RISET
JURNAL APLIKASI EKONOMI AKUNTANSI DAN BISNIS

https://ejournal.ibik.ac.id/index.php/riset
E-ISSN : 2656-7113 P-ISSN : 2797-4057
DOI : doi.org/10.37641/riset.v7i2.2623

FINANCIAL RISK: THE INTERPLAY OF LEVERAGE, INTANGIBLES, AND EARNINGS MANAGEMENT

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ARTICLE INFO

Submitted:
07 – February – 2025
Revised:
23 – May – 2025
Accepted:
18 – July – 2025

ABSTRACT

Manufacturing companies face financial risks that may lead to financial distress, primarily due to high leverage and the uncertainty of intangible asset values. This study uses earnings management as a moderating variable to investigate how leverage and intangible assets affect financial risk. Using a purposive sample technique, the study uses secondary data from the 2019–2023 financial statements of industrial businesses registered on the Indonesia Stock Exchange (IDX). Data analysis is conducted through panel data regression, employing the Zmijewski model to measure financial risk. The findings reveal that leverage positively affects financial risk, supporting agency theory, which suggests that high debt levels increase financial pressure on firms.

In contrast, intangible assets do not significantly influence financial risk. Earnings management reduces financial risk and weakens the impact of leverage, but does not significantly moderate the relationship between intangible assets and financial risk. The study concludes that companies must manage and leverage prudently and optimize using intangible assets to mitigate financial risk. From a practical perspective, investors and creditors should consider earnings management practices when assessing a company's risk profile.

Keywords: Leverage, Intangible Assets, Financial Risk, Earnings Management, Financial Distress.

INTRODUCTION

To ensure business continuity, companies often face various risks that can impact their performance. One of the most significant risks is financial risk (Zhu et al., 2021), which refers to a business's incapacity to fulfill its financial commitments (Onsongo et al., 2020). Financial risk is severe when a business cannot meet its short-term or long-term obligations (Dirman, 2020). Financial risk is often considered an early indication of potential bankruptcy (Putra & Satria, 2022), leading to a significant decline in a company's value (Habib et al., 2020). Hence, investigating this risk's underlying factors helps companies better prepare for and manage financial challenges.

One of the key factors often associated with the financial exposure faced by a firm is leverage. Incorporating borrowed funds into a firm's financing composition is called leverage (Ali et al., 2022). It plays a crucial role in enhancing profitability, increasing the available capital for investment (Nasir, 2021). However, higher leverage can also elevate the likelihood of financial insolvency if an organization fails to generate sufficient revenue to fulfill its debt-related responsibilities (Nini et al., 2020; Widanastiti & Rahayu, 2020). The more leverage a business has, the more interest it has to pay (Prasetya & Muid, 2022), which can ultimately pressure profitability (Nasir, 2021).

In addition to leverage, intangible assets influence an enterprise's exposure to financial uncertainty. Intangible assets drive corporate value creation and macroeconomic expansion (Albert & Maudos, 2022). These assets typically include patents, trademarks, goodwill, and other non-physical resources (Seprianti et al., 2023). In today's era of innovation, intangible assets have become a strategic component that determines a company's competitiveness in the market (Riyani & Putra, 2024). However, challenges often arise in managing and measuring the value of intangible assets (Soetardjo & Wijaya, 2024), due to the difficulty in estimating their long-term value and benefits (Febriana & Triyono, 2024). This uncertainty can increase the risk of mismanagement, thereby exacerbating the firm's exposure to financial risk (Zelalem & Abebe, 2022).

The influence of leverage and intangible assets on financial risk is illustrated through three purposively selected manufacturing firms listed on the IDX: PT Fajar Surya Wisesa (packaging), Waskita Beton Precast (precast concrete), and Asiaplast Industries (plastics). Though not statistically representative, these cases highlight diverse financial behaviors across subsectors. The five-year observation period (2019–2023) captures three distinct economic phases: pre-pandemic, pandemic shock, and recovery, providing a comprehensive view of risk dynamics under shifting conditions. Despite COVID-19 disruptions, many firms remained operational through adaptive strategies and government support such as tax incentives and digitalization (Lavopa & Donnelly, 2023; United Nations Industrial Development Organization, 2020). This sample and timeframe enhance the study's contextual depth and interpretive strength. A summary of the observed patterns is displayed in the subsequent table for clarity and reference:

Table 1. The Values of Leverage, Intangible Assets, and Financial Risk of PT FASW, WSBP, and APLI from 2019 to 2023

YEAR	FASW			WSBP			APLI		
	Leverage	Intangible Assets	Financial Risk	Leverage	Intangible Assets	Financial Risk	Leverage	Intangible Assets	Financial Risk
2019	1.291	1.338	2.658	0.985	0.523	1.098	0.971	0.074	1.136
2020	1.512 (↑)	1.211 (↓)	4.184 (↑)	-10.826 (↓)	1.842 (↑)	-63.760 (↓)	0.973 (↑)	0.157 (↑)	1.324 (↑)
2021	1.595 (↑)	1.030 (↓)	4.588 (↑)	-3.477 (↑)	1.307 (↓)	-22.846 (↑)	0.867 (↓)	0.115 (↓)	0.403 (↓)
2022	1.570 (↓)	0.736 (↓)	4.608 (↑)	-3.836 (↓)	1.222 (↓)	-26.671 (↓)	0.680 (↓)	0.219 (↑)	-0.866 (↓)
2023	1.875 (↑)	0.798 (↑)	6.615 (↑)	-7.732 (↓)	0.758 (↓)	-48.374 (↓)	0.469 (↓)	0.986 (↑)	-2.077 (↓)

Note: (↑) means increased, (↓) means decreased, Financial Risk Value < 0 indicates healthy, and Financial Risk Value > 0 indicates financial risk.
Source: Data processed from the companies' financial statements from 2019 to 2023

The table above reveals several interesting phenomena. At PT Fajar Surya Wisesa (FASW), the value of intangible assets declined during the 2020–2023 period, while financial risk increased. A similar phenomenon occurred in 2022, where financial risk

still rose despite a decrease in leverage. PT Waskita Beton Precast (WSBP) exhibited the same pattern in 2020 and 2021, where fluctuations in the value of intangible assets went in the opposite direction to the company's financial risk. A similar trend occurred at PT Asiaplast Industries (APLI) in 2022 and 2023, where the increase in intangible assets led to a reduction in financial risk. A company in a financially risky position eventually returned to a healthy condition.

The manufacturing industry is a cornerstone of national economic development, catalyzing growth, employment generation, sectoral diversification, and expanding exports and trade performance (Lugina et al., 2022). However, according to the latest report from Schwartz et al. (2024), the manufacturing sector recorded the second-highest bankruptcy rate globally over the past 12 months, following the services sector. Corporate restructuring and bankruptcy cases in Indonesia have also increased, reflecting many firms' challenges. For example 2020, 636 incidents of delayed debt settlements were recorded, up from 433 cases in 2019 (Sunartoputra et al., 2023). Data from Revo (2024) reveals that by August 2024, many manufacturing companies in Indonesia had gone bankrupt. According to the President of the Confederation of Indonesian Labor Unions, Ristadi, low sales were one of the main factors contributing to the closure of many factories. As a result, the number of workers laid off from January to June 2024 reached 32,064 people, reflecting a 21.4% rise relative to the same period in the preceding year, which recorded 26,400 people (Revo, 2024).

Various studies exploring the impact of leverage and intangible assets on financial risk have produced varying findings. Research conducted by (Farooq et al., 2021; Gunarathna, 2015; Nguyen & Kien, 2022; Rahma & Dillak, 2021; Susanti et al., 2020) indicates that leverage positively impacts financial risk. In contrast, studies by Desiyanti et al. (2019) and Sari & Diana (2020) identified a negative relationship between leverage and financial risk, while research by Prakoso et al. (2024) found no significant impact. Regarding intangible assets, a positive effect was observed in studies by Farooq et al. (2021), Pradana & Chalid (2023), Rahma & Dillak (2021), and Tutliha & Rahayu (2019), while research by Setyoningrum et al. (2022) showed negative results. Additionally, several studies, including those by Putri et al. (2021), Pangi & Dewi (2023), and Sihotang & Muliyani (2024), found that intangible assets did not have a significant effect on financial risk. Therefore, further research is needed to draw more comprehensive and accurate conclusions.

Although a significant body of research addresses the impact of leverage and intangible assets on financial risk, studies specifically focusing on the manufacturing sector in Indonesia remain limited. Existing studies typically emphasize sectors such as retail (Susanti et al., 2020), real estate and property (Desiyanti et al., 2019; Sihotang & Muliyani, 2024), chemical industry (D. M. A. Putri et al., 2021), infrastructure (Tutliha & Rahayu, 2019), as well as transportation and tourism services (Gunarathna, 2015). In Indonesia, research on the manufacturing sector has not been comprehensive, focusing on specific subsectors like pulp and paper (Sari & Diana, 2020) and food and beverages (Prakoso et al., 2024; Rahma & Dillak, 2021). However, research specifically focusing on the manufacturing sector has been conducted in Vietnam (Nguyen & Kien, 2022). Thus, by concentrating on Indonesia's manufacturing sector and examining the connection between leverage, intangible assets, and business financial risk, this study seeks to close the gap in the literature. This method is anticipated to add to the corpus of information on the manufacturing industry and offer a fresh viewpoint that has not been thoroughly investigated.

This study offers fresh perspectives by examining how earnings management functions as a moderating element in the link between leverage, intangible assets, and financial risk. Manipulating financial figures to affect stakeholders' opinions of the company's performance is known as earnings management (Z. A. Putri et al., 2024). When a company faces high financial risk, managers may use earnings management to signal that its performance is more stable and controlled than it is (Kurnia & Mulyati, 2023; Rahmani, 2022). Therefore, this study explores whether earnings management can control the link between leverage, intangible assets, and financial risk.

Furthermore, this study adopts the Zmijewski model as a proxy for financial risk, given its comprehensive inclusion of profitability, leverage, and liquidity, the three core components that signal financial vulnerability. While initially developed to predict financial distress, the model has increasingly been applied to broader risk assessments. Recent studies have demonstrated the model's effectiveness in capturing early signs of financial deterioration. For instance, Nerotumilena & Winarna (2024) applied the Zmijewski X-Score to mining companies in Indonesia. They found a statistically significant relationship with financial performance, suggesting its superiority in detecting early financial instability. Similarly, Yudha et al. (2025) showed that the Zmijewski model accurately reflected bankruptcy risk in the aviation industry, outperforming both the Altman and Springate models. Supporting this view, prior comparative studies by Ambarwati & Sriwardany (2022), Rachmawati & Sulbahri (2020), and Apsari et al. (2024) also concluded that the Zmijewski model provides higher accuracy and earlier detection capability than the Altman Z-Score, particularly within the manufacturing sector. Therefore, this research considers the Zmijewski model more robust and contextually appropriate for measuring financial risk.

This study is driven by the need to understand how leverage and intangible assets influence financial risk, while considering the moderating role of earnings management. The significance of this research lies in its implications for company management, particularly in designing effective financial strategies to manage leverage and maximize the value of intangible assets. The purpose of this study is to identify the relationships between leverage, intangible assets, and financial risk, as well as to examine how earnings management moderates these relationships.

Agency theory explains the conflict of interest between principals (owners) and agents (management). In the context of high leverage, companies face pressure to meet their financial obligations due to the substantial debt burden (Rahman et al., 2020). It creates a conflict where management may be tempted to make riskier decisions to achieve short-term profits, even though these actions may not align with the long-term interests of owners or creditors. High leverage also exacerbates the conflict between shareholders and creditors (Chu, 2016), where creditors expect financial stability and the ability to repay debt (Brunnermeier & Krishnamurthy, 2020), while shareholders may want management to pursue more aggressive strategies to enhance returns (Zolotoy et al., 2021).

Previous studies have demonstrated that leverage has a positive impact on financial risk. Gunarathna (2015) revealed that the financial costs associated with debt financing often outweigh its benefits, decreasing the firm's value. Nguyen & Kien (2022) further noted that long-term debt can limit a company's ability to raise external funds, ultimately increasing the risk of bankruptcy. Rahma & Dillak (2021) also found that companies with above-average debt ratios are at risk of future financial distress and liquidity problems. Additionally, the research by Farooq et al. (2021) and Susanti et al. (2020) emphasized

the positive influence of leverage on financial risk. Based on these findings, the proposed hypothesis is:

H_1 : Leverage has a positive effect on financial risk

The Resource-Based View (RBV) hypothesis says that a company's competitive advantage originates from managing distinctive and difficult-to-imitate resources, including intangible assets such as trademarks, patents, and inventions (Agustia et al., 2021; Lubis, 2022). While intangible assets can provide long-term value, they are challenging to evaluate, manage, and are illiquid during critical financial situations (Barker et al., 2022). A company's reliance on poorly managed intangible assets can increase risk, mainly due to the uncertainty in converting these assets into revenue or liquidity, particularly when facing financial distress.

Several studies indicate that intangible assets can elevate a company's financial risk. Farooq et al. (2021) found that the higher the value of intangible assets, the greater the financial risk. Tutliha & Rahayu (2019) added that the high uncertainty associated with intangible assets makes firms more likely to experience financial distress in the future. Pradana & Chalid (2023) also discovered that heavy investments in research and development (R&D) do not always reduce financial risk; instead, they increase uncertainty. Based on these findings, the second hypothesis proposed is:

H_2 : Intangible assets have a positive effect on financial risk

The Signaling Theory emphasizes that a company's management can send signals to the market to reduce information asymmetry between management and investors (Liu et al., 2019). In this context, earnings management can be used as a tool to signal the company's stability and performance, even when the company has high leverage or significant intangible assets. By adjusting financial reports to appear more favorable, earnings management can soften external perceptions of financial distress risk (Thamlim & Mulyani, 2023), as investors and creditors may view the company as more stable than it is (Napiajo et al., 2023). However, these positive signals are short-term, and excessive use of earnings management in the long run may worsen the company's situation (Durana et al., 2021).

Several studies have shown a relationship between earnings management and financial distress. Kurnia & Mulyati (2023) stated that financial distress experienced by a company can influence its earnings management practices. When a company faces difficulties meeting its financial obligations, it is more likely to engage in earnings management as an initial step to address bankruptcy or liquidity problems. Rahmani (2022) added that the higher the level of financial distress, the greater the likelihood of a company engaging in earnings management to maintain a positive image with investors. Almubarak et al. (2023) also found that companies facing financial difficulties are more prone to earnings manipulation. Therefore, companies with high risk due to leverage and intangible assets may be more motivated to manage earnings to mitigate financial distress risk. The proposed hypotheses are:

H_3 : Earnings management harms financial risk

H_4 : Earnings management can weaken the impact of leverage on financial risk

H_5 : Earnings management can weaken the impact of intangible assets on financial risk

Below is the structure for this research:

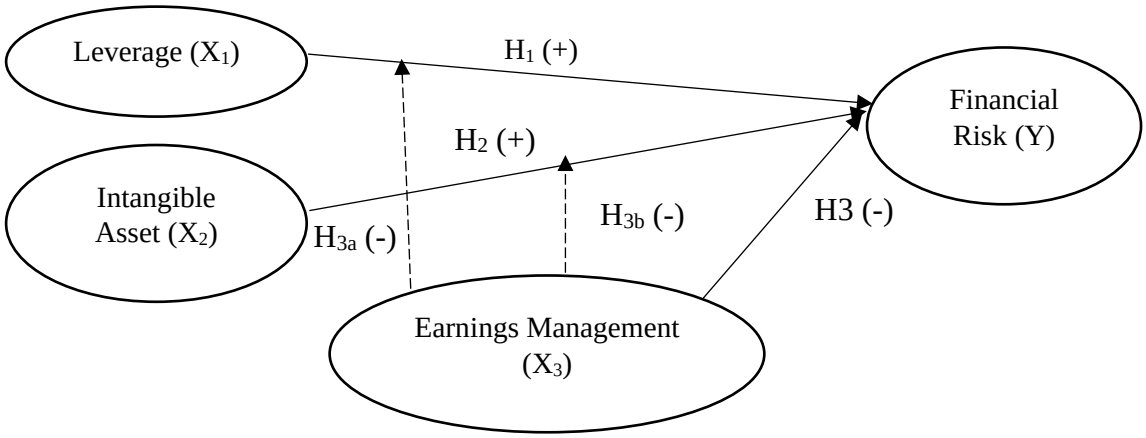

Figure 1. **Research Framework**

RESEARCH METHODS

This study uses quantitative approaches. It examines publicly traded Indonesian enterprises on the Indonesia Stock Exchange (IDX). The data utilized comprises secondary data from financial reports spanning 2019–2023. As shown in Table 2, the sample selection method uses purposive sampling and several factors.

Table 2. The Criteria for Research Samples

Criteria	Total
Manufacturing companies whose shares are listed on the Indonesia Stock Exchange (IDX) from 2019 to 2023 and have never been delisted	162
Companies that have not consistently published audited financial statements during the 2019-2023 period	(25)
Companies that meet the specified criteria	137
The research sample consists of all companies observed over 5 years.	685

Source: Data processed

This research incorporates three distinct types of variables: dependent, independent, and moderating factors. The dependent variable in this study is financial risk, which reflects a company's potential to experience financial distress, which may lead to bankruptcy. Financial risk is measured using the Zmijewski Model, which generates a predictive score to assess the probability of financial distress.

The Zmijewski model was chosen for its proven effectiveness in predicting financial distress using key indicators such as profitability, leverage, and liquidity (Apsari et al., 2024; Rachmawati & Sulbahri, 2020), and it is widely applied in financial risk analysis (Ambarwati & Sriwardany, 2022). Although leverage is also used as an independent variable (X_1) in this study, it is measured using the Debt-to-Equity Ratio (DER). In contrast, the Zmijewski score uses the Debt-to-Asset Ratio (DAR), representing different leverage perspectives. A multicollinearity test was performed to ensure no multicollinearity between the Zmijewski score and leverage. The results confirmed no significant collinearity issue, allowing both variables to be included reliably in the regression model. The Zmijewski model formula is as follows:

$$\text{X-Score} = -4.300 - 4.500\ X_1 + 5.700\ X_2 - 0.004\ X_3$$

(Notes: X_1 = Return on Assets (ROA); X_2 = Debt to Asset Ratio (DAR); X_3 = Quick Ratio)

The interpretation of this model's results is as follows: if X is less than 0, the company is in a healthy financial condition. Conversely, if X is greater than 0, it suggests that the company is at risk of experiencing financial distress.

Leverage (LEV), the ratio indicating how much a company uses debt in its capital structure, is the first independent variable in this study. A higher leverage ratio denotes a higher level of financial risk because it increases the company's obligations to repay debt and the interest that goes along with it.

Leverage is measured using the Debt-to-Equity Ratio (DER), which compares total debt to total equity. DER is chosen because it effectively illustrates the extent to which a company finances its operational activities through debt rather than equity capital (Desiyanti et al., 2019). This ratio is widely used in financial research to describe a company's capital structure and relationship with financial risk (Prakoso et al., 2024). The formula used for LEV is as follows:

$$\text{LEV} = \frac{Total\ Liabilities}{Total\ Equity}$$

The second independent variable in this study is intangible assets. Intangible assets are non-physical assets such as trademarks, copyrights, patents, and goodwill that have the potential to generate future economic value. Due to their non-physical nature, these assets are often challenging to measure accurately.

The measurement of intangible assets is conducted using the ratio of the difference between market value equity and book value equity (MVE−BVE) to total assets. This proxy is chosen because some companies do not explicitly report intangible assets in their financial statements (Gamayuni, 2015). This approach estimates the value of intangible assets based on the difference between the market value and the book value of equity, reflecting the additional value generated by intangible assets. The formula used is:

$$\text{ITA} = \frac{(Market\ Value\ of\ Equity - Book\ Value\ of\ Equity)}{Total\ Assets}$$

The moderating variable in this study is earnings management, which refers to actions taken by management to manipulate financial statements to influence reported performance outcomes, whether for internal or external purposes. This manipulation is typically carried out through modifications of accrual components in financial reports.

Earnings management in this study is measured using the modified Jones model, with discretionary accruals serving as its proxy. This approach separates total accruals into discretionary and non-discretionary components, allowing the detection of accruals influenced by managerial discretion rather than normal business activities. The modified Jones model is widely regarded as one of the most reliable methods for detecting earnings management, making it suitable for this analysis (Scott & O'Brien, 2020). The formula for calculating earnings management using the modified Jones model is as follows:

Use the following formula to calculate total accruals (TAC):

$$TAC = NI_{it} - CFO_{it}$$

Next, total accruals (TA) are determined using the following equation:

$$\frac{TA_{it}}{A_{it-1}} = \beta_1\left(\frac{1}{A_{it-1}}\right) + \beta_2\left(\frac{\triangle Rev_{it}}{A_{it-1}}\right) + \beta_3\left(\frac{\triangle PPE_{it}}{A_{it-1}}\right) + \varepsilon$$

Then, the following formula is used to calculate non-discretionary accruals (NDA):

$$NDA_{it} = \beta_1\left(\frac{1}{A_{it-1}}\right) + \beta_2\left(\frac{\triangle Rev_{it}}{A_{it-1}} - \frac{\triangle Rec_{it}}{A_{it-1}}\right) + \beta_3\left(\frac{\triangle PPE_{it}}{A_{it-1}}\right)$$

Finally, discretionary accruals (DA) are calculated using the formula below:

$$DA_{it} = \frac{TA_{it}}{A_{it-1}} - NDA_{it}$$

(Notes: CFOit = cash flow from operating activities (current year); NIit = net income (current year); Ait-1 = total assets (previous year); TAit = total accruals (current year); PPEit = property, plant, and equipment (current year); NDAit = non-discretionary accruals (current year); ΔRecit = change in accounts receivable (from previous year); ΔRevit = change in revenue (from previous year); DAit = discretionary accruals (current year); ε = error term.)

This research utilizes multiple linear regression analysis with moderation factors. Given that the data in this study is panel data, the software utilized is Eviews9. Before doing regression analysis, executing a basic assessment called the multicollinearity test is standard practice. After successfully executing the multicollinearity assessment, a model specification test is performed to evaluate three distinct regression modeling strategies. The regression model consists of three elements: the common effect, the fixed effect, and the random effect. The tests used include the Chow, Hausman, and Lagrange multiplier tests, all of which evaluate two regression equation models. The model selected in the two tests is identified as the optimum model.

A descriptive statistical analysis summarizes the data, including mean values and standard deviations. The next step is to do multiple linear regression analyses. This research used moderated regression analysis (MRA) due to incorporating moderating factors. MRA, or Multiple Regression Analysis, can assess the incremental impact of a variable when it interacts with other factors. The supplementary contribution is acquired by modifying the R2 value. In order to do that, two regression equations are required, as outlined below:

Without the moderating variable:

$$RK = \beta_0 + \beta_1 LEV + \beta_2 ITA + \beta_3 ERN + \varepsilon$$

(Description: RK = Financial Risk; β0 = Constant; β1–β5 = Regression Coefficient; LEV = Leverage; ITA = Intangible Assets; ERN = Earnings Management; Ɛ = Error)

The hypothesis is accepted if the regression coefficient is positive and the significance value (p-value) is less than 0.05.

With the moderating variable:

$$RK = \beta_0 + \beta_1 LEV + \beta_2 ITA + \beta_3 ERN + \beta_4 LEV.ERN + \beta_5 ITA.ERN + \varepsilon$$

The moderating hypothesis is supported if the regression coefficient after moderation is higher than before and the significance value (p-value) is less than 0.05.

RESULTS AND DISCUSSION

Accurate regression modeling requires that the research data conform to classical assumptions. A multicollinearity test is necessary for panel data, but other traditional assumption tests are unnecessary. The data presented indicates that the correlation coefficient for each variable does not surpass 0.85. It suggests that there is no association between the variables. Consequently, the absence of multicollinearity issues in the study data allows for the execution of regression tests. Subsequently, the model estimation test is conducted. The objective is to obtain the optimal regression model. The test findings indicate that the Fixed Effect Model (CEM) is optimal.

Table 3. Fixed Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-4.441	0.016	-270.291	0.000
LEV	5.686	0.003	1803.380	0.000
ITA	-0.008	0.011	-0.706	0.481
ERN	-1.727	0.152	-11.395	0.000
LEV*ERN	0.538	0.054	10.002	0.000
ITA*ERN	-0.039	0.055	-0.703	0.482

Source: Data processed from Eviews9

The Influence of Leverage on Financial Risk

The regression results indicate that leverage positively and significantly affects financial risk, as reflected by the coefficient of 5.686 with a p-value of 0.000 (< 0.050). It suggests that, ceteris paribus, every 1-unit increase in leverage will elevate a company's financial risk by 5.686 points. Thus, H_1 is accepted, confirming that leverage is a critical determinant of financial risk.

This finding is consistent with Agency Theory, which posits that higher leverage intensifies conflicts between shareholders and creditors (Rahman et al., 2020). As leverage increases, firms face greater obligations to service debt, compelling management to adopt riskier strategies to meet financial expectations. Such behavior, while aiming for short-term profitability, often undermines long-term financial stability and increases the risk of distress.

Empirical evidence from Gunarathna (2015) supports this view, showing that the costs associated with high debt financing frequently outweigh its benefits, leading to a higher probability of bankruptcy. Similarly, Rahma & Dillak (2021) demonstrated that firms with elevated debt ratios are more susceptible to liquidity crises and financial distress. Farooq et al. (2021) also emphasized that high leverage heightens dependency on external funding, making firms more vulnerable to financial instability. Furthermore, Nguyen & Kien (2022) found that firms with leverage exceeding industry norms are significantly more likely to encounter bankruptcy risks. However, it is important to note that contrasting findings by Desiyanti et al. (2019) and Sari & Diana (2020) suggest that leverage may not necessarily increase financial risk in specific sectors or economic conditions, highlighting the contextual nature of leverage's impact.

The Influence of Intangible Assets on Financial Risk

The regression analysis shows a negative but statistically insignificant relationship between intangible assets and financial risk, with a coefficient of -0.008 and a p-value of 0.481 (> 0.050). While an increase in intangible assets slightly reduces financial risk, the effect is not strong enough to be considered significant. Consequently, H_2 is rejected, indicating that intangible assets do not notably influence financial risk in the observed sample.

From the Resource-Based View (RBV) theory perspective, intangible assets such as intellectual property, brand equity, and goodwill are strategic resources that should provide a sustainable competitive advantage when effectively managed (Agustia et al., 2021). However, as Pangi & Dewi (2023) highlight, intangible assets often do not directly support operational performance in the manufacturing sector. Their value realization tends to be long-term and uncertain, making it challenging to capture their immediate impact on financial outcomes, particularly during periods of economic disruption such as

the COVID-19 pandemic (2019–2021), which intensified external shocks beyond management control.

This finding aligns with Putri et al. (2021), who observed that intangible assets often lack a significant protective effect against financial distress, especially in asset-intensive industries. Conversely, studies by Farooq et al. (2021), Pradana & Chalid (2023), Rahma & Dillak (2021), and Tutliha & Rahayu (2019) reported that intangible assets can elevate financial risk, particularly when their management or valuation is not optimal. These conflicting results suggest that the role of intangible assets in influencing financial risk may vary depending on sector characteristics, the maturity of intangible investment, and the prevailing macroeconomic conditions.

The Influence of Earnings Management on Financial Risk

The regression results show that earnings management has a negative and significant effect on financial risk, with a coefficient of -1.727 and a p-value of 0.000 (< 0.050). It implies that for every unit increase in earnings management, financial risk decreases by 1.727 points. Therefore, H_3 is accepted, indicating that earnings management plays a substantial role in mitigating financial risk.

This finding supports the framework of Signaling Theory (Liu et al., 2019), which argues that management can use earnings adjustments to send positive signals to the market, thereby reducing information asymmetry. By presenting financial statements that appear more stable, companies can reassure investors and creditors, lowering perceptions of financial distress risk. (Thamlim & Mulyani, 2023) Earnings management can strategically shape market perceptions, especially for firms burdened by high leverage or uncertain intangible asset valuations.

Empirical studies also corroborate these findings. (Napiajo et al., 2023) Earnings management can cushion external concerns, even under significant financial pressure. Similarly, Durana et al. (2021) revealed that earnings manipulation offers short-term benefits by decreasing perceived bankruptcy risk, enabling firms to maintain access to financing and investor confidence during periods of vulnerability. However, this positive role is not without limitations. Contrasting evidence from Fauziah & Herawaty (2023) suggests that excessive or aggressive earnings management could ultimately increase bankruptcy risk over time. Moreover, Agustia et al. (2020) and Meryana & Setiany (2021) found that earnings management does not always significantly affect financial risk, implying that its effectiveness may depend on how consistently and ethically it is applied.

The Moderating Effect of Earnings Management on The Relationship Between Leverage and Financial Risk

The interaction coefficient of 0.538 shows that leverage positively influences financial risk when moderated by earnings management, although with a weaker effect than before moderation (5.686). It indicates that earnings management reduces the impact of leverage on financial risk; thus, H_4 is accepted.

This result is not in line with Rahmani (2022) and Napiajo et al. (2023), which emphasized that earnings management allows firms with high leverage to send positive signals to investors, consistent with Signaling Theory (Liu et al., 2019). Almubarak et al. (2023) also supported the idea that earnings management mitigates leverage-induced risk, especially in emerging markets.

However, this moderating effect is temporary, consistent with Durana et al. (2021) and Fauziah & Herawaty (2023). Excessive reliance on earnings management without

real performance improvements may worsen financial conditions in the long run. Therefore, while earnings management can moderate the adverse effects of leverage in the short term, companies must ensure it is accompanied by genuine financial strategies to maintain long-term stability.

The Moderating Effect of Earnings Management on The Relationship Between Intangible Assets and Financial Risk

When moderated by earnings management, the interaction coefficient -0.039 indicates a negative relationship between intangible assets and financial risk. However, with a significance value of 0.482 (> 0.050), this interaction is statistically insignificant. It suggests insufficient evidence to conclude that earnings management moderates the effect of intangible assets on financial risk. Therefore, H_5 is rejected. This finding aligns with Putri et al. (2021), Pangi & Dewi (2023), and Setyoningrum et al. (2022), who emphasized that intangible assets often fail to mitigate financial risk due to their uncertain valuation and limited liquidity. Similarly, Sayidah et al. (2020) found that earnings management does not significantly affect financial distress in Indonesian SOEs, suggesting the limitations of such practices in overcoming structural financial challenges.

One possible explanation for this insignificance is that earnings management, mainly when used as a short-term strategy to manipulate financial appearance, may not address the root causes of financial distress, such as declining operational performance, inefficient cost structures, or excessive leverage. In highly regulated or state-owned firms, institutional constraints and external oversight also limit the effectiveness of earnings management as a tool to manage perceptions of risk. Additionally, the temporary improvement from earnings manipulation in macroeconomic instability may not influence creditor or investor evaluations of long-term solvency risk. These contextual factors could explain why the moderating role of earnings management on the relationship between intangible assets and financial risk does not emerge as statistically significant in this study.

Table 4. Coefficient of Determination of Regression Equation Before Contribution of Moderation Variable

R-squared	Adjusted R-squared
0.9999	0.9998

Source: Data processed from Eviews9

The adjusted R-squared (R^2) for the first equation is 0.9998, the coefficient of determination. Leverage, intangible assets, and earnings management significantly impact approximately 99.98% of financial risk. Other factors influence the remaining.

Table 5. Coefficient of Determination of Moderated Regression Equation

R-squared	Adjusted R-squared
0.9999	0.9999

Source: Data processed from Eviews9

Table 4 shows that the adjusted R-squared (R^2) for the moderated model is 0.9999, indicating that leverage, intangible assets, earnings management, and their interactions explain 99.9851% of the variance in financial risk, with only 0.0149% attributed to external factors. Compared to the model without moderation (0.9998), including earnings management improves the explanatory power by 0.0026%.

Although the increase is modest, it confirms that earnings management enhances the model's ability to capture financial risk, consistent with Signaling Theory (Liu et al.,

2019), emphasizing how earnings management reduces information asymmetry. Thus, the results highlight that financial risk is primarily shaped by internal strategies such as leverage management, intangible asset utilization, and earnings signaling practices. It supports concerns Almubarak et al. (2023) raised about the need for sustainable financial management beyond short-term earnings manipulation.

CONCLUSION

This study reveals that leverage has a positive effect on financial risk. The higher the leverage, the greater the potential for financial distress due to increasing debt obligations. This finding supports agency theory, where high debt exacerbates conflicts of interest between shareholders and creditors. On the other hand, intangible assets do not affect financial risk. While these assets may provide strategic value, their contribution to a company's financial stability is not always apparent in the short term. Meanwhile, earnings management reduces financial risk by helping companies maintain a more stable financial image in the eyes of investors and creditors.

However, the moderating role of earnings management provides mixed results. Earnings management weakens the impact of leverage on financial risk, suggesting that firms may use such practices to alleviate the pressure of high debt levels. In contrast, its moderating effect on the relationship between intangible assets and financial risk is statistically insignificant. Combining earnings management with intangible assets does not produce a measurable influence on financial risk, possibly due to the uncertain nature of intangible asset valuation and the limited capacity of earnings manipulation to offset structural vulnerabilities.

This study has several limitations, including using data from the manufacturing sector only, which may limit the generalizability of the results to other sectors. Additionally, the observation period from 2019 to 2023 may not be long enough to capture the long-term dynamics between the variables studied. Financial risk often unfolds gradually and may be influenced by lagged effects or strategic decisions whose consequences extend beyond a five-year window. Using the Zmijewski model as the sole predictor of financial risk could also be a limitation, as other models, such as the Altman Z-Score or the Ohlson O-Score, may yield different results.

The practical implications of this study are that financial managers need to be more cautious in managing leverage to avoid increasing financial risk. Earnings management can be a short-term risk mitigation strategy, but its use should be ethical and transparent to avoid long-term negative consequences. Furthermore, the findings regarding intangible assets suggest that companies should optimize the use of these assets to contribute more to financial stability. For investors and creditors, the high leverage of a company may increase investment risk. Hence, analyzing earnings management strategies and intangible assets is crucial before making investment decisions.

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