

DETERMINANTS OF FINANCIAL DISTRESS IN THE COAL INDUSTRY WITH CORPORATE GOVERNANCE AS A MODERATION

Anissa Indaranti Adhiningrum^{1*}, Dwi Prastowo Darminto², Rafrini Amyulianthy³

^{1,2,3}Master of Accounting, Faculty of Economics and Business, Universitas Pancasila, Jakarta, Indonesia

E-mail: ^{1*)}ranti795523008@univpancasila.ac.id, ²⁾maksiup007@gmail.com,
³⁾rafrini@univpancasila.ac.id

Submitted:
29 March 2026

Revised:
27 April 2026

Accepted:
21 May 2026

Abstract

This study examines the effects of financial performance, sales growth, and corporate governance on financial distress, as well as the moderating role of corporate governance in the coal industry in Indonesia. The population consists of 33 coal companies listed on the Indonesia Stock Exchange (IDX), with 21 companies selected using purposive sampling. The study uses secondary data with 105 observations from 2019–2023. Data were analyzed using Structural Equation Modeling–Partial Least Squares (SEM-PLS) with SmartPLS 4.0. The results show that financial performance and corporate governance significantly affect financial distress, while sales growth has no significant effect. In addition, corporate governance does not moderate the relationship between financial performance and financial distress, nor between sales growth and financial distress. These findings highlight the importance of financial management and governance mechanisms in mitigating financial distress risk in the coal industry.

Keywords: *Corporate Governance, Financial Distress, Financial Performance, Sales Growth*

1. INTRODUCTION

The coal industry remains one of the most important sectors in the global energy supply chain, particularly in developing countries where coal is still a dominant source of electricity generation. Despite the global transition toward renewable energy, coal continues to play a strategic role in supporting industrial activities and economic growth. However, this industry is also characterized by high volatility due to fluctuations in global commodity prices, environmental regulations, and geopolitical dynamics (Ng, 2024).

In the Indonesian context, the coal industry has a significant contribution to national economic performance, especially through export activities and non-oil and gas revenues. Indonesia is one of the largest coal exporters in the world and a key supplier to countries in

Asia. The contribution of the coal sector is reflected in the strong performance of the non-oil and gas trade balance, which consistently supports national economic stability (Arinaldo & Adiatma, 2019).

To illustrate this contribution, Indonesia's trade performance during 2019–2023 is presented in Table 1.

Table 1. Indonesian trade data 2019-2023

Information	in Millions of USD				
	2019	2020	2021	2022	2023
Revenue from the Oil and Gas Sector	(10.096,10)	(6.005,70)	(13.281,70)	(24.418,10)	(19.908,50)
Revenue from Non-Oil and Gas Sector	6.503,30	27.628,80	48.701,20	78.875,40	56.796,80
Balance of trade	(3.592,80)	21.623,10	35.419,50	54.457,30	36.888,30

Source: <https://satudata.kemendag.go.id/data-informasi/perdagangan-luar-negeri/neraca-perdagangan-Indonesia>

As shown in Table 1, the non-oil and gas sector consistently generated a surplus, helping to offset deficits in the oil and gas sector. This indicates that commodity-based industries, including coal, play a vital role in maintaining macroeconomic balance. Nevertheless, reliance on commodity exports also exposes companies to external risks that may affect their financial stability.

Despite its strategic importance, the coal industry faces increasing financial challenges. Several coal companies listed on the Indonesia Stock Exchange (IDX) have failed to publish their annual financial reports, resulting in trading suspensions and the risk of delisting. This phenomenon signals potential financial distress and reflects declining financial performance, weak transparency, and reduced investor confidence.

Financial distress is generally defined as a condition in which a company experiences a decline in financial performance that may lead to bankruptcy if not properly managed (Platt & Platt, 2002). It is a gradual process that begins with decreasing profitability and liquidity problems, eventually leading to an inability to meet financial obligations (Kristanti, 2019). Therefore, early detection of financial distress is crucial for companies to implement corrective actions and ensure business sustainability.

Previous studies have identified several factors influencing financial distress, including financial performance, sales growth, and corporate governance. Financial performance reflects the effectiveness of management in utilizing company resources to generate profits and maintain financial stability (Kasmir, 2014). Strong financial performance is often associated with a lower probability of financial distress.

Sales growth is another important indicator that reflects the company's ability to expand its market and increase revenue. A higher growth rate generally indicates better business prospects and operational success. However, rapid sales growth does not always guarantee financial stability, particularly when it is not supported by efficient cost management and adequate cash flow (Lubis & Patrisia, 2019).

Corporate governance also plays a critical role in determining a company's financial condition. Effective governance mechanisms help ensure transparency, accountability, and proper monitoring of management actions, thereby reducing agency conflicts and the risk of financial mismanagement (Agoes, 2012; Jensen & Meckling, 2019). Strong governance is expected to improve financial performance and reduce the likelihood of financial distress.

In addition to its direct effect, corporate governance is also expected to function as a moderating variable. It may strengthen or weaken the relationship between financial performance, sales growth, and financial distress by influencing managerial decisions and risk management practices. However, empirical findings on this moderating role remain inconsistent across studies. Although previous research has examined the determinants of financial distress, limited studies focus specifically on the coal industry in Indonesia, which has unique characteristics such as high capital intensity, exposure to global market fluctuations, and regulatory pressures. These conditions create a research gap that needs to be addressed to better understand the financial risks faced by companies in this sector.

Therefore, this study aims to analyze the effect of financial performance, sales growth, and corporate governance on financial distress, as well as to examine the moderating role of corporate governance in these relationships within the Indonesian coal industry. The findings are expected to provide insights for stakeholders in identifying early warning signals and developing strategies to mitigate financial distress risk.

The significant role of coal in supporting the Indonesian economy makes it a strategic and essential commodity. However, the industry is highly exposed to economic uncertainties, including fluctuations in commodity prices, regulatory changes, environmental pressures, and operational risks. These conditions may affect production and sales performance, leading to declining liquidity and increasing the likelihood of financial distress. Therefore, the ability of management to detect early warning signals and implement appropriate strategies is crucial to prevent potential bankruptcy.

Several coal companies listed on the Indonesia Stock Exchange (IDX) have failed to publish their annual financial reports, resulting in suspensions and the risk of delisting. This condition indicates financial difficulties and reflects deeper structural problems, such as declining profitability, liquidity constraints, and increasing leverage. It may also signal weaknesses in corporate governance, particularly in terms of transparency and accountability. The lack of financial disclosure reduces investor confidence and increases the risk of prolonged financial distress.

To further illustrate this condition, Figure 1 presents the Altman Z'-Score results for selected coal companies during the 2019–2023 period.

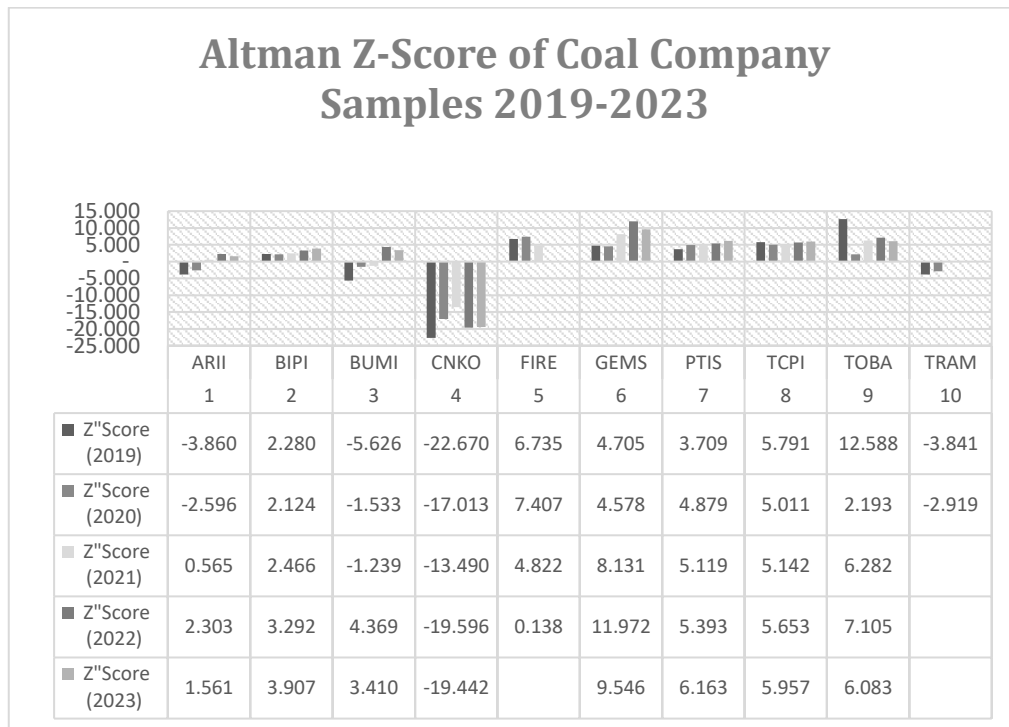


Figure 1. Altman Z^{''} Score calculation for a sample of coal companies in 2019-2023

Source: <https://www.idx.co.id/id/perusahaan-tercatat/laporan-keuangan-dan-tahunan>

Figure 1 shows that several companies, including ARII, BIPI, BUMI, CNKO, FIRE, and TRAM, are in the distress zone, indicating a high risk of financial difficulties. Among them, ARII, CNKO, FIRE, and TRAM are likely to experience severe financial distress, potentially leading to bankruptcy. Meanwhile, other companies such as GEMS, PTIS, TCPI, and TOBA remain in a relatively stable condition.

Although financial distress does not necessarily lead to bankruptcy, it serves as an early warning signal of financial instability. Therefore, understanding the factors influencing financial distress is essential for companies to maintain sustainability. This study examines the effects of financial performance, sales growth, and corporate governance on financial distress, as well as the moderating role of corporate governance in these relationships.

The significant role of coal in supporting the Indonesian economy makes it a crucial and strategic commodity. Therefore, it is crucial for coal industry companies to remain resilient amidst economic uncertainties such as commodity price fluctuations, climate conditions, government regulations, environmental impacts, and resource management. This economic uncertainty is highly susceptible to impacting a company's production and sales activities, leading to a decline in liquidity, ultimately leading to the possibility of financial distress. Management's responsiveness in detecting various indications that point to potential

financial distress and taking swift and appropriate alternative measures will help a company avoid the risk of bankruptcy.

Several coal industry companies have stopped publishing their annual financial reports on the IDX, resulting in suspensions and the threat of delisting. This indicates financial difficulties at the companies in question. The inability to meet reporting obligations reflects deeper financial problems, such as declining profitability, liquidity constraints, and increasing leverage. In addition, this condition may signal weaknesses in corporate governance practices, particularly in terms of transparency, accountability, and internal control mechanisms. The lack of timely financial disclosure not only undermines investor confidence but also reduces the credibility of the capital market as a whole. As a result, companies experiencing such conditions are more vulnerable to prolonged financial distress, which may ultimately lead to bankruptcy if not properly managed. Furthermore, the coal industry is highly sensitive to fluctuations in global commodity prices, regulatory changes, and environmental pressures, which further exacerbate financial risks.

Corporate governance may also function as a moderating variable that strengthens or weakens the relationship between independent and dependent variables. The typology of moderating variables can be classified into several categories, as illustrated in Figure 2.

	Related to Criterion and/or Predictor	Not Related to Criterion and Predictor
No Interaction with Predictor	(1) Predictor Moderation	(2) Homologizer Moderation
Has Interaction with Predictor	(3) Quasi Moderation	(4) Pure Moderation

Figure 2. Typology of moderating variable specifications

Figure 2 presents four types of moderating variables, namely predictor moderation, homologizer moderation, quasi moderation, and pure moderation (Ringle et al., 2015)

2. RESEARCH METHOD

This study employs a quantitative correlational research design to examine the relationships between financial performance, sales growth, corporate governance, and financial distress. In addition, this study investigates the moderating role of corporate governance in the relationship between financial performance, sales growth, and financial distress.

The population consists of 33 coal companies listed on the Indonesia Stock Exchange (IDX). This sector was selected due to its significant contribution to the national economy and its exposure to global energy transition pressures. The observation period spans 2019–2023, capturing financial dynamics during the COVID-19 pandemic, post-pandemic recovery, and fluctuations in global coal prices. A total of 21 companies were selected using purposive sampling based on data completeness and consistency, resulting in 105 observations.

Data were collected through documentation of annual financial reports obtained from the IDX and company websites. Financial distress was measured using the Altman Z"-Score model (Altman et al., 2017), which is formulated as:

$$Z'' = 3.25 + 6.56X1 + 3.26X2 + 6.72X3 + 1.05X4$$

where X1 represents working capital to total assets, X2 retained earnings to total assets, X3 earnings before interest and taxes to total assets, and X4 book value of equity to total liabilities.

Financial performance was proxied by profitability, solvency, liquidity, and activity ratios, while sales growth was measured using the Sales Growth Ratio as follows:

$$SGR = (Sales_t - Sales_{t-1}) / Sales_{t-1}$$

Corporate governance was measured using institutional ownership. Firm size and firm age were included as control variables.

Data analysis was conducted using Structural Equation Modeling–Partial Least Squares (SEM-PLS) with SmartPLS 4.0. The analysis included evaluation of the measurement model (validity and reliability) and structural model (hypothesis testing), including the testing of moderating effects.

3. RESULTS AND DISCUSSION

3.1 Results

The measurement model evaluation indicates that all constructs meet the required reliability and validity criteria. Cronbach's Alpha and Composite Reliability values exceed the acceptable thresholds, confirming internal consistency. Convergent validity is achieved as all indicator loadings are above 0.5, and discriminant validity is confirmed based on the Fornell-Larcker criterion and HTMT values below 0.90.

The structural model results show that financial performance has a significant positive effect on financial distress ($\beta = 0.607$; $p < 0.001$), while sales growth does not have a significant effect ($\beta = -0.044$; $p > 0.05$). Corporate governance has a significant effect on financial distress ($\beta = 0.290$; $p < 0.01$). However, corporate governance does not moderate

the relationship between financial performance and financial distress ($\beta = -0.179$; $p > 0.05$), nor between sales growth and financial distress ($\beta = 0.041$; $p > 0.05$).

Table 2. Hypothesis test results

Connection	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistik	P value	Decision
Financial Performance → Financial Distress	0.607	0.650	0.077	7.844	0.000	H _{a1} accepted
Sales Growth → Financial Distress	-0.044	-0.022	0.139	0.315	0.753	H _{a2} rejected
Corporate Governance → Financial Distress	0.290	0.286	0.089	3.260	0.001	H _{a3} accepted
Financial Performance x Corporate Governance → Financial Distress	-0.179	-0.244	0.109	1.644	0.100	H _{a4} rejected
Sales Growth x Corporate Governance → Financial Distress	0.041	0.067	0.119	0.341	0.733	H _{a5} rejected
Company Size → Financial Distress	-0.228	-0.229	0.070	3.272	0.001	accepted
Company Age → Financial Distress	0.021	0.020	0.064	0.327	0.743	rejected

Based on Table 2, financial performance has a significant effect on financial distress, while sales growth does not have a significant effect. Corporate governance significantly affects financial distress. However, corporate governance does not moderate the relationship between financial performance and financial distress, nor between sales growth and financial distress. In addition, firm size has a significant effect, while firm age does not have a significant effect.

The model explains 43.8% of the variance in financial distress (Adjusted R² = 0.438), indicating moderate explanatory power. The predictive relevance value (Q² = 0.451) confirms that the model has good predictive capability. Additionally, the results indicate no multicollinearity issues, as all VIF values are below the acceptable threshold.

Table 3. Results of the coefficient of determination test

Konstruk	R ²	Adjusted R ²
<i>Financial Distress</i>	0.476	0.438

The predictive relevance value ($Q^2 = 0.451$) confirms that the model has good predictive capability.

Table 4. Results of the predictive relevance test

Variabel Dependen	Q^2	Keterangan
<i>Financial Distress</i>	0.451	Memiliki <i>predictive relevance</i>

3.2 Discussion

Financial performance significantly influences financial distress, indicating that companies with better financial management are less likely to experience financial difficulties. Strong profitability, liquidity, and solvency contribute to maintaining financial stability and reducing bankruptcy risk. This finding is consistent with previous studies (Dewi & Purwanti, 2023; Gültekin & Sayılğan, 2024).

Sales growth does not significantly affect financial distress, suggesting that increased revenue does not necessarily guarantee financial stability. This may occur when revenue growth is not supported by efficient cost management or strong cash flow. This finding aligns with prior research (Natalia & Sha, 2022). Corporate governance significantly affects financial distress, highlighting the importance of effective monitoring and control mechanisms in reducing financial risk. Strong governance structures can minimize agency conflicts and improve transparency (Jonnardi et al., 2023; Maronrong et al., 2022).

However, corporate governance does not moderate the relationship between financial performance and financial distress, nor between sales growth and financial distress. This suggests that governance mechanisms may be less effective in mitigating external risks, particularly in industries highly influenced by global market fluctuations such as the coal sector.

Firm size has a significant effect on financial distress, indicating that larger firms tend to have better access to resources and financing, which reduces financial risk. Meanwhile, firm age does not significantly affect financial distress, suggesting that experience alone does not guarantee financial stability.

4. CONCLUSION

This study shows that financial performance and corporate governance play an important role in influencing financial distress, while sales growth does not appear to have a significant impact. In addition, corporate governance is not found to strengthen or weaken the relationship between financial performance and financial distress, nor between sales growth and financial distress. These findings suggest that the internal condition of the company, particularly its financial management and governance practices, is more critical in determining financial stability than external indicators such as sales growth. In the context

of the coal industry, which is highly exposed to external uncertainties, strong financial fundamentals and effective governance mechanisms become key factors in reducing financial distress risk. However, this study is limited by the relatively small sample size and its focus on a single industry. Future research may consider incorporating additional variables, expanding the observation period, and examining different sectors to provide a more comprehensive understanding of financial distress.

REFERENCES

- Agoes, S. (2012). Auditing: Practical instructions for the examination of an accountant by a public accountant.
- Arinaldo, D., & Adiatma, J. C. (2019). Indonesia's Coal Dynamics: Towards a Just Energy Transition. Jakarta: Institute for Essential Services Reform (IESR).
- Dewi, R. K., & Purwantini, A. H. (2023). Literasi dan Inklusi Keuangan, serta Keterampilan Akuntansi untuk Keberlanjutan UMKM (Financial Literacy and Inclusion, as well as Accounting Skills for MSME Sustainability). *Akuntansi Bisnis & Manajemen (ABM)*, 30(2).
- Gültekin, İ., & Sayılğan, G. (2024). Investigating the Role of Firm Life Cycle on Financial Distress: Evidence from Borsa Istanbul. *Anadolu Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi*, 25(2), 215–236.
- Jensen, M. C., & Meckling, W. H. (1919). Theory of the firm: Managerial behavior, agency costs and ownership structure. In *Corporate governance* (pp. 77–132). Gower.
- Jonnardi, J., Bangun, N., & Natsir, K. (2023). The Determinants of Company's Financial Distress. *International Journal of Application on Economics and Business*, 1(3), 1613–1624.
- Kasmir, Y. (2014). Pengantar Manajemen Keuangan. Jakarta: Rajawali Pers. Jakarta: .
- Kristanti, F. T. (2019). Financial distress theory and its development in the Indonesian context. Malang: Inteligencia Media.
- Lubis, N. H., & Patrisia, D. (2019). The Effect of Activity Ratio, Leverage and Firm Growth on Financial Distress (Empirical Study on Manufacturing Companies Listed on the IDX for the Period 2013-2017). *Jurnal Kajian Manajemen Dan Wirausaha*, 1(1), 173–182.

- Maronrong, R., Suriawinata, I. S., & Septiliana, S. (2022). The Influence of Profitability, Leverage, Operating Capacity and Corporate Governance on Financial Distress of Retail Companies on the IDX in 2011-2017. *Jurnal Akuntansi Dan Manajemen*, 19(02), 91–103.
- Natalia, C., & Sha, T. L. (2022). The Effect of Liquidity, Leverage, Profitability, and Sales Growth on Financial Distress. *Jurnal Paradigma Akuntansi*, 4(1), 40–49.
- Ringle, C., Da Silva, D., & Bido, D. (2015). Structural equation modeling with the SmartPLS. Bido, D., Da Silva, D., & Ringle, C.(2014). Structural Equation Modeling with the Smartpls. *Brazilian Journal Of Marketing*, 13(2).