks is largely set by compliance with the minimum requirement and therefore differs too little across banks to explain differences in disclosure.

Contrary to H4–H6, governance-compliance quality does not strengthen any of the three governance mechanisms. Instead, it is directly and positively associated with disclosure: banks with better GCG ratings disclose more risk items, holding the internal mechanisms constant. The only interaction that approaches significance points in the opposite direction to H6: the disclosure association of committee activity is largest in banks rated 3 and smallest in banks rated 1. This pattern would be consistent with substitution rather than complementarity—an active committee may matter most where the overall governance system is weaker—but it is not robust across specifications and should not be treated as a finding. Taken together, the results suggest that, within this sample, internal monitoring and governance compliance are associated with disclosure as separate, largely additive factors. The asymmetry proposed in Section 2.1—that compliance amplifies monitoring but not ownership incentives—is not supported. Because the moderator partly reflects board and committee functioning and correlates strongly with committee activity, these results describe associations and not causal effects of regulation.

The finding that managerial ownership does not affect risk management disclosure is consistent with Rajak et al. (2026), who report no significant effect of managerial ownership on risk management disclosure among IDX-listed banks during 2020–2024. It runs counter to the incentive-alignment prediction of Agency Theory (Jensen & Meckling, 1976). The difference may reflect the ownership structure of Indonesian banks, which tends to be dominated by controlling

shareholders, as well as the sector's high level of mandatory disclosure; the first explanation, however, requires ownership-concentration data to be tested.

The absence of an effect of independent commissioners differs from Utami and Cahyono (2023), Mahaputra et al. (2024), and Rajak et al. (2026), who report that board independence improves risk disclosure in Indonesian firms, including financial-sector firms and banks. It is consistent with Mukhibad et al. (2020), who find no such effect in Indonesian Islamic banks. A likely reason for the difference is methodological: the present study accounts for the panel structure, year effects, and within-bank dependence, and the proportion of independent commissioners in the sample varies very little. The positive association of risk monitoring committee activity with disclosure is consistent with the monitoring argument of Fama and Jensen (1983). Mahaputra et al. (2024) find that the presence of a risk monitoring committee does not moderate the governance–disclosure relationship in Indonesian financial firms; the present result, based on meeting frequency, suggests that the committee's activity, rather than its formal existence, is what is associated with disclosure.

For the moderating relationships, the findings do not support the view that governance compliance amplifies internal governance mechanisms. They are more consistent with studies showing that bank risk disclosure reflects governance arrangements at several levels. Barakat and Hussainey (2013) show that bank governance, regulation, and supervision jointly shape the quality of operational risk disclosure in European banks, and Elamer et al. (2019) find that bank risk disclosure in the Middle East and North Africa depends on both bank-level and country-level governance. In the present study, bank-level governance compliance is likewise associated with disclosure, alongside—rather than through—the internal monitoring mechanisms.

CONCLUSION AND FURTHER STUDY

This study examined whether internal governance mechanisms explain risk management disclosure in 41 listed Indonesian banks during 2022–2024 and whether banks' governance-compliance quality conditions these effects. Using random-effects moderated panel regression with the moderator's main effect, year effects, and bank-clustered standard errors, the study finds that risk monitoring committee activity and governance-compliance quality are positively associated with disclosure, whereas managerial ownership and independent commissioners are not. Governance-compliance quality does not strengthen any of the three mechanisms. The contribution is deliberately narrow: once the panel structure is considered, risk disclosure in a highly regulated banking setting is associated with active, specialized risk oversight and with overall governance compliance as separate factors, and not with ownership incentives or board independence set near the regulatory minimum. The expected contingency—compliance amplifying monitoring—is not observed.

For bank boards, the results suggest that the frequency and substance of risk monitoring committee work matter more for disclosure than the formal proportion of independent commissioners. For OJK, the findings support supervisory attention to the substantive functioning of risk oversight bodies and to overall governance implementation, rather than to minimum structural requirements alone. Investors may read committee activity and the GCG composite rating together when assessing the credibility of banks' risk disclosures.

The study has limitations that point to future research. The moderator is a bank-level, self-assessed composite that partly overlaps with board and committee functioning, correlates strongly with committee activity, and does not measure the strength of external regulation; future studies could use supervisory ratings, enforcement actions, or component-level GCG scores. The moderator varies only between ratings 1 and 3 and changes within only two banks, the independent-commissioner variable varies little, and the Hausman test indicates that the random-effects associations are driven by differences between banks rather than changes within them; a longer panel is needed to identify within-bank effects. The model does not include controlling ownership or bank size, which may underlie both committee activity and disclosure. Finally, the disclosure index captures the breadth rather than the quality of risk disclosure and was coded by a single coder, and the evidence is limited to listed banks.

ETHICAL DISCLOSURE

This study exclusively utilized secondary data obtained from publicly available annual reports, corporate governance disclosures, and official regulatory sources. No human participants, personal information, or confidential institutional data were involved. Therefore, formal ethical approval and informed consent were not required. The research was conducted in accordance with established principles of academic integrity, transparency, and responsible data reporting. All relevant sources were appropriately acknowledged, and the findings were presented without intentional manipulation or misrepresentation.

CONFLICT OF INTEREST STATEMENT

The authors declare no financial, personal, or institutional conflicts of interest that could have influenced the research process, analysis, interpretation, or reporting of the findings.

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