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## Concentrated Ownership of Indonesian Listed Companies as a Determinant of Stock Price Crash Risk

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### ABSTRACT

*This study examines the relationship between ownership concentration and stock price crash risk in Indonesian publicly listed companies. In emerging markets like Indonesia, ownership is often concentrated in the hands of a few major shareholders, raising questions about information asymmetry and governance vulnerabilities. Using panel data from non-financial firms listed on the Indonesia Stock Exchange between 2014 and 2023, this study applies a quantitative approach, with crash risk proxied by negative coefficient skewness (NCSKEW) and down-to-up volatility (DUVOL). Ownership concentration is measured as the combined shareholding of the top three shareholders in each firm. The results show that ownership concentration has a consistently positive but statistically insignificant relationship with stock price crash risk. These findings suggest that concentrated ownership, while prevalent in Indonesia, does not necessarily lead to greater downside risk. Instead, firm-specific characteristics such as profitability, liquidity, firm maturity, and external factors like the COVID-19 crisis may play a more decisive role. This study contributes to the growing literature on corporate governance in emerging markets by challenging commonly held assumptions about the risk implications of blockholder control.*

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**KEYWORDS** crash risk, concentrated ownership, NCSKEW, DUVOL, Indonesian stock market



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### INTRODUCTION

Stock price crashes represent extreme downside risk events that can destabilize capital markets and erode investor confidence. They often occur when

negative corporate information, previously hoarded by insiders, is suddenly released, leading to abrupt price declines (Hu et al., 2020; Jebran et al., 2020; Jeon, 2019; Jin, 2023; Zhao et al., 2024). The risk of stock price crashes is amplified in *Indonesia*'s emerging capital market, which is characterized by higher volatility, limited investor protection, and dominant retail participation. One factor that exacerbates this phenomenon is concentrated ownership.

In many *Indonesian* firms, a significant portion of equity is controlled by a small number of shareholders, whether founding families, business groups, or state-affiliated bodies. This ownership concentration creates an environment susceptible to agency conflicts, especially Type II agency problems, where majority shareholders may collude with management to conceal negative information from minority investors (Takahashi & Yamada, 2021). Such collusion may delay the disclosure of adverse information, increasing the likelihood of stock price crashes when the information is inevitably revealed (Y. Xu et al., 2021).

Although prior research has explored the effects of ownership concentration on firm performance and disclosure in various emerging markets, few have directly addressed its influence on crash risk in *Indonesia*. Therefore, this paper investigates whether concentrated ownership in *Indonesian* listed companies is significantly associated with stock price crash risk. Most previous research on stock price crash risk has focused on developed markets such as the United States and China, while research conducted in emerging markets remains limited (Dumitrescu & Zakriya, 2021; Paramita, 2021; Takahashi & Yamada, 2021).

The Efficient Market Hypothesis (EMH) suggests stock prices fully reflect all available information, with markets categorized into weak, semi-strong, and strong forms of efficiency. According to EMH, any hidden negative information, once revealed, can lead to sudden stock price declines as the market rapidly incorporates this new data. This theory provides a foundation for understanding how undisclosed bad news might accumulate and eventually trigger sharp price drops when finally released to the public. The concept is particularly relevant when examining stock price crash risks, as it highlights the market's sensitivity to information transparency and timeliness.

Agency theory explores conflicts between shareholders and management, particularly in cases where majority shareholders may collude with executives to suppress negative information. Such behavior can temporarily stabilize stock prices but increases the risk of severe crashes when the truth emerges. Studies show concentrated ownership structures often reduce transparency and accountability in information disclosure, creating conditions ripe for potential crashes. In markets like *Indonesia*, where ownership tends to be highly concentrated, these risks are amplified due to weaker investor protections and governance mechanisms compared to more developed economies.

Stock price crashes often occur when accumulated negative information is suddenly released, causing abrupt market declines. Research indicates this phenomenon is more prevalent in emerging markets with high volatility and concentrated ownership structures. Multiple studies have demonstrated a clear link between ownership concentration and crash risk, particularly in markets like *Indonesia*, *Egypt*, and *Kuwait*, where dominant shareholders wield significant control. The measurement of ownership concentration through the combined stakes of top shareholders helps quantify this relationship, though some argue concentrated ownership may also bring monitoring benefits in certain contexts.

This study specifically examines crash risk rather than broader performance metrics, hypothesizing that higher ownership concentration correlates with increased crash risk in *Indonesia*'s market. The rationale stems from the tendency of concentrated ownership to facilitate information asymmetry and delayed disclosure of negative news. When bad news eventually surfaces, the market reaction tends to be more severe, leading to sharper price declines. By focusing on this relationship, the research aims to provide insights into how ownership structures influence market stability in emerging economies with less diversified shareholder bases.

The phenomenon of stock price crashes poses significant risks to capital markets, particularly in emerging economies like *Indonesia*, where market volatility and information asymmetry are prevalent. While existing literature has extensively explored the relationship between corporate governance and stock price crash risk in developed markets, there remains a notable gap in understanding how ownership concentration influences such risks in *Indonesia*'s unique market context. Prior studies have primarily focused on dispersed ownership structures in Western economies, leaving the implications of concentrated ownership—common in *Indonesia*—understudied. This research gap is critical because concentrated ownership may exacerbate agency problems, leading to information hoarding and sudden price declines, yet empirical evidence specific to *Indonesia* is scarce. Addressing this gap is essential to provide a more nuanced understanding of how ownership structures interact with crash risk in emerging markets.

The urgency of this research is underscored by the increasing vulnerability of *Indonesia*'s capital market to external shocks and internal governance challenges. With a significant portion of listed companies controlled by a few major shareholders, the potential for opportunistic behavior and delayed disclosure of negative information is heightened. Such practices can destabilize investor confidence and market integrity, especially during crises like the COVID-19 pandemic. Understanding the role of ownership concentration in crash risk is not only academically pertinent but also practically vital for policymakers, regulators, and investors seeking to mitigate systemic risks. The study's findings could inform

regulatory frameworks aimed at enhancing transparency and protecting minority shareholders in *Indonesia's* equity market.

This study introduces novelty by examining the interplay between ownership concentration and stock price crash risk using two distinct proxies: negative coefficient of skewness (NCSKEW) and down-to-up volatility (DUVOL). Unlike prior research, which often relies on single metrics or focuses on broader performance indicators, this approach captures the multifaceted nature of crash risk. Additionally, the study contextualizes its analysis within *Indonesia's* unique corporate landscape, where family-owned and state-affiliated firms dominate, offering fresh insights into how concentrated ownership functions differently in emerging markets compared to developed ones. The inclusion of firm-specific controls and macroeconomic factors further enriches the analysis, providing a comprehensive view of crash risk determinants.

The primary purpose of this research is to empirically investigate whether concentrated ownership in *Indonesian* listed companies significantly affects stock price crash risk. By leveraging panel data from non-financial firms listed on the *Indonesia Stock Exchange* (IDX) between 2014 and 2023, the study aims to test the hypothesis that higher ownership concentration correlates with increased crash risk. The research also seeks to identify alternative factors—such as firm profitability, liquidity, and external shocks—that may play a more decisive role in influencing crash risk. Through this, the study strives to clarify the theoretical and practical implications of ownership structures in emerging markets, contributing to broader debates on corporate governance and market stability.

This research contributes to the academic literature by challenging conventional assumptions about the risks associated with concentrated ownership. While agency theory suggests that blockholder control may lead to information asymmetry and crash risk, the study's findings could reveal counterbalancing mechanisms, such as enhanced monitoring or long-term value preservation, prevalent in *Indonesia's* market. Practically, the study offers actionable insights for regulators aiming to design policies that mitigate crash risks without stifling ownership structures that may otherwise benefit corporate governance. For investors, the research highlights the importance of considering firm-specific characteristics and external factors when assessing crash risk, thereby aiding more informed decision-making.

The objectives of this study are threefold: first, to measure the impact of ownership concentration on stock price crash risk using robust empirical methods; second, to analyze the role of control variables in moderating this relationship; and third, to provide policy recommendations based on the findings. The benefits of this research extend to multiple stakeholders, including academics, who gain a deeper understanding of crash risk dynamics in emerging markets; practitioners, who can

apply the insights to risk management strategies; and policymakers, who may use the evidence to refine corporate governance regulations. Ultimately, the study aims to foster a more stable and transparent capital market environment in *Indonesia*, aligning with global efforts to enhance financial market resilience.

## RESEARCH METHOD

This study adopts a quantitative research design with a causal approach to examine the impact of ownership concentration on stock price crash risk in Indonesia. The unit of analysis consists of non-financial firms listed on the Indonesia Stock Exchange (IDX), observed over ten years from 2014 to 2023.

### Data and Sample

The data used are secondary data, including weekly stock return data obtained from Refinitiv and ownership structure data retrieved from S&P Capital IQ Pro. Additional firm-level data, such as firm size, ROA, and volatility, are also collected from these databases. The sample was selected using purposive sampling, applying the following criteria:

- Excludes firms in the financial sector due to differing financial characteristics and reporting formats.
- Excludes stocks listed on the special monitoring board, which typically include financially distressed or inactive firms.
- Excludes stocks with fewer than 30 trading weeks per year, to ensure sufficient data consistency and liquidity.

After applying these filters, the final sample consists of 504 firm-year observations over the ten years.

### Variables and Measurement

The dependent variable, stock price crash risk, is measured using two proxies commonly applied in prior literature:

- NCSKEW: Negative Coefficient of Skewness of firm-specific weekly returns
- DUVOL: Down-to-Up Volatility ratio of weekly returns.

These are calculated based on the residuals of the firm-specific returns after controlling for market return using a five-week window regression. Following this, firm-specific returns are transformed logarithmically to derive crash risk proxies.

The independent variable is ownership concentration, calculated as the combined shareholding percentage of each firm's top three shareholders. The model also includes a set of control variables, namely firm size, age, return on assets (ROA), volatility, asset growth, market-to-book ratio, turnover ratio, and a dummy for the COVID-19 pandemic period (coded as for years 2020 – 2022 and 0 otherwise).

### Research Model

To estimate the direct effect of ownership concentration on crash risk, the following panel regression model is used:

$$Risk_{i,t} = \alpha_0 + \alpha_1 Owner_{i,t} + \alpha Control_{i,t} + \varepsilon_{i,t}$$

Where:

- $Risk_{i,t}$ : the stock price crash risk for firm  $i$  at time  $t$  (proxied by NCSKEW and DUVOL)
- $Owner_{i,t}$ : ownership concentration
- $Control_{i,t}$ : vector of control variables
- $\varepsilon_{i,t}$ : error term

This model is adapted from Xu et al. (2025), with a methodological adjustment to use the top three shareholders instead of ten, following Desoky and Mousa (2013), which is considered more appropriate for Indonesia's market context, where ownership is highly concentrated and investor protection is relatively weaker.

### Data Analysis Techniques

The data are analyzed using panel data regression, which offers advantages in controlling individual firm effects, reducing omitted variable bias, and capturing both cross-sectional and time-series dynamics. Before model estimation, the study performs:

- Descriptive statistics to examine the distribution of variables and detect outliers.
- Classical assumption tests, including:
  - Multicollinearity test using Variance Inflation Factor (VIF)
  - Heteroskedasticity test using Breusch-Pagan/ Cook-Weisberg
  - Normality test using Shapiro-Wilk
- Model selection tests, including:
  - Chow test to compare pooled OLS and fixed effects
  - Lagrange Multiplier (LM) test to choose between pooled OLS and random effects
  - Hausman test to select between fixed and random effects models

Standard errors are adjusted using the robust option to account for any homoskedasticity or serial correlation violations to ensure robustness.

## RESULT AND DISCUSSION

This study investigates whether ownership concentration influences the risk of stock price crashes among non-financial firms listed on the Indonesia Stock Exchange. Two measures capture crash risk: the negative coefficient of skewness (NCSKEW) and down-to-up volatility (DUVOL). The results are obtained through a stepwise panel regression approach using the Common Effect Model (CEM), as validated by Chow and Lagrange Multiplier tests.

Descriptive statistics in Table 1 show that the average NCSKEW value across firms is -0,0719, indicating that returns tend to be negatively skewed, suggesting a left-tail crash risk. Likewise, the average DUVOL is -0,0482, which implies that downside volatility outweighs upside volatility for many firms. These



patterns reinforce findings by Kim et al. (2011), who noted that both measures capture distinct but complementary dimensions of crash risk stemming from asymmetric information accumulation.

Table 1. Descriptive Statistics of All Variables

| Variable      | Obs   | Mean   | Std. dev. | Min    | Max     |
|---------------|-------|--------|-----------|--------|---------|
| OWNER         | 3,583 | 0.918  | 0.113     | 0.336  | 1.000   |
| NCSKEW        | 3,583 | -0.072 | 1.086     | -6.198 | 7.034   |
| DUVOL         | 3,583 | -0.048 | 0.704     | -5.015 | 6.512   |
| Size          | 3,583 | 27.093 | 3.555     | 17.342 | 33.730  |
| Age           | 3,583 | 2.915  | 0.596     | 1.386  | 3.829   |
| ROA           | 3,583 | 0.036  | 0.125     | -3.540 | 0.944   |
| volatility    | 3,583 | 0.459  | 0.249     | 0.000  | 3.344   |
| growth        | 3,583 | 0.277  | 8.758     | -0.867 | 473.706 |
| MB            | 3,583 | 2.824  | 8.267     | 0.023  | 197.508 |
| turnover rate | 3,583 | 1.797  | 6.592     | 4E-07  | 160.323 |
| dummy_covid   | 3,583 | 0.350  | 0.477     | 0.000  | 1.000   |

Regarding ownership structure, the average concentration (OWNER) reaches 91,85%, with a minimum of 33.59% and a maximum of 100%. This confirms Indonesia's highly concentrated corporate ownership, consistent with prior studies in emerging markets such as Egypt and Kuwait (Al-Saidi & Al-Shammari, 2015; Desoky & Mousa, 2013). The dominance of controlling shareholders could theoretically provide both effective monitoring and room for opportunistic behaviour.

The expectation, derived from agency theory, is that firms with highly concentrated ownership are more likely to hoard bad news, increasing crash risk. Table 2 presents the regression results for both models (NCSKEW and DUVOL) using CEM with robust standard errors. In both models, OWNER shows a positive but statistically insignificant coefficient ( $p > 0,05$ ), indicating that concentrated ownership neither increases nor decreases crash risk meaningfully.

Table 2. Panel Regression Results: Ownership Concentration and Crash Risk

| Independent Variable | NCSKEW | Robust Std Error | DUVOL   | Robust Std Error |
|----------------------|--------|------------------|---------|------------------|
| Intercept            | -0.086 | 0.149            | -0.0813 | 0.108            |
| OWNER                | 0.015  | 0.163            | 0.0360  | 0.117            |

\*  $p < 0.10$

\*\*  $p < 0.05$

\*\*\*  $p < 0.001$

This finding fails to support Hypothesis 1, which posited that higher ownership concentration would increase crash risk due to the potential for bad-news hoarding. While the coefficient direction is positive, supporting the agency theory prediction (Y. Xu et al., 2021). The lack of statistical significance suggests that concentrated ownership may not be the primary driver of crash events in the Indonesian context.

The positive but insignificant coefficients can be interpreted as evidence that, while the direction of influence aligns with the hypothesized agency problem, a counterbalancing mechanism may exist. For instance, majority shareholders may

exercise their control to ensure stability, maintain long-term firm value, or preserve reputation, especially in family-controlled firms common in Indonesia. This is supported by Heflin and Shaw (2000) who argue that blockholder ownership can simultaneously reduce agency costs while reducing market liquidity due to the potential for informational advantages. However, they also find that block ownership does not always translate into direct price distortions, especially when markets adapt through wider spreads or when monitoring by blockholders offsets the risk of opportunistic behavior.

Moreover, this study's findings are in line with Ooghe and De Langhe (2002), who suggest that in countries with Continental European-style governance systems, such as Belgium and, similarly, Indonesia, ownership concentration is a regular feature of corporate structure and may serve a monitoring function rather than pose governance risk. Thus, the role of concentrated ownership in these systems may be structurally different from Anglo-American contexts where dispersed ownership prevails. In the Indonesian market, many listed firms are long-standing family-controlled or state-affiliated enterprises, where majority shareholders may prioritize long-term value preservation or political continuity over short-term opportunism. This institutional characteristic may partly explain why ownership concentration does not result in higher crash risk, despite theoretical expectations based on agency conflicts.

Beyond ownership structure, the regression results also reveal that several firm-level control variables have a more pronounced and statistically significant impact on crash risk. Several control variables that show significant effects, namely:

- Age and turnover rate exhibit negative and significant relationships with NCSKEW, suggesting that older and more liquid firms are less prone to sudden price crashes.
- ROA is negatively associated with DUVOL, confirming that more profitable firms face lower downside volatility.
- Dummy COVID is consistently significant and negative, indicating that during the pandemic period, crash risk decreased, likely due to heightened regulatory scrutiny, policy intervention, or investor risk aversion.

Table 3. Coefficients of Control Variables in Crash Risk Models

| Independent Variable | NCSKEW    | Robust Std Error | DUVOL     | Robust Std Error |
|----------------------|-----------|------------------|-----------|------------------|
| Intercept            | 0.350     | 0.238            | 0.194     | 0.159            |
| OWNER                | 0.046     | 0.164            | 0.049     | 0.117            |
| size                 | -0.003    | 0.005            | -0.002    | 0.003            |
| age                  | -0.062**  | 0.028            | -0.034*   | 0.019            |
| ROA                  | -0.288    | 0.177            | -0.262**  | 0.120            |
| volatility           | -0.144    | 0.896            | -0.108*   | 0.058            |
| growth               | -0.001*** | 0.000            | -0.002*** | 0.000            |
| MB                   | -0.001    | 0.002            | -0.001    | 0.002            |
| turnover rate        | -0.005**  | 0.002            | -0.004**  | 0.002            |
| dummy_covid          | -0.309*** | 0.037            | -0.180*** | 0.025            |
| Adj. R-squared       | 0.021     |                  | 0.020     |                  |

\* p < 0.10

\*\* p < 0.05

\*\*\* p < 0.001



These findings echo studies such as Huang & Liu (2021) and Kong et al.(2023), who report that market behavior shifts toward conservatism during crisis periods, reducing the probability of sudden crashes. From a theoretical standpoint, the results challenge the straightforward application of agency theory in explaining crash dynamics. They also highlight that macroeconomic shocks, firm fundamentals, and market mechanisms are more immediate determinants of crash risk in emerging markets.

## CONCLUSION

This study examined the relationship between concentrated ownership and stock price crash risk in *Indonesian* listed companies, employing panel data analysis from 2014 to 2023. The findings revealed that while ownership concentration exhibited a positive association with crash risk, the relationship was statistically insignificant, suggesting that concentrated ownership alone does not inherently amplify downside risk in *Indonesia*'s market. Instead, firm-specific factors such as profitability, liquidity, and firm age, along with external shocks like the COVID-19 pandemic, played more significant roles in influencing crash risk. These results challenge the conventional agency theory perspective, indicating that concentrated ownership in *Indonesia* may serve as a stabilizing mechanism rather than a source of opportunistic behavior. The study underscores the importance of contextualizing corporate governance theories within emerging market frameworks, where ownership structures and institutional dynamics differ markedly from those in developed economies. For future research, it would be valuable to explore the interplay between ownership concentration and other governance mechanisms, such as board independence, audit quality, or disclosure practices, to better understand their combined impact on crash risk. Additionally, expanding the sample to include financial firms or other emerging markets with similar ownership structures could provide comparative insights. Qualitative approaches, such as case studies or interviews with corporate insiders, could further elucidate the motivations behind information disclosure or withholding in concentrated ownership settings. Finally, investigating the role of regulatory interventions or market reforms in mitigating crash risk could offer practical recommendations for policymakers. Such endeavors would deepen the understanding of crash risk determinants and enhance the robustness of governance frameworks in emerging markets.

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