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(Research Article)

Does Accounting Quality Still Matter for Stock Price Crash Risk? Evidence from a High-Uncertainty Industry

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Abstract: This study examines the influence of accounting quality on stock price crash risk and investigates whether this relationship is conditioned by information asymmetry. Using a quantitative approach, this study utilizes secondary data derived from annual reports and stock price history of coal mining firms listed on the Indonesia Stock Exchange over the 2021–2024 period. Stock price crash risk is measured using negative conditional skewness (NCSKEW), accounting quality is proxied by discretionary accruals based on the Kothari model, and information asymmetry is captured through bid–ask spread. Panel data regression and moderated regression analysis (MRA) are applied to test the proposed relationships. The results indicate that accounting quality exhibits a negative but statistically insignificant association with stock price crash risk in the baseline specification. The moderated regression results further reveal a marginal moderating effect of information asymmetry, suggesting that the influence of accounting quality is conditional upon the firm's informational environment. These findings highlight the context-dependent nature of accounting quality in explaining crash risk within high-uncertainty industries. This study contributes to the crash risk literature by providing evidence that accounting quality does not operate as a uniformly robust determinant of crash risk, while emphasizing the importance of broader informational conditions.

Keywords: Accounting Quality; Bad News Hoarding; Information Asymmetry; Panel Data Regression; Stock Price Crash.

1. Introduction

Stock price crash risk represents a critical concern in capital markets due to its severe implications for investors. Unlike normal price fluctuations, crash events involve extreme and sudden stock price declines that may lead to substantial wealth losses (Callen & Fang, 2015). Such asymmetric downside movements are particularly important for investors because they reflect tail risk that cannot be fully captured by conventional volatility measures (Habib & Hasan, 2017). Stock price crashes may arise from various economic and informational factors, including the asymmetric incorporation of firm-specific information into stock prices (Neifar & Utz, 2019). Prior literature further emphasizes that crash events are closely associated with the delayed release of accumulated adverse information, which intensifies return asymmetry (Park & Park, 2020; Shin & Jeon, 2021). Consequently, understanding the determinants of crash risk becomes essential for evaluating investment risk and market stability.

Among firm-level determinants, accounting quality emerges as a critical factor influencing crash risk dynamics. Accounting quality, commonly reflected through discretionary accrual mechanisms, captures the extent of managerial intervention embedded in reported earnings (Salehi et al., 2022). High accounting quality enhances the reliability of earnings information, thereby improving investors' ability to assess firm fundamentals (Haider et al., 2022). When accounting quality is high, adverse economic conditions are more likely to be recognized in a timely manner, reducing the accumulation of undisclosed negative information that may trigger abrupt stock price corrections (Wang et al., 2023).

Information asymmetry further shapes this relationship. Information asymmetry arises when managers possess superior firm-specific knowledge relative to external investors, thereby limiting outsiders' ability to accurately evaluate firm performance (Ayagi & Salisu,

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2023; Chen et al., 2017). Under elevated asymmetry, investors rely more heavily on accounting information, while managerial opportunities for opportunistic reporting behavior simultaneously increase (Cao et al., 2023). Consequently, variations in firms' informational environments may condition the effectiveness of accounting quality in mitigating stock price crash risk.

The relevance of crash risk dynamics becomes particularly salient within industries characterized by elevated uncertainty and volatile performance structures. Firms operating within high-risk sectors tend to exhibit greater exposure to asymmetric stock price movements due to intensified uncertainty and informational frictions (Alverina et al., 2025). The coal mining industry in Indonesia provides a distinctive empirical setting due to its strong exposure to commodity cycles, regulatory dynamics, and global market shocks (Adityaningsih & Hidayat, 2024; Fatimah & Sartika, 2024). The 2021–2024 period was marked by substantial volatility in global energy markets, driven by post-pandemic economic adjustments and geopolitical tensions (Xiao, 2023).

Table 1. Firm-Level Measures of Stock Price Crash Risk, Accounting Quality, and Information Asymmetry (Selected Sample Firms).

Year	BUMI			BYAN			DSSA		
	AQ	SPREAD	NCSKEW	AQ	SPREAD	NCSKEW	AQ	SPREAD	NCSKEW
2021	0.6533	0.0656	0.0159	-1.8665	0.0270	0.0175	-1.6885	-0.0333	0.0774
2022	1.1731	0.2468	0.0114	-0.4163	0.1592	0.0069	-0.0999	-0.0998	0.0896
2023	-0.4072	0.0194	0.0084	1.2172	0.0352	0.0034	-2.6807	-0.0498	0.0751
2024	-0.1451	0.0510	0.0104	-0.7911	-0.0224	0.0053	-1.6259	-0.0351	0.0396

Source: Secondary data processed by Author (2026).

From Table 1, distinct patterns can be observed across firms. PT Bumi Resources Tbk (BUMI) exhibits fluctuations in accounting quality accompanied by shifts in stock price crash risk, where periods of higher accounting quality are associated with relatively less extreme return asymmetry. PT Bayan Resources Tbk (BYAN) displays pronounced variability in crash risk alongside notable changes in accounting quality, indicating dynamic interactions between earnings attributes and crash exposure. Meanwhile, PT Dian Swastatika Sentosa Tbk (DSSA) consistently records negative skewness values despite relatively stable accounting quality, suggesting the influence of other firm-specific or informational factors. Differences in bid–ask spread further reveal heterogeneous informational environments, with DSSA recording persistently higher spread levels, indicating elevated information asymmetry. Collectively, these variations suggest that firms operating within the same industry experience differing crash risk exposure, accounting quality dynamics, and informational conditions, implying that the interaction between accounting quality and stock price crash risk warrants further empirical examination.

Prior studies predominantly emphasize direct relationships, while empirical evidence explicitly examining conditional mechanisms remains relatively limited (Habib & Hasan, 2017; Haider et al., 2022; Salehi et al., 2022). In particular, although accounting quality has been shown to influence crash risk, limited studies investigate how differences in information environments shape this relationship (Cao et al., 2023; Kim & Zhang, 2016). Within the Indonesian context, prior research largely focuses on the direct effect of accounting quality on crash risk without incorporating moderating structures (Andien & Husaini, 2022).

Addressing this limitation, the present study incorporates information asymmetry as a conditional mechanism and offers novelty by examining how accounting quality influences stock price crash risk under varying levels of information asymmetry within coal mining firms.

2. Literature Review

Stock Price Crash Risk

Stock price crash risk is theoretically grounded in Bad News Hoarding Theory, which posits that managers may strategically withhold unfavorable firm-specific information (Jin & Myers, 2006). The delayed disclosure of adverse information enables the accumulation of undisclosed bad news, thereby increasing the likelihood of abrupt downward price corrections (Hutton et al., 2009). Crash risk reflects asymmetric return distributions arising from informational frictions and the clustered release of negative firm-specific information (Chen et al.,

2001). Lower accounting transparency is associated with higher stock price crash risk exposure (Kim & Zhang, 2016).

Accounting Quality

Accounting quality is conceptually grounded in Signaling Theory, which posits that financial statements function as informational signals whose effectiveness depends on their credibility (Spence, 1973). Ross (1977) further emphasizes that accounting information serves as a signal conveying firm-specific characteristics to market participants. Accounting quality is commonly reflected through discretionary accrual mechanisms that capture earnings management behavior (Kothari et al., 2005). Higher accounting quality, indicated by lower earnings management, is associated with lower stock price crash risk (Andien & Husaini, 2022).

Information Asymmetry

Information asymmetry is conceptually grounded in Signaling Theory, which emphasizes disparities in information access between corporate insiders and external investors (Spence, 1973). Information asymmetry reflects conditions under which investors face limitations in evaluating firms' underlying economic performance (Gregoriou et al., 2005). Higher information asymmetry increases investor uncertainty and impairs price efficiency within capital markets (Suharti & Saftiana, 2021). Information asymmetry has been associated with stock price crash risk dynamics (Cao et al., 2023).

Empirical Research Gap

Existing studies consistently document that accounting quality, commonly reflected through earnings management, is negatively associated with stock price crash risk. Haider et al. (2022), examining non-financial firms using generalized least square panel regression, reported that earnings management increases crash risk exposure. Salehi et al. (2022), employing panel data regression within an emerging market context, documented that higher accounting quality reduces stock price crash risk. Andien & Husaini (2022), focusing on coal mining firms listed on the Indonesia Stock Exchange over the 2018–2022 period, also identified a significant negative relationship between accounting quality and crash risk. Despite these consistent findings, existing studies predominantly focus on direct associations, providing limited insights into whether the effectiveness of accounting quality depends on variations in firms' information environments. The conditional role of information asymmetry therefore remains insufficiently explored, particularly in industries characterized by elevated uncertainty. Based on the theoretical framework and prior empirical findings, the following hypotheses are proposed:

H1: Accounting quality is negatively associated with stock price crash risk.

H2: The influence of accounting quality on stock price crash risk depends on the level of information asymmetry.

3. Method

This study applies a quantitative explanatory approach to examine the influence of accounting quality on stock price crash risk and to assess whether this relationship is conditioned by information asymmetry. The analysis is conducted using panel data to test the proposed hypotheses by estimating the direction and strength of relationships among the research variables. The research focuses on coal mining companies listed on the Indonesia Stock Exchange over the 2021–2024 period.

Table 2. Criteria of Research Sample.

Criteria	Total
Coal mining companies (producers) listed on the Indonesia Stock Exchange (IDX) from 2021 to 2024 and never delisted	18
Companies that did not consistently publish audited financial reports during the 2021–2024 period	(3)
Companies that did not meet the criteria of having >30 weeks of trading days per year during the 2021–2024 period	(2)
Total research observations (13 companies × 4 years)	**52**

Source: Secondary data processed by Author (2026).

This study relies on secondary data obtained from audited annual financial statements and historical stock price data. Market data include daily stock prices as well as bid and ask quotations, which are used to construct return-based measures and proxies for information asymmetry. All data are obtained from the official website of the Indonesia Stock Exchange (www.idx.co.id) and other publicly accessible financial sources.

Table 3. Operationalization of Variables.

Variable		Measurement	Source
Dependent	Stock Price Crash Risk	Negative Conditional Skewness (NCSKEW): a. $r_{i,\tau} = \alpha_j + \beta_1 r_{m,\tau-2} + \beta_2 r_{m,\tau-1} + \beta_3 r_{m,\tau} + \beta_4 r_{m,\tau+1} + \beta_5 r_{m,\tau+2} + \varepsilon_{i\tau}$ b. $W_{i,t} = \ln(1 + \varepsilon_{i,\tau})$ c. $NCSKEW_{i,t} = -\left[\frac{n(n-1)^{\frac{3}{2}} \sum W_{i,\tau}^3}{(n-1)(n-2)(\sum W_{i,\tau}^2)^{\frac{3}{2}}}\right]$	(Chen et al., 2001; Jin & Myers, 2006)
Independent	Accounting Quality	Accounting quality is proxied by discretionary accruals, estimated using the performance-matched Modified Jones Model: a. $TAC_{i,t} = NI_{i,t} - CFO_{i,t}$ b. $\frac{TAC_{i,t}}{TA_{i,t-1}} = \beta_0 + \beta_1\left(\frac{1}{TA_{i,t-1}}\right) + \beta_2\left(\frac{\Delta REV_{i,t}}{TA_{i,t-1}}\right) + \beta_3\left(\frac{PPE_{i,t}}{TA_{i,t-1}}\right) + \beta_4 ROA_{i,t-1} + \varepsilon$ c. $NDA_{i,t} = \beta_1\left(\frac{1}{TA_{i,t-1}}\right) + \beta_2\left(\frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{TA_{i,t-1}}\right) + \beta_3\left(\frac{PPE_{i,t}}{TA_{i,t-1}}\right) + \beta_4 ROA_{i,t-1}$ d. $DA_{it} = \frac{TAC_{it}}{TA_{i,t-1}} - NDA_{it}$	(Andien & Husaini, 2022; Kothari et al., 2005)
Moderating	Information Asymmetry	SPREAD $= \frac{Ask - Bid}{Price}$	Cao et al. (2023)
Controls	Firm Size	SIZE $= \ln(Total\ Assets)$	(Callen & Fang, 2015; Kim & Zhang, 2016; Wang et al., 2022)
	Leverage	LEV $= \frac{Total\ Liabilities}{Total\ Assets}$	
	Stock Return	RET $= \sum_{i=1}^{n} R_i$	
	Volatility	SIGMA $= \sqrt{\frac{1}{n-1}\sum_{k=1}^{n}(R_i - \bar{R})^2}$	

Source: Author's calculation (2026).

This study employs two regression specifications. First, a baseline panel regression is estimated to assess the direct effect of accounting quality on stock price crash risk. Second, a moderated regression model is applied by incorporating information asymmetry and its interaction with accounting quality. The model specifications are as follows:

$$\text{NCSKEW} = \beta_0 + \beta_1 \text{AQ} + \beta_2 \text{Controls} + \varepsilon \quad (1)$$

$$\text{NCSKEW} = \beta_0 + \beta_1 \text{AQ} + \beta_2 \text{SPREAD} + \beta_3 (\text{AQ} * \text{SPREAD}) + \beta_4 \text{Controls} + \varepsilon \quad (2)$$

4. Results and Discussion

Description Test Analysis

Table 4. Descriptive Statistics Test Results

Variable	N	Minimum	Maximum	Mean	Std. Deviation
NCSKEW	52	-2.175	3.177	0.043	1.098
AQ	52	-0.363	0.153	-0.000	0.089
SPREAD	52	0.001	0.090	0.012	0.018
AQ*SPREAD	52	-0.003	0.009	0.000	0.002
SIZE	52	27.505	32.239	30.178	1.351
LEV	52	0.086	0.961	0.442	0.238
RET	52	-0.688	2.051	0.192	0.586
SIGMA	52	0.026	0.132	0.071	0.025

Source: Secondary data processed by Author (2026).

Table 4 presents the descriptive statistics of the study variables. Stock price crash risk (NCSKEW) exhibits a mean value of 0.043, with a relatively wide range (–2.175 to 3.177) and a standard deviation of 1.098, indicating considerable variation in return asymmetry across observations. Accounting quality (AQ) records a mean value close to zero, consistent with the expected distributional behavior of discretionary accruals, while its range (–0.363 to 0.153) suggests heterogeneity in earnings management practices. Information asymmetry (SPREAD) shows a mean of 0.012 and a standard deviation of 0.018, reflecting differences in firms' informational environments. The interaction term (AQ*SPREAD) displays limited dispersion, which is typical given its multiplicative construction. The control variables similarly exhibit sufficient variability, supporting the suitability of the dataset for panel regression estimation.

Panel Model Test Selection

Table 5. Panel Model Test Selection Results.

Test	Model Comparison	Test Statistic	Prob.
Chow (Cross-section F)	CEM vs FEM	1.979	0.059
Lagrange Multiplier (Breusch–Pagan)	CEM vs REM	0.100	0.748

Source: Secondary data processed by Author (2026).

Table 5 reports the panel model selection results. The Chow test produces a p-value of 0.059, which exceeds the conventional significance level $\alpha = 0.05$, indicating that the Fixed Effects Model (FEM) is not statistically preferred over the Common Effects Model (CEM). The Lagrange Multiplier test yields a p-value of 0.748, also exceeding $\alpha = 0.05$, suggesting that the Random Effects Model (REM) is not superior to the CEM specification. Collectively, these results support the adoption of the Common Effects Model (CEM) as the appropriate estimation framework.

Classical Assumption Test

Table 6. Classical Assumption Test Results.

Classical Assumption	Indicator	Test Statistic	Prob.
Normality	Jarque–Bera	0.152	0.927
Multicollinearity	Correlation Matrix (Max)	0.764	< 0.800
Heteroskedasticity	Likelihood Ratio Test	20.260	0.089
Autocorrelation	Durbin–Watson	2.064	≈ 2

Source: Secondary data processed by Author (2026).

Table 6 presents the results of the classical assumption diagnostics. The normality test indicates that the residuals are normally distributed, as reflected by the Jarque–Bera probability value of 0.927, which exceeds the significance level $\alpha = 0.05$. The multicollinearity assessment shows that the maximum correlation coefficient among the independent variables is 0.764, suggesting that multicollinearity is not a concern. The heteroskedasticity test yields a probability value of 0.089, indicating that the null hypothesis of homoskedasticity cannot be rejected. The Durbin–Watson statistic of 2.064 suggests the absence of autocorrelation. Overall, these results confirm that the regression model satisfies the classical linear regression assumptions.

Regression Analysis Test

Table 7. Regression Analysis Results.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.136	3.200	0.980	0.332
AQ	-3.089	1.599	-1.932	0.060
SIZE	-0.074	0.106	-0.699	0.488
LEV	-1.689	0.670	-2.520	0.015
RET	-0.590	0.274	-2.150	0.037
SIGMA	0.117	6.552	0.018	0.986
R-squared	0.265			
Adjusted R-squared	0.185			
F-statistic	3.320			
Prob (F-statistic)	0.012			

Source: Secondary data processed by Author (2026).

Table 7 presents the baseline regression results. The regression model yields an F-statistic of 3.320 with a probability value of 0.012. As the probability value is below the significance level $\alpha = 0.05$, the null hypothesis is rejected, indicating that the independent and control variables jointly have a statistically significant effect on stock price crash risk. The R-squared value of 0.265 suggests that 26.5% of the variation in stock price crash risk is explained by the variables included in the model, while the remaining 73.5% is attributable to factors outside the model. The adjusted R-squared value of 0.185 indicates relatively modest explanatory power after accounting for model complexity. Based on the t-tests, accounting quality (AQ) exhibits a negative coefficient ($\beta = -3.089$) with a probability value of 0.060, indicating that the effect is not statistically significant at $\alpha = 0.05$.

Moderated Regression Analysis Test

Table 8. Moderated Regression Results.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.350	3.030	0.446	0.658
AQ	-5.668	2.367	-2.394	0.021
SPREAD	-46.121	15.803	-2.919	0.006
AQ*SPREAD	373.224	211.134	1.768	0.084
SIZE	-0.019	0.100	-0.195	0.847
LEV	-1.488	0.623	-2.386	0.021
RET	-0.369	0.265	-1.395	0.170
SIGMA	6.763	6.323	1.070	0.290
R-squared	0.412			
Adjusted R-squared	0.318			
F-statistic	4.403			
Prob (F-statistic)	0.001			

Source: Secondary data processed by Author (2026).

Table 8 reports the findings of the moderated regression analysis. The model produces a probability value of the F-statistic of 0.001, indicating that the extended specification is statistically significant at $\alpha = 0.05$. The explanatory power of the model increases, as reflected by an R-squared value of 0.412. The interaction term (AQ*SPREAD) displays a positive coefficient ($\beta = 373.224$) with a probability value of 0.084. While the coefficient does not meet the conventional 5% significance threshold, it attains statistical significance at the 10% level, suggesting the presence of a marginal moderating effect of information asymmetry on the relationship between accounting quality and stock price crash risk.

Discussion

The empirical findings indicate that accounting quality does not exhibit a statistically significant effect on stock price crash risk in the baseline specification. This result contrasts with Andien and Husaini (2022), who document a significant relationship within the coal mining industry. The divergence may be attributable to differences in empirical design rather than conceptual inconsistency. Variations in sample construction, screening procedures, and model specification may influence the detectability of reporting-related effects. Within the present study's tighter screening framework, the findings suggest that accounting quality alone may be insufficient to systematically explain crash risk in high-uncertainty environments, where volatility, macroeconomic sensitivity, and informational complexity may dilute the observable impact of reporting quality.

The moderated regression analysis further reveals that the interaction between accounting quality and information asymmetry attains marginal statistical significance. Although the interaction effect does not meet the conventional 5% significance threshold, its significance at the 10% level suggests that information asymmetry weakly moderates the relationship between accounting quality and stock price crash risk. This finding differs from Cao et al. (2023), who identify a statistically robust moderating effect of information asymmetry. The variation in results may reflect differences in the mechanisms examined. Prior studies emphasize disclosure dynamics that directly reshape the firm's information environment, whereas accounting quality represents an indirect informational attribute associated with reporting precision rather than disclosure intensity. In high-uncertainty industries characterized by elevated information opacity, moderating effects may therefore emerge in a weaker or less detectable form. Overall, these findings highlight the conditional and context-dependent nature of informational mechanisms underlying stock price crash risk.

5. Conclusion

This study re-examines whether accounting quality still matters for stock price crash risk within a high-uncertainty industry by incorporating information asymmetry into the analytical framework. The findings indicate that accounting quality does not exert a statistically significant effect in the baseline specification, while the moderated regression reveals a marginal moderating effect of information asymmetry, suggesting that the influence of accounting quality is conditional rather than uniform. These results align with the study's objective and highlight that stock price crash risk represents a multifaceted phenomenon shaped by the interaction between firm-level accounting attributes and market informational conditions. Importantly, the absence of a statistically significant direct effect should not be interpreted as evidence of theoretical irrelevance, as accounting quality may operate through conditional mechanisms. This study extends the crash risk literature by demonstrating the context-dependent relevance of accounting quality. From a practical perspective, crash risk assessment should adopt a broader analytical framework rather than relying solely on accounting quality measures. Nevertheless, the interpretation of these findings remains subject to measurement limitations, unobserved factors, and industry-specific characteristics. Future research is encouraged to employ alternative measures, incorporate governance and structural variables, and explore nonlinear effects or threshold mechanisms.

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