

FACTORS AFFECTING FINANCIAL DISTRESS: EVIDENCE FROM INDONESIA

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ABSTRACT

This study analyzes the impact of various factors on financial distress in Indonesian companies, focusing on profitability, institutional ownership, firm size, firm age, interest expense, dividend payout, retained earnings, and the COVID-19 pandemic. The objective of the research was to understand the effects of those internal and external factors before crisis, during crisis and post crisis. Data from companies listed on the Indonesia Stock Exchange (excluding the financial sector) from 2013 to 2022. The numbers of the sample based on the criteria were 691 companies, which makes 6132 observation points in total as the sample for this research. The sample was analyzed using logistic regression to determine the relationship between these variables and financial distress. The study found that profitability significantly reduces the likelihood of financial distress, while firm size, firm age, high interest expenses, high retained earnings, and the COVID-19 pandemic significantly increase the likelihood of financial distress. Based on the findings, this study analyzed the impact of a company's condition during a crisis and the effect of external factors on the probability of financial distress and its impact on the company. The study can be used as a basis for company planning under external pressure conditions, considering the possibility of future events like pandemics or other crises.

Keywords: Financial Distress; Profitability; Firm Size; Interest Expense; COVID-19

INTRODUCTION

Capital markets play a crucial role in a country's economy as a primary source of financing for companies. Various factors can affect a company's financial performance, potentially leading to financial distress, a stage of financial decline before bankruptcy or liquidation (Dirman, 2020). In Indonesia, many companies listed on the Indonesia Stock Exchange (IDX) are influenced by various external and internal factors affecting their financial stability.

Internal factors such as profitability, corporate governance (institutional ownership), firm size, and firm age significantly impact a company's financial health. Profitability measures how efficiently a company uses its assets and manages its operations (Ross et al., 2023). Good corporate governance ensures transparency and accountability in a company's operations, creating added value for stakeholders (Mayda & Serly, 2021). Firm size indicates financial strength by reflecting the company's asset base (Yadav et al., 2022), while firm age provides insight into the company's experience and stability (Serolin, 2023).

On the other hand, external factors like the COVID-19 pandemic have significantly impacted the global economy, especially companies in Indonesia. Social restrictions and reduced economic activity during the pandemic increased the risk of financial distress for many companies (Mulyaningsih et al., 2021). The pandemic exerted substantial pressure on the Indonesian economy, resulting in negative growth for the first time since the 1998 monetary crisis.

The negative growth, indicated by a 2.07% GDP decline in 2020 (The World Bank, 2021), highlights the severe impact of the COVID-19 pandemic. Unemployment rates surged as many companies reduced their workforce or ceased operations entirely. This economic downturn underscores the pandemic's extensive influence on Indonesia's corporate sector and broader economy.

After the pandemic occurs company need to be more prepared to the instability of the externally pressured condition that affect the market landscape and social condition of Indonesia. During 2022 until 2024 Indonesia still recovering from the post COVID-19 conditions as many of the companies fall into the financial distress condition and still struggling with maintain its operational and financial condition.

This research will analyze the impact of these internal and external factors on financial distress among all companies in Indonesia. By examining an extended period, this study aims to provide comprehensive insights into how these factors influence a company's financial performance. It also seeks to assist companies and stakeholders in formulating better financial risk mitigation strategies.

LITERATURE REVIEW

Profitability

Profitability ratios are used to assess a company's ability to generate profits within a certain period. Profitability indicates how efficiently a company uses its assets and manages its operations (Ross et al., 2023). It is a key indicator of company performance, encompassing all revenues and expenses incurred over time. High profitability enhances shareholder welfare and attracts investor interest (Dirman, 2020).

Return on Assets (ROA) is calculated by dividing net income by total assets. It measures the net profit generated from each unit of capital invested in total assets, reflecting a company's ability to maximize asset use. Analyzing ROA helps assess a company's profitability and

operational effectiveness. A high and consistent ROA indicates financial stability, ensuring the company can cover debts and unexpected expenses, while a low ROA increases financial risk (Giovanni & Djashan, 2023).

Low profitability is often due to inefficiencies in operating assets to generate profits, potentially leading to losses and financial distress (Purwaningsih & Safitri, 2022). Research by Habibi & Utami (2022), Giovanni & Djashan (2023), and Minanari (2022) indicates that higher profitability reduces financial distress risk by demonstrating effective asset use. Conversely, studies by Purwaningsih & Safitri (2022) and Bukhori et al. (2022) show that higher profitability can increase the likelihood of financial distress, as low EBIT relative to total assets indicates poor asset utilization. Therefore, despite some studies showing profitability reduces financial distress, my results indicate that higher profitability has a negative impact, increasing the probability of financial distress.

Institutional Ownership

Institutional ownership is a corporate governance mechanism that can reduce agency problems between owners and managers, aligning the interests of both parties. It represents the percentage of shares owned by legal entities or financial institutions such as insurance companies, pension funds, mutual funds, banks, and other institutions.

Institutional ownership can mitigate agency conflicts as institutional shareholders help oversee the management's performance. Effective corporate governance maximizes company performance, involving relationships among management, the board, owners, shareholders, and other stakeholders. Institutional ownership is vital in enhancing oversight of management performance, thereby minimizing the potential for financial distress (Azizah & Lismawati, 2024).

Research by Anggraeni et al. (2024), Handriani et al. (2021), Manzanegue et al. (2016), and Sewpersadh (2022) shows that institutional ownership negatively correlates with the likelihood of financial distress. A higher number of directors in manufacturing firms may reduce financial distress (Anggraeni et al., 2024).

Firm Size & Firm Age

Firm size is understood as the total assets owned by a company. It can be measured using two variables: Total assets and net sales. Total assets include current assets, net property, plant and equipment, and non-current assets (such as intangible assets, deferred charges, and investments). Net sales refer to company revenues after deducting sales discounts, returns, and allowances (Yadav et al., 2022).

Measuring firm size by calculating a company's total assets can serve as an indicator of the company's scale. A large total asset base signals to creditors that the company can repay its debts. Smaller companies, with fewer total assets, face more challenges in securing external funding compared to larger companies. Other factors to consider regarding firm size include market recognition, connectivity, and funding sources, where smaller companies typically struggle with limited access to these factors. The difficulty in obtaining external funding is a factor that can increase the likelihood of financial distress (Anggraeni et al., 2024).

Research by Anggraeni et al. (2024) indicates that companies with larger total assets have a lower likelihood of financial distress. This finding aligns with previous research by Isayas (2021), which suggests that larger companies are in a better financial position and less likely to face bankruptcy. However, contrasting research by Christy & Natalylova (2023) shows that firm size positively influences the likelihood of financial distress. They argue that larger total assets imply greater burdens for the company to manage. This is supported by Dirman (2020),

who states that larger total assets increase the company's obligations, potentially affecting financial distress risk.

Firm age is the duration from a company's founding to an indefinite point in time. Older companies generally possess advantages in information and experience compared to younger firms, having accumulated operational hours and experience over the years (Serolin, 2023). Firm age can be calculated using different terminologies. One method measure from the company's founding date to the present, while another calculates the time from the company's Initial Public Offering (IPO) to the present (Kieschnick & Moussawi, 2018).

Interest Expense

Interest expense is the cost incurred by a company for borrowing funds. This debt can take the form of direct loans, bonds, or other types of loans. Interest is separate from the principal amount of the debt. It is defined as the profit or cost earned by the creditor for the use of money by the debtor. Interest is generally expressed as a percentage per year of the borrowed amount or capital.

The interest expense is the cost a company incurs for using funds provided by creditors. Interest expenses are closely related to the company's debt usage. Companies with substantial debt generally have high interest expenses. If not properly maintained, the company can be categorized as experiencing financial distress, potentially leading to default. Research by Purwaningsih & Safitri (2022) shows that a high Debt to Equity Ratio (DER) does not significantly impact the likelihood of financial distress. This contrasts with the study by Habibi & Utami (2022), which found that DER significantly affects financial distress. A high DER or high leverage indicates a larger amount of debt relative to equity, increasing the company's financial obligations and interest expenses.

According to Giovanni & Djashan (2023), high leverage translates to high interest expenses. Interest expenses affect the company's financial burden, especially during periods of reduced profitability, such as the COVID-19 pandemic. High interest expenses can hinder the company's cash flow and reduce its ability to meet financial obligations. This financial strain can make it challenging for the company to operate and fulfill other financial commitments.

Dividend Payout

Dividend payout is a portion of a company's profits distributed to its shareholders. Dividends are drawn from the company's retained earnings (Adiwibowo et al., 2023). Dividend payout influences investors' willingness to invest in a company. A good dividend policy, which decides whether retained earnings will be distributed as dividends or kept for future investment funding, can increase the likelihood of attracting more investments (Antika et al., 2018). The decision to pay dividends affects other aspects that can lead to financial distress. According to Ali et al. (2017), companies that stop paying dividends experience declines in profitability, asset growth, and increased financial problems. Conversely, companies that continue to pay dividends tend to be more profitable and have higher retained earnings.

Research by Antika et al. (2018) indicates that an easy way to identify if a company is in good financial health or distress is by observing its dividend payments. Companies often omit dividends when facing financial distress. During crises, firms tend to take conservative actions by retaining earnings as reserve cash instead of distributing them as dividends to ensure financial stability and prepare for future financing needs (Farooq et al., 2023). The COVID-19 pandemic led to significant changes in dividend policies, with many companies, such as those in Morocco, substantially reducing or entirely withholding dividend payments due to economic instability.

Retained Earnings

Retained earnings represent the amount of money the company can use at any time for capital expenditures or to support its operations. A company's retained earnings is one of the long-term financial strategies that can be used by companies' management to decide how much earnings will be paid out as against retaining them for investment in the company. The use of retained earnings will decide how much of the proportion that will be given as dividend payment and how much will be reinvested back to the company (Mulekano & Miroga, 2023). Retained earnings are classified as shareholders' funds or equity on the balance sheet (Lawal et al., 2022). Retained earnings, theoretically, represent the company's accumulated profits and can be categorized as the company's cash reserves. Retained earnings can be used for internal funding needs, operational expenses, and reinvestment back into the company (Anggraeni et al., 2024; Chabachib et al., 2019). According to Anggraeni et al. (2024), retained earnings negatively correlate with the likelihood of financial distress. Companies with substantial retained earnings (cash reserves) are less likely to experience financial distress because they do not need to seek external funding, which reduces expenses like interest costs and positively impacts cash flow.

Research by Li et al. (2020) supports this, indicating that companies with significant retained earnings can better cope with financial changes, reducing the risk of financial distress. This internal buffer helps manage the company's financial stability, lowers the risk of bankruptcy, and reduces funding costs associated with debt.

Pandemic COVID-19

COVID-19, caused by the novel coronavirus SARS-CoV-2, significantly impacted economic conditions and business operations. The economic impact of pandemic will be massive and uncertain, with different effects expected on labor markets, production supply, supply chains, financial markets, small medium enterprises, and GDP levels will all be affected. The negative effects may vary by the stringency of the social distancing measures (e.g., lockdowns and related restrictions), their length of social distancing measure, and the degree of compliance, it will affect the market from the top to bottom of the chains (Brodeur et al., 2021). The pandemic disrupted operations, reduced profitability, and altered the market landscape. Companies faced financial difficulties as operations were hindered, consumer conservatism reduced profitability, and cash shortages increased the risk of debt default. Additionally, operational disruptions were exacerbated by regulatory restrictions and protocols necessary for businesses to continue operating (Giovanni & Djashan, 2023).

The pandemic led to a substantial decline in economic growth, with Indonesia experiencing a contraction of -5.32% in the second quarter of 2020, down from 2.97% growth in the first quarter. The transportation sector was particularly affected, with reduced demand for passenger and freight transport. Government policies to control transportation further decreased operations, impacting revenues significantly (Saputra et al., 2022).

The COVID-19 pandemic significantly impacted Indonesia's economy. Economic activity declined due to large-scale restrictions and lockdown regulations, affecting many industries that support the country's economic growth (Hafsari & Setiawanta, 2021). Research by (Habibi & Utami, 2022) showed that the pandemic did not significantly impact the likelihood of financial distress in the manufacturing sector, as these companies are primarily business-to-business and integral for supplying medical equipment to address the pandemic.

Conversely, research by Paulina & Ida (2022) on the aviation industry's bankruptcy due to COVID-19 found that three out of four studied companies went bankrupt. This was driven by mass restrictions and lockdowns, which severely impacted transportation, limiting capacity

to 50%. This drastically reduced profitability and sales while maintaining high costs. Rahman (2022) found that the COVID-19 pandemic increased the number of companies experiencing financial distress.

Financial Distress

Financial distress is a condition where a company faces significant financial difficulties, occurring before bankruptcy or liquidation (Dirman, 2020). Failure in these aspects can deepen financial trouble. Financial distress can be caused by cash flow problems, matured markets, new competitors, technological advancements, management malfunctions, and products at the end of their lifecycle (Sewpersadh, 2022).

According to Altman et al. (2019), financial distress terminology includes:

1. Failure: Economic failure occurs when the realized rate of return on an investment significantly lags similar investments considering associated risks. This indicates a failure to meet market expectations.
2. Insolvency: This represents a condition where a company cannot meet its financial obligations on time, indicating cash flow or liquidity deficits. Balance sheet insolvency occurs when total liabilities exceed total assets, signaling significant financial issues.
3. Default: This occurs when a debtor violates agreements with creditors. Technical default involves breaching contract provisions, usually leading to renegotiations rather than immediate debt repayment, signaling declining performance.
4. Bankruptcy: This occurs when a company's liabilities exceed its assets, and the company has legally declared bankruptcy through the court.

RESEARCH METHOD

Data

The study population includes a total of 691 companies listed on IDX. This comprehensive population selection ensures that the research findings can be generalized to all listed companies in Indonesia, achieving objectivity and fair representation. For this research, the procedure was identified and gathered all the companies' data that fulfilled the inclusion criteria. The selection was based on data availability, with the sample taken from S&P Capital IQ covering a 10-year period from 2013 to 2022, resulting in a total sample of 6,132 observations. Based on those observation points, all independent and dependent values were gathered. A descriptive analysis was then conducted on the samples to understand the characteristics of the samples. Classical assumption tests were also conducted to ensure the validity of the logistic regression model. Observation points were processed and calculated using statistical software named STATA. This study employs a quantitative research design using logistic regression to determine the relationship between independent variables and financial distress as the dependent variable. This design choice is based on the aim to examining the impact of various factors on financial distress

Empirical Model

$$FD = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_5X_6 + \beta_5X_7 + \beta_5X_8 + d_t + n_i + u_{it}$$

Where:

FD = Probability of a company experiencing financial distress

β_0 = Constant

$\beta_1- \beta_5$ = Coefficient of independent variables

X_1	= Profitability
X_2	= Institutional ownership
X_3	= Firm size
X_4	= Firm age
X_5	= Interest expense
X_6	= Dividend payout
X_7	= Retained Earnings
X_8	= Pandemic COVID-19
d_t	= Time effect
n_i	= Individual effect
u_{it}	= random disturbance

RESULTS AND DISCUSSIONS

Descriptive Statistic

The table below displays the statistical descriptive data for each variable in this study:

Table 1. Descriptive Statistic

Variable	Obs	Mean	Std. dev	Min	Max
RoA	6.132	4.291345	6.777579	-15.435	32.644
IO	6.132	5.074553	8.992713	0	50.017
COV	6.132	0.3250163	0.4684191	0	1
Firmsize	6.132	11.81401	1.800403	7.315537	15.79258
DIV	6.132	0.3988911	0.4897102	0	1
FINEXP	6.132	-0.0203513	0.0208887	-0.105497	0
RE	6.132	0.0130331	0.6519157	-4.305987	0.7617144
AGE	6.132	3.283918	0.6886707	1.386294	5.293305
FD	6.132	0.4629811	0.4986684	0	1

Table 2. Robust Logistic Regression Test

Variable	Coefficient	Robust Standard Error	Z	P> z
RoA	-0.21857	0.0179	-12.02	0.000
IO	-0.02919	0.0084	0.35	0.728
COVID-19	0.69694	0.1515	4.6	0.000
FirmSize	0.32031	0.0601	5.33	0.000
DIV	0.16028	4.2025	1.03	0.303
FINEXP	14.8327	1.2737	3.53	0.000
RE	20.3272	0.1593	15.96	0.001
AGE	0.52891	0.8934	3.32	0.000

The regression results show that ROA has a significant negative impact on financial distress, with a coefficient of -0.21857 and a p-value of 0.000. This indicates that higher profitability reduces the likelihood of financial distress, demonstrating that more profitable companies are financially stable and better able to meet their financial obligations. A high ROA suggests efficient asset management and profitability, leading to a lower risk of financial distress. This finding is supported by previous studies, such as Digdowiseiso & Ningrum (2022), which found that ROA negatively affects financial distress in the food and beverage sector.

Institutional ownership (IO) does not significantly affect the likelihood of financial distress in this research, IO factor got coefficient factor of -0.02919 and a p-value of 0.728. This result indicates that the proportion of shares held by institutions is not strong enough to

influence the financial stability of companies. The lack of significant impact suggests that changes in institutional ownership do not significantly relate to financial distress within the sample studied. This finding differs from previous research, possibly due to sample variations, time periods, or analytical methods used.

Firm size has a significant positive impact on the likelihood of financial distress, with a coefficient of 0.32031 and a p-value of 0.000. Larger companies are more prone to financial distress due to increased operational complexity and higher debt levels. Larger firms often have higher operational costs and face greater financial obligations, increasing the risk of financial distress. This finding is consistent with research by Christy & Natalylova (2023) which also found that larger firms are more likely to experience financial distress.

Firm age shows a significant positive impact on the likelihood of financial distress, with a coefficient of 0.52891 and a p-value of 0.001. Older companies may struggle to maintain operational and managerial sustainability, often sticking to outdated business models that cannot compete in dynamic markets. High legacy costs can also contribute to financial distress. This finding aligns with, which noted that companies in the declining stage of their lifecycle face greater challenges in securing funding and maintaining market value.

Interest expense has a significant positive impact on the likelihood of financial distress, with a coefficient of 14.8327 and a p-value of 0.000. High-interest expenses increase the financial burden on companies, making them more susceptible to financial distress if not managed properly. High-interest expenses can significantly impact a company's cash flow and financial health, particularly if disproportionate to revenue. This finding is consistent with previous research, which showed that high-interest expenses are associated with increased financial distress.

Dividend payout does not significantly affect the likelihood of financial distress, with a coefficient of 0.16028 and a p-value of 0.303. This result indicates that dividend policy does not have a strong impact on the financial stability of companies. The complexity of the dividend policy's impact on financial distress depends on the company's overall financial strategy and market conditions.

Retained earnings have a significant positive impact on the likelihood of financial distress, with a coefficient of 20.3272 and a p-value of 0.001. Companies with large, retained earnings may struggle to manage cash reserves effectively, leading to financial distress. This finding contrasts with previous studies like Anggraeni et al. (2024), which found a negative relationship between retained earnings and financial distress, suggesting that effective management of retained earnings can reduce financial distress risk.

The COVID-19 pandemic has a significant positive impact on the likelihood of financial distress, with a coefficient of 0.69694 and a p-value of 0.000. The pandemic significantly increased the likelihood of financial distress due to restrictive policies that hampered economic activity. This finding supports the hypothesis that the pandemic had a substantial adverse impact on corporate financial health, as noted by Paulina & Ida (2022) and Rahman (2022), who observed increased financial distress among companies during the pandemic.

Then, institutional ownership and dividend payout does not significantly affect the likelihood of financial distress. Overall, the regression analysis shows that internal factors like profitability, retained earnings, and firm age, as well as external factors like the COVID-19 pandemic, significantly impact the likelihood of financial distress. Firm size and interest expenses also play important roles, while institutional ownership and dividend policy do not show significant effects. These findings highlight the importance of effective financial management and adaptability to external conditions in maintaining corporate financial stability.

External factors, such as the pandemic, significantly impact companies in various ways. During the research period, many companies fell into financial distress, largely due to the decline in economic activities, circuit breakers, and disruptions to the supply chain. This aligns with existing theories and previous research, which suggest that pandemics exert substantial pressure on companies' financial conditions, increasing the risk of financial distress. This vulnerability is particularly evident in Indonesia, where many companies operate in labor-intensive sectors such as automotive, textiles, and raw materials. The lack of preparedness in these sectors exacerbates their susceptibility to financial instability during crises.

Companies must become more resilient to market instability and external pressures. The rapidly changing policies during crises highlight the need for companies to strengthen their operations and better prepare for future challenges. In the aftermath of external crises, companies should recognize the inadequacies in their operations and take steps to enhance their ability to withstand market volatility, especially in the retained.

CONCLUSION

This study found that internal factors such as profitability significantly reduce the likelihood of financial distress, indicating that more profitable companies tend to be financially stable. Conversely, factors such as firm size, firm age, high interest expenses, high retained earnings, and the COVID-19 pandemic significantly increase the likelihood of financial distress. Having large, retained earnings and extensive operational experience does not guarantee that a company can avoid financial distress. These findings highlight the importance of effective financial management to mitigate financial difficulties in Indonesian companies.

To reduce the risk of financial distress, companies should focus on increasing profitability through operational efficiency and better asset management. Maintaining sufficient retained earnings and using them efficiently is crucial for financial stability, especially during crises like the COVID-19 pandemic. Large companies need to manage interest expenses and debt to avoid excessive financial burdens. Implementing good corporate governance by strengthening the role of institutional owners in management oversight can also help reduce the risk of financial distress. Governments and regulators should continue to support policies that help companies adapt and survive challenging economic conditions.

Future research should consider adding other variables that may influence financial distress, such as leverage, liquidity, technological innovation, and government policies. This will provide a more comprehensive understanding of the factors affecting financial distress. Subsequent studies can also use different financial distress prediction models, such as the Altman Z-Score, Springate, and Zmijewski models, to validate the results and determine if there are significant differences in findings using different models.

For regulators and policymakers, the priority during a crisis should be the survival of companies. The experience during COVID-19 revealed that government actions were often inadequate due to a lack of experience in managing such crises. Moving forward, it is imperative that policies are designed to keep the economy functioning. Future research suggests that during crises, the government and policymakers should consider measures such as halting interest tax and providing relief to companies as keeping the need of the companies first will provide safety net for Indonesian government and keep a lot of families a float by reducing the possibilities of lay off as one of the companies' ways to eliminate the weight of companies operational.

REFERENCES

- Adiwibowo, A. S., Rohmah, D. S., & Nurmala, P. (2023). The role of financial distress on company life cycle and stock return. *JAK: Kajian Ilmiah Akuntansi*, 10(2), 283–295. <https://doi.org/10.30656/jak.v10i2.6222>
- Ali, I., Gohar, A., & Meharzi, O. (2017). Why do firms change their dividend policy?. *International Journal of Economics and Financial Issues*, 7(3), 411–422.
- Altman, E. I., Hotchkiss, E., & Wang, W. (2019). *Corporate financial distress, restructuring, and bankruptcy*. Wiley Online Library. <https://doi.org/10.1002/9781119541929.ch1>
- Anggraeni, T., Hady, H., & Nalurita, F. (2024). Financial distress, what factors affect it?. *Gema Wiralodra*, 15(1), 449–458. <https://doi.org/10.31943/gw.v15i1.666>
- Antika, D. P., Fatekurohman, M., & Anggraeni, D. (2018). Analisis hubungan antara financial distress dan keputusan kebijakan dividen omisi perusahaan manufaktur. *Journal Mathematics and Applications*, 15(1), 41–54. <http://dx.doi.org/10.12962/limits.v15i1.3390>
- Azizah, S., & Lismawati, L. (2024). The effect of financial performance on financial distress. *Jurnal Ilmiah Akuntansi Kesatuan*, 12(1), 167–178. <https://doi.org/10.37641/jiakes.v12i1.2470>
- Brodeur, A., Gray, D., Islam, A., & Bhuiyan, S. (2021). A literature review of the economics of COVID-19. *Journal of Economic Surveys*, 35(4), 1007–1044. <https://doi.org/10.1111/joes.12423>
- Bukhori, I., Kusumawati, R., & Meilani, M. (2022). Prediction of financial distress in manufacturing companies: Evidence from Indonesia. *Journal of Accounting and Investment*, 23(3), 588–605. <https://doi.org/10.18196/jai.v23i3.15217>
- Chabachib, M., Kusmaningrum, R. H., Hersugondo, H., & Pamungkas, I. D. (2019). Financial distress prediction in Indonesia. *WSEAS Transactions on Business and Economics*, 16(1), 251–260.
- Christy, V., & Natalylova, K. (2023). Pengaruh operating cash flow dan faktor pendukung lainnya terhadap financial distress. *Media Bisnis*, 15(1), 11–26. <https://doi.org/10.34208/mb.v15i1.1812>
- Digdowniseiso, K., & Ningrum, I. S. (2022). The effects of total asset turnover, return on assets, and sales growth on financial distress in food and beverage companies over the period 2016-2020. *Budapest International Research and Critics Institute (BIRCI-Journal): Humanities and Social Sciences*, 5(2), 12046–12058. <https://doi.org/10.33258/birci.v5i2.5042>
- Dirman, A. (2020). Financial distress: The impacts of profitability, liquidity, leverage, firm size, and free cash flow. *International Journal of Business, Economics and Law*, 22(1), 17–25.
- Farooq, M., Hunjra, A. I., Ullah, S., & Al-Faryan, M. A. S. (2023). The determinants of financial distress cost: A case of emerging market. *Cogent Economics and Finance*, 11(1), 1–22. <https://doi.org/10.1080/23322039.2023.2186038>

- Giovanni, S. A., & Djashan, I. A. (2023). Operating capacity, profitability, debt ratio, dan likuiditas berdampak kepada financial distress di masa pandemi COVID-19. *Jurnal Manajemen TSM*, 3(1), 1–14. <http://dx.doi.org/10.34208/ejmtsm.v3i1.1885>
- Habibi, H. F., & Utami, W. (2022). Study of COVID-19 pandemic, financial ratios, and macroeconomic impact on financial distress in Indonesian manufacturing firms traded on the Indonesian stock exchange. *International Journal of Economics, Business, and Entrepreneurship*, 5(2), 98–108. <http://dx.doi.org/10.23960/ijebe.v5i2.202>
- Hafsari, N. A., & Setiawanta, Y. (2021). Analisis financial distress dengan pendekatan altman pada awal COVID-19 di Indonesia (studi empiris perusahaan transportasi dan logistik periode 2019). *Jurnal Akutansi dan Pajak*, 22(1), 394–403 <http://dx.doi.org/10.29040/jap.v22i1.2309>
- Handriani, E., Ghozali, I., & Hersugodo, H. (2021). Corporate governance on financial distress: Evidence from Indonesia. *Management Science Letters*, 11, 1833–1844. <https://doi.org/10.5267/j.msl.2021.1.020>
- Isayas, Y. N. (2021). Financial distress and its determinants: Evidence from insurance companies in Ethiopia. *Cogent Business and Management*, 8(1), 1–16. <https://doi.org/10.1080/23311975.2021.1951110>
- Kieschnick, R., & Moussawi, R. (2018). Firm age, corporate governance, and capital structure choices. *Journal of Corporate Finance*, 48, 597–614. <https://doi.org/10.1016/j.jcorpfin.2017.12.011>
- Lawal, J. J., Akinrinola, O. O., Ekperiware, C. M., & Ogbogbo, O. G. (2022). The impact of retained earnings on the financial growth of pension fund administrator (PFA) companies in Nigeria. *CJSMS*, 7(1), 54–78. <https://doi.org/10.26772/CJSMS202>
- Li, Y., Li, X., Xiang, E., & Djajadikerta, H. G. (2020). Financial distress, internal control, and earnings management: Evidence from China. *Journal of Contemporary Accounting and Economics*, 16(3). 100–210 <https://doi.org/10.1016/j.jcae.2020.100210>
- Manzaneque, M., Priego, A. M., & Merino, E. (2016). Corporate governance effect on financial distress likelihood: Evidence from Spain. *Revista De Contabilidad-Spanish Accounting Review*, 19(1), 111–121. <https://doi.org/10.1016/j.rcsar.2015.04.001>
- Mayda, A., & Serly, V. (2021). Pengaruh karakteristik dewan direksi terhadap financial distress perusahaan BUMN di Indonesia tahun 2015-2019. *Jurnal Eksplorasi Akutansi*, 3(3), 567–582. <https://doi.org/10.24036/jea.v3i3.427>
- Minanari, M. (2022). The influence of managerial ownership, profitability and leverage on financial distress (empirical study on property and real estate companies listed on the Indonesia stock exchange (IDX) 2016-2019). *International Journal of Environmental, Sustainability and Social Sciences*, 3(2), 351–358. <http://dx.doi.org/10.38142/ijesss.v3i2.219>
- Mulekano, M. A., & MIROGA, J. (2023). Retained earnings and profitability of manufacturing firms listed at Nairobi securities exchange. *Strategic Journal of Business & Change Management*, 10(4), 163–173. <https://doi.org/10.61426/sjbcm.v10i4.2741>

- Mulyaningsih, T., Cahyadin, M., & Sarmidi, T. (2021). Firms' financial distress during the COVID-19 pandemic & fiscal incentives. *Economic Research Institute for ASEAN and East Asia*, 7, 1–7.
- Paulina, G., & Ida, I. (2022). Prediksi kebangkrutan perusahaan penerbangan indonesia dengan metode Altman dan Springate. *INOBIS: Jurnal Inovasi Bisnis dan Manajemen Indonesia*, 5(2), 229–240. <https://doi.org/10.31842/jurnalinobis.v5i2.226>
- Purwaningsih, E., & Safitri, I. (2022). Pengaruh profitabilitas, likuiditas, leverage, rasio arus kas dan ukuran perusahaan terhadap financial distress. *JAE: Jurnal Akuntansi dan Ekonomi*, 7(2), 147–156. <https://doi.org/10.29407/jae.v7i2.17707>
- Rahman, F. (2022). Analisis prediksi finansial distress dengan metode Altman Z-Score dan Springate sebelum dan selama COVID-19. *Journal of Education, Humaniora and Social Sciences*, 5(1), 1–11. <https://doi.org/10.34007/jehss.v4i4.1000>
- Ross, S. A., Westerfield, R., & Jordan, B. D. (2023). *Essentials of corporate finance* (11th ed.). McGraw Hill LLC.
- Saputra, A. A., Prasetyo, T. J., & Idris, A. Z. (2022). Analysis of the effect of the COVID-19 pandemic crisis on financial distress “(empirical study on transportation companies listed on the BEI for the 2019 quarter 2 and 2020 quarter 2)”. *Inovasi Pembangunan - Jurnal Kelitbangan*, 10(1), 51–66. <https://doi.org/10.35450/jip.v10i01.285>
- Serolin, A. (2023). Effect of corporate social responsibility, leverage, firm age and size on firm value. *Research of Economics and Business*, 1(2), 95–104. <https://doi.org/10.58777/reb.v1i2.81>
- Sewpersadh, N. S. (2022). An econometric analysis of financial distress determinants from an emerging economy governance perspective. *Cogent Economics and Finance*, 10(1), 1–36. <https://doi.org/10.1080/23322039.2021.1978706>
- The World Bank. (2021, Juni 17). *Indonesia economic prospects: Boosting the recovery*. <https://www.worldbank.org/en/country/indonesia/publication/indonesia-economic-prospects-iep-june-2021-boosting-the-recovery>
- Yadav, I. S., Pahi, D., & Gangakhedkar, R. (2022). The nexus between firm size, growth and profitability: New panel data evidence from Asia–Pacific markets. *European Journal of Management and Business Economics*, 31(1), 115–140. <https://doi.org/10.1108/EJMBE-03-2021-0077>