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Financial and Non-Financial Determinants of Stock Price and Insolvency Risk in Indonesia

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Abstract

Purpose: This study investigates the effects of financial ratios and non-financial firm characteristics on stock prices and insolvency risk among Indonesian non-financial firms during 2017–2024.

Research Methodology: A quantitative approach was employed using multiple linear regression to examine the determinants of stock prices and binary logistic regression to evaluate the effects of financial and non-financial variables on insolvency risk.

Results: The findings reveal that profitability, leverage, number of employees, and number of shareholders significantly influence stock prices, indicating that investors consider both financial performance and firm characteristics in market valuation. Insolvency risk is primarily affected by liquidity and inventory turnover, while other variables show limited explanatory power. Stock price does not significantly affect insolvency risk, suggesting that market valuation does not effectively capture early signals of financial distress in Indonesia's emerging market context.

Conclusion: This study concludes that stock price is not a reliable early-warning indicator of insolvency risk. Effective liquidity management and operational efficiency are essential for reducing financial distress and strengthening firm resilience.

Limitations: The study focuses only on non-financial firms and does not incorporate macroeconomic shocks or dynamic non-linear models. Future research should consider broader contexts and external uncertainty factors.

Contribution: This study contributes to corporate finance literature by highlighting the importance of financial and non-financial signals in predicting insolvency risk. The findings support the development of early warning systems that prioritize solvency and operational indicators over market volatility.

Keywords: *Emerging Market, Financial Ratio, Insolvency Risk, Stock Price*

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1. Introduction

Introduction The COVID-19 pandemic caused a major worldwide economic shock that changed how people handle money and how markets work. According to Amankwah-Amoah, Khan, Wood, and Knight (2021), government-mandated lockdowns, implemented to decrease the spread of the virus,

have restricted movement and economic operations, prompting businesses to modify their processes in response to the evolving situation, although society progresses, the pandemic created a lasting economic consequences, especially in labor markets, as job losses and income instability increase, impacting households globally. Even though the economy is in bad shape, more small investors around the world have started to take part in the market. Ortmann, Pelster, and Wengerek (2020) reported there was an increase in newly opened brokerage accounts, and it was noted that investors increased their weekly trading activity by around 14% in as COVID-19 cases rose. Job losses, increased time spent at home, and the search for alternative income sources aided rising individual participation in equity markets. The arrival of small investors changed the stock market supply demand dynamics, thereby influencing stock price movements and raising concerns regarding whether prices during crisis periods accurately reflect firm fundamentals. Meanwhile, the pandemic significantly increases the likelihood of corporate insolvency risk. Almamy, Aston, and Ngwa (2016) show that COVID-19 causes heavy financial losses across non financial firms in the European Union, accompanied by declining liquidity and asset conversion.

By the end of 2021, nearly one-fourth of non-financial firms experienced severe liquidity stress, while approximately 10% of previously viable firms faced bankruptcy risk. These findings underscore that insolvency risk during major economic shocks varies considerably across industries, particularly in sectors characterized by high fixed costs and prolonged revenue disruptions. Financial ratios are often used to evaluate firm performance and stock returns, Financial ratios are commonly grouped into measures of liquidity, solvency, profitability, activity, and turnover (Zutter & Smart, 2019). While these ratios are widely used to evaluate internal firm provide the background of the study concisely. This conceptualizes and empirically proves the "structural decoupling phenomenon" in an emerging market revealing that public equity prices can construct a facade of corporate stability while internal solvency decays, thereby failing to act as a reliable early warning system for stakeholders. Second, by analyzing Indonesian non-financial listed firms over a multi-year panel (2017-2024), this study bridges quantitative financial indicators with human-centric organizational structures (workforce scale and shareholder base) to uncover the distinct drivers of market valuation and corporate resilience.

Using a seven-year panel dataset covering multiple industries excluding the financial sector, this research seeks to answer the following questions:

1. Does financial variables and non financial variables predict stock price movements?
2. Does financial variables and non financial variables predict insolvency risk?
3. Does stock price changes predict insolvency risk?

2. Literature Review and Hypotheses Development

2.1 Financial Theory

The relationship between financial indicators, non-financial firm characteristics, stock price movements, and insolvency risk can be explained through established financial theories, which propose that information regarding the firm is interpreted by investors and incorporated into market judgment. These theoretical perspectives suggest that investors continuously evaluate both quantitative and qualitative signals to assess firm value, financial stability, and future prospects. Consequently, changes in financial conditions and corporate characteristics may influence market reactions and provide early indications of potential insolvency risks.

2.1.1 Trade-Off Theory

Explains that firms determine their optimal capital structure by balancing the tax advantages of debt against the costs of debt. While debt financing can enhance firm value through tax shields, excessive leverage increases insolvency risk and may weaken investor sentiment, particularly during periods of economic uncertainty (Kraus & Litzenberger, 1973). Consequently, leverage-related metrics such as the debt-to-equity ratio are expected to influence both stock price movem ents and insolvency risk. Empirical evidence supports the relevance of optimal capitalization. Mensah, Bein, and Arhinful (2025) show that leverage can positively affect firm growth and profitability when maintained at

manageable levels, while excessive dependence on debt may expose firms to insolvency risks. These findings support the central premise of Trade-Off Theory that capital structure decisions directly affect firm performance and risk.

2.1.2 Pecking Order Theory

Pecking Order Theory suggests that firms follow a financing hierarchy, starting from internal funds, followed by debt, and equity only as a last resort (Leary, & Roberts, 2010a; Myers, & Majluf, 1984). Divergence from this hierarchy may signal financial restrictions or deteriorating firm performance, reflecting underlying financial conflict that limit firm's access to external financing and shape corporate financing procedures (Nukala & Prasada, 2021). Such deviations may also result from market valuation conditions and investor perspective, as businesses modify financing decisions in accordance with current market dynamics. Yıldırım and Çelik (2021) provide empirical evidence that firms largely follow this hierarchy, although financing behavior varies across economic conditions and firm characteristics. Such deviations serve as informative signals to investors regarding firm stability and future potential, strengthening the significance of financing choices in moving stock prices.

2.1.3 Signaling Theory

Signaling Theory explains how firms share information to investors under conditions of information asymmetry (Spence, 1973). Financial and non-financial firm characteristics such as profitability and other information disclosures represent a key signaling mechanism, more profitable firms willingly disclose a greater number of performance indicators in annual reports, providing credible information to the market (Dainelli, Bini, & Giunta, 2013). Employment decisions serve as major signals, labor layoffs are perceived by investors as signs of corporate hardship, evoking significant stock price reactions that differ based on firm characteristics and institutional context (Kumar, Pandey, & Goodell, 2023), court cases arising from corporate misconduct also acts as a market signal, with investors imposing significant stock price penalties that follow a clear pattern across regulatory rules and compliance settings (Erragragui, Peillex, Benlemlih, & Bitar, 2023). Ownership structure sends important signals regarding firm quality, governance, and risk when information is asymmetrical. Empirical evidence shows that investors actively study who owns the firm before forming investment strategies. For instance, foreign institutional investors are more likely to invest in firms with higher Chief Executive Officer (CEO) ownership and where multiple board seats are held by representatives of big financial institutions, interpreting these facts as signals of stronger alignment and monitoring quality, while lower domestic institutional ownership may signal reduced entrenchment (Yeh, 2021). Investors process them and prices adjust accordingly, consistent with semi-strong market efficiency. Sunardi, Noviolla, Supramono, and Hermanto (2023) demonstrate that policy announcements and firm-level responses act as signals that generate measurable market reactions, supporting the theoretical role of signaling mechanisms in shaping investor expectations. In the context of financial distress, argue that insolvency is often the end result of unchecked agency problems. When monitoring mechanisms (such as concentrated ownership) are weak, management may delay necessary restructuring, allowing the firm to drift into a state of 'balance sheet insolvency'. Contemporary studies by confirm that management's failure to control these agency costs accelerates the path to failure, particularly when internal governance functions ineffectively.

2.2 Financial Variables

Financial variables in this study are represented by financial ratios derived from firms' financial statements. Financial ratios summarize a firm's financial condition and operational efficiency and are widely used in fundamental analysis to evaluate performance, risk, and future prospects (Zhao, Yuan, Long, Jin, & Guan, 2023). This study focuses on five categories of financial ratios, liquidity, solvency, profitability, activity, and turnover, which collectively capture complementary dimensions of firm financial health relevant to investor decision-making and insolvency assessment (Zutter & Smart, 2019).

2.2.1 Liquidity Ratio

Zutter and Smart (2019) defines liquidity as a tool to measure the company's ability to settle short term debt. Firms with higher liquidity are better positioned to absorb short-term shocks and avoid

financial distress (Chen, Chen, & Huang, 2021), while this evidence is based on banking institutions, the underlying liquidity distress mechanism is applicable to non-financial firms. Consistent with market-based valuation frameworks, liquidity ratios provide firm-level signals that are reflected in stock price movements and insolvency risk, motivating their inclusion in the empirical model. Prior evidence shows that liquidity conditions play a central role during economic crises, as firms with limited liquid resources face greater vulnerability to insolvency and market valuation declines (Chang & Yang, 2022). This study employs the Quick Ratio (QUR) as a proxy for firm liquidity. QUR, the capability of an enterprise to cover current liabilities with non-inventory current assets (Fusco & Migliaccio, 2018). The measurement of Quick Ratio is presented in Formula 1.

$$\text{Quick Ratio} = \frac{\text{Current Assets} - \text{Inventory}}{\text{Current Liabilities}} \quad (1)$$

2.2.2 Solvency Ratio

Defined as having enough capital to meet liabilities. High leverage increases financial risk and insolvency probability, while moderate leverage may enhance firm value through tax advantages (Cathcart, Dufour, Rossi, & Varotto, 2020) In accordance with trade-off theory, moderate leverage can increase firm value via tax advantages, however these benefits decrease as financial distress costs escalate. DER measures the level of financial leverage (Nukala & Prasada, 2021) It is the firm's total liabilities divided by it's equity.(Zutter & Smart, 2019). The measurement of Debt-to-Equity Ratio (DER) is presented in Formula 2.

$$\text{Debt-to-Equity Ratio} = \frac{\text{Total Liabilities}}{\text{Total Equity}} \quad (2)$$

Debt-to-equity decisions are commonly analyzed within the trade-off theory of capital structure, which builds on the foundational framework proposed by Modigliani and Miller. Capital structure refers to a firm's mix of debt, preferred stock, and common equity used to maximize firm value while minimizing the cost of capital (Modigliani & Miller, 1958). According to trade-off theory, firm value can be optimized by balancing the tax advantages of debt, which arises from the deductibility of interest payments against the costs of debt, including financial distress and insolvency risk (Kraus, & Litzenberger, 1973; Modigliani and Miller, 1958; Laksmiati, 2026).

2.2.3 Profitability

Defined as the firm's capabilities to generate income relative to it's assets and expenses. It is used to evaluate how capable a company is at generating income despite the assets and operating costs. According to Spence (1973), more profitable firms are generally perceived as financially healthier by investors and less prone to insolvency (Altman, 1968; Firmansyah, Suryana, Susetyo, & Mandasari, 2021). Berggrun, Cardona, and Lizarzaburu (2020) provided empirical evidence showcasing companies with higher profitability show higher valuation ratios and better stock market performance, proving that profitability is favorably valued by equity markets, resulting in elevated stock valuations. The profitability used in this research is Return on Equity.

2.2.4 Return on Equity

ROE shows how much money the common stockholders make from their investment in the company (Zutter & Smart, 2019). Empirical research demonstrates that Return on Equity (ROE) is a relevant accounting metric for valuation, as fluctuations in profitability account for a significant percentage of stock price variability, suggesting that profitability-related data is integrated into equity prices(Chen & Zhang, 2007). Accordingly, ROE serves as an important channel through which firm performance is reflected in stock price movements, which may subsequently influence firms' insolvency risk. The measurement of Return on Equity (ROE) is presented in Formula 3.

$$\text{Return on Equity} = \frac{\text{Net Income}}{\text{Total Equity}} \quad (3)$$

2.2.5 Activity

Assesses the velocity at which accounts are transformed into sales or liquid assets (Zutter & Smart, 2019). In this study, operational efficiency is proxied by Total Asset Turnover (TATO), calculated as sales divided by total assets(Weidman, McFarland, Meric, & Meric, 2019). Total asset turnover evaluates a company's ability to generate revenue from its assets. A higher total asset turnover signifies more effective asset usage, demonstrating a firm's ability to create revenue from its assets(Benjamin, Mohamed, & Marathamuthu, 2018). From an investment standpoint, operational efficiency and company operational decisions provide insights into future cash flows and longevity, which investors consider into equity valuations, thereby influencing stock price fluctuations (Saha, Bose, & Lobo, 2025). Given this potential linkage, examining the relationship between activity ratio and stock price changes remains empirically relevant. Total asset turnover is used as the measurement to analyse activity ratio. The measurement of Total Asset Turnover is presented in Formula 4.

$$\text{Total Asset Turnover} = \frac{\text{Sales}}{\text{Total Assets}} \quad (4)$$

2.2.6 Turnover Ratio

Measures the firm's efficiency and effectiveness, therefore the ratio used for this financial metric is the inventory turnover ratio. It is one of the most widely used ratio to measure the liquidity of a company's inventory (Zutter & Smart, 2019). A high inventory turnover indicates increasing sales performance and optimizing inventory levels reduces overstocking and stockout. From a financial standpoint, effective inventory and working capital management can enhance liquidity and financial flexibility, allowing organizations to redirect resources to higher-value activities. Previous research by Aktas, Croci, and Petmezas (2015) indicates that companies enhancing their working capital efficiency achieve superior subsequent stock performance, suggesting that proficient operational-financial management is seen positively by capital markets.

The valuation effects of inventory-related actions may vary based on context. Prior research indicates that inventory levels can either shield firms from supply chain disruptions or experience major expenses during demand shocks, with these opposing impacts apparent in stock price reactions (Dodd & Liao, 2025). Therefore, examining inventory turnover provides insight into how operational efficiency relates to stock price dynamics consistent with studies indicating that inventory and asset performance enhance financial success and shareholder value growth (Hilmola, 2020). The measurement of Inventory Turnover Ratio is presented in Formula 5.

$$\text{Inventory Turnover Ratio} = \frac{\text{Cost of Goods Sold}}{\text{Inventory}} \quad (5)$$

2.3 Non financial information

Additional information not disclosed in financial statements. This information is applied to assess company's health, risk and performance. the non financial information used in this research are treated as non financial variables. Non financial variables used in this research are as follows:

2.3.1 Age of the Company

The time between the founding of the company and present time (Kieschnick & Moussawi, 2018). Empirical evidence from Bank and Insam (2021) supports the concept of firm age as a valued attribute in asset markets, investments returns and valuation signals are interpreted differently for young versus

mid-aged or mature firms. They find that younger firms appear to be more ris ky and more volatile in return and also have higher exposure for the financial distress compared with mature ones, including larger size, stronger profitability signals, and more predictable investment outcomes, which investors perceive as markers of a robust and sustainable business model. These age-based interactions include to key financial ratios such as profitability, investment intensity, and distress measures, which applied capital markets differently based on a firm's age (Lo, Koedijk, Gao, & Hsu, 2020). In addition to valuation effects, age of company matter for insolvency risk. (Bank & Insam, 2021) document a strong negative association between corporate aging and financial distress, suggesting that younger firms face is connected with higher risk of failure due to higher uncertainty in future cash flows, while older firms benefit from stabler operating structures and lower sensitivity to negative shocks.

2.3.2 Number of Employees

Number of employees in the financial year of the accounts. Lo, Koedijk, Gao, and Hsu (2020) provided compelling evidence hiring activity functions as a forward-looking indicator of performance. Using 578,965 job posting from 830 Taiwanese listed firms over a 51-week period, they find that the change in posted vacancies significantly predict higher weekly abnormal stock returns (1.78% -2.17% annualized) and stronger quarterly operating performance (ROA, ROE). These effects remain robust across multiple asset-pricing frameworks. This suggests that hiring expansion signals enhanced operational capability and conveys positive information to investors, which is rapidly incorporated into stock prices.

Another study by Eshghi and Astvansh (2024) focuses on company layoffs. They did a meta analysis of 34,594 layoff announcements found that layoffs generally trigger significant negative stock market reactions. Layoffs that happen because of falling demand or financial trouble are called "reactive" layoffs. These layoffs produce the strongest penalties. Layoffs that happen because of efficiency or other reasons are called "proactive" layoffs. Larger layoffs amplify investor concerns, and firms in civil-law jurisdictions experience harsher punishments compared to those in common-law systems. These findings support the signaling theory and highlight that workforce restructuring can have implications on investor expectations. Together, the results imply that changes in firm's size in terms of employees due to either increases or decreases are strong non-financial insolvency indicators and influence stock price activities which stay behind actual financial standing thus rendering Number of employees to be important for examining it's effect on stock price and insolvency risk.

2.3.3 Number of Court Cases

Number of court cases in the financial year of the accounts. Cheng, Zheng, and Tu (2025) analyze 35,939 firm-year observations from Chinese A-share listed firms between 2008 and 2022 and find that litigation events significantly increase the likelihood of a stock price crash. This effect is partly due to disclosure quality, as legal disputes intensify bad news hoarding and weaken transparency. The crash risk impact is further intensified when firms are severely financially constrained, with stronger effects observed among firms lacking standard audit opinions and among loss-making entities. These results suggest that legal disputes convey negative information regarding business stability and managerial legitimacy, making the number of court cases a meaningful non-financial variable when evaluating stock-price-related risk dynamics.

2.3.4 Number of Shareholders

Shareholders are individuals who own shares of the company. They have a right to receive dividends and company records and books, to certain information (Hill, 2020). Study utilizing 721 grade A common stocks listed in the Shanghai stock exchange from 2007 to 2013 by (Bian et al., 2020). Using data on the daily number of shareholders and number of traders data, he observed that higher trading volume caused a greater level of volatility where as higher number of shareholders led to a lower level of volatility due to shareholders being able provide liquidity and fill in the order gaps. The findings reveal high number of shareholders has a stabilizing effect on stock prices while high number of traders destabilize stock prices due to short term buy and sell activities.

In summary, existing literature demonstrates that both financial ratios and non-financial firm characteristics play central roles in shaping firm valuation, stock price behavior, and insolvency risk. Financial ratio such as liquidity, leverage, profitability, activity, and inventory turnover capture the underlying economic conditions that determine a firm's operational resilience and exposure to distress. At the same time, non-financial attributes including firm age, workforce adjustments, litigation exposure, and shareholder dispersion serve as powerful informational signals that investors incorporate into market pricing, consistent with Trade-Off Theory, Pecking Order Theory, and Signaling Theory. Despite extensive evidence on these individual determinants, prior research has only partially explored how these factors jointly influence stock prices as an intermediate mechanism linking firm fundamentals to insolvency risk, particularly within emerging markets. By integrating financial and non-financial indicators on stock-price framework, this study addresses a critical gap in the literature and establishes a more comprehensive foundation for understanding how firm-level characteristics transmit through market reactions to shape insolvency outcomes. Accordingly, the following chapter develops the empirical methodology to test these relationships within the context of Indonesia non-financial sectors.

2.4 Hypotheses Development

Grounded in Trade-Off Theory, Pecking Order Theory, and Signaling Theory, this study provides ideas on how financial ratios, non-financial firm features, and stock price movements together influence insolvency risk. Previous research demonstrates that investors receive information about firm fundamentals and use it to inform market valuations, which in turn influence the results of insolvency. Based on this theoretical and empirical foundation, the following block hypotheses are proposed.

H_1: Financial variables (X_1) significantly affect stock price (Y_1)

Financial ratios such as liquidity, leverage, profitability, activity, and inventory turnover, represent key aspects of a corporation that investors assess when estimating its worth (Zutter & Smart, 2019). In line with semi-strong market efficiency, these accounting signals are reflected in market prices. Chen and Zhang (2007) indicating that financial conditions significantly affect stock price fluctuations.

H_1: Non-financial variables (X_2) significantly affect stock price (Y_1)

Under asymmetric conditions, non-financial indicators like the age of a company, number of employees, number of court cases, and number of shareholder it has operate as information signals (Spence, 1973). Previous research by (Eshghi, & Astvansh, 2024; Lo, Koedijk, Gao, & Hsu, 2020; Cheng, Zheng, & Tu, 2025; Bian, Chan, & Fong, 2020) has shown that changes in employment, lawsuits and the composition of shareholders all cause different market reactions. Consequently, firm-specific non-financial attributes are anticipated to substantially impact stock price movements.

H_3: Financial variables (X_1) significantly affect insolvency risk (Y_2)

Liquidity, leverage, profitability, activity and turnover are all well-known factors that might lead to financial trouble (Altman, 1968; Chang, & Yang, 2022). Trade-Off Theory argues that too much debt increases the likelihood that a company would go bankrupt (Kraus, & Litzenberger, 1973; Oktariyani, 2019), while liquidity and profitability help protect against distress. thus, financial ratios should have a direct impact on the likelihood of bankruptcy (Surya, 2026).

H_4: Non-financial variables significantly affect insolvency risk (Y_2)

Firm age, number of employees, number of court cases, and number of shareholders reflect underlying organizational resilience and governance quality. Younger firms face greater distress vulnerability (Bank & Insam, 2021). while layoffs and legal disputes often accompany deteriorating performance and higher distress likelihood. These indicators therefore are expected to have direct associations with insolvency risk.

H_5: Stock price (Y_1) significantly affects insolvency risk (Y_2)

According to market-based valuation theory and semi-strong efficiency, stock prices reflect what investors think about future cash flows, operational stability, and the chance of bankruptcy (Daily & Dalton, 1994). When stock prices go down, it usually means that people think the risk is higher and the fundamentals are getting weaker, which makes bankruptcy more likely. Empirical research substantiates this perspective, demonstrating that market-based indicators, including stock returns and price fluctuations, proficiently forecast financial crisis. This paper uses quantitative research methods to analyse the association between financial ratios, share prices and insolvency for non-financial companies listed on the Indonesia Stock Exchange (IDX).

The proposed research models illustrating the relationships between financial indicators, non-financial firm characteristics, stock price movements, and insolvency risk through multiple regression and binary logistic regression approaches are presented in Figure 1, Figure 2, Figure 3 and Figure 4.

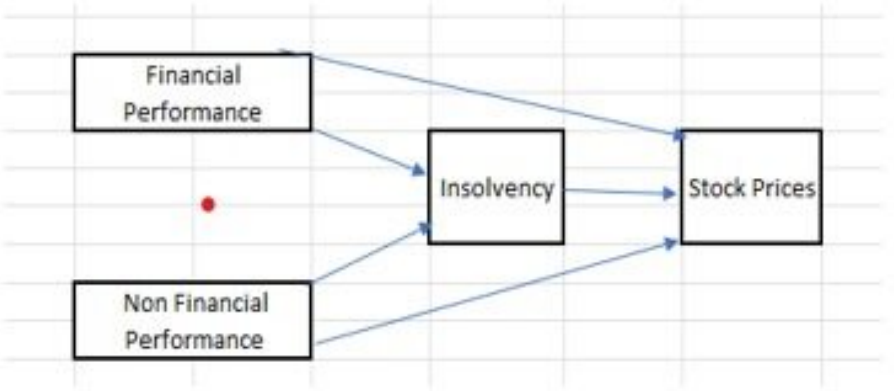

Figure 1. Research model

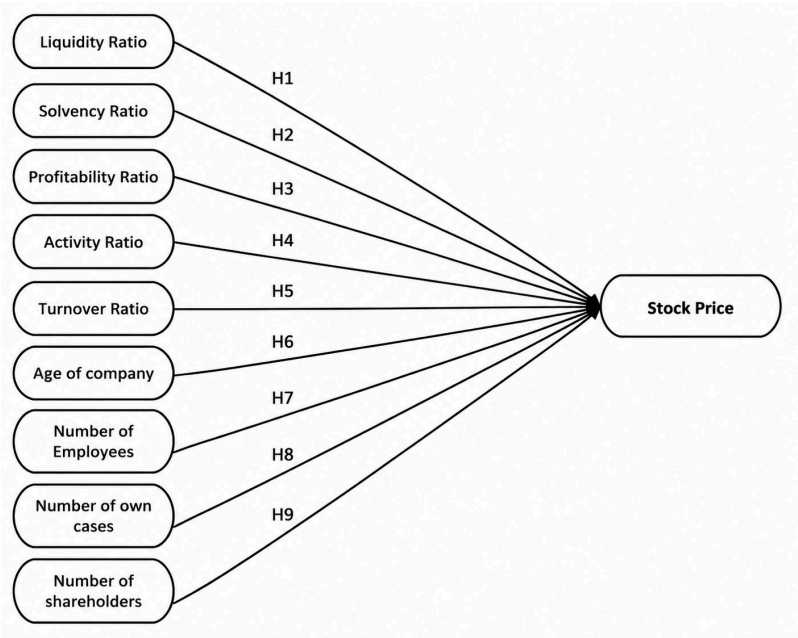

Figure 2. Research model for multiple regression

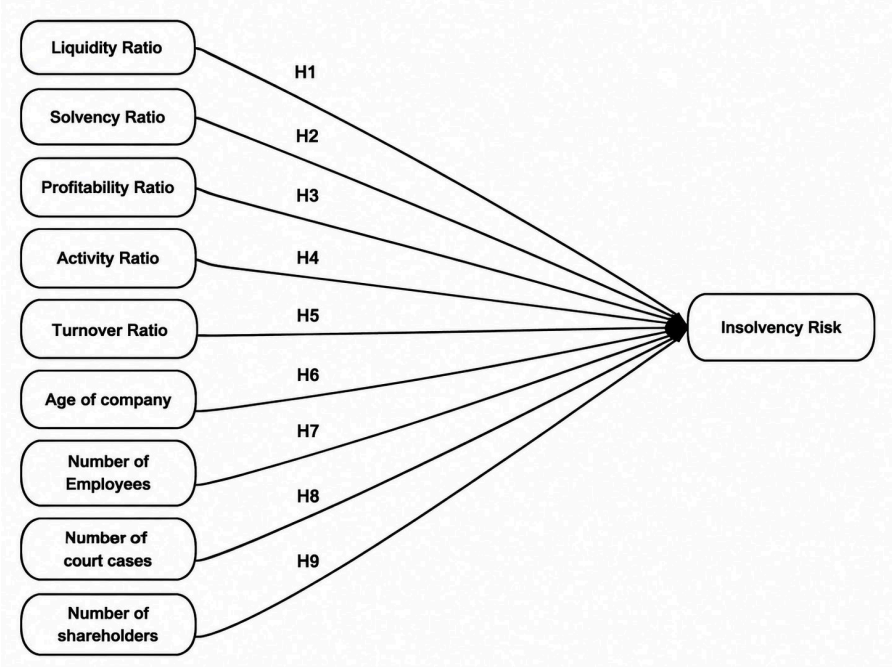

Figure 3. Research model for binary logistic regression (financial and non-financial determinants of insolvency risk)

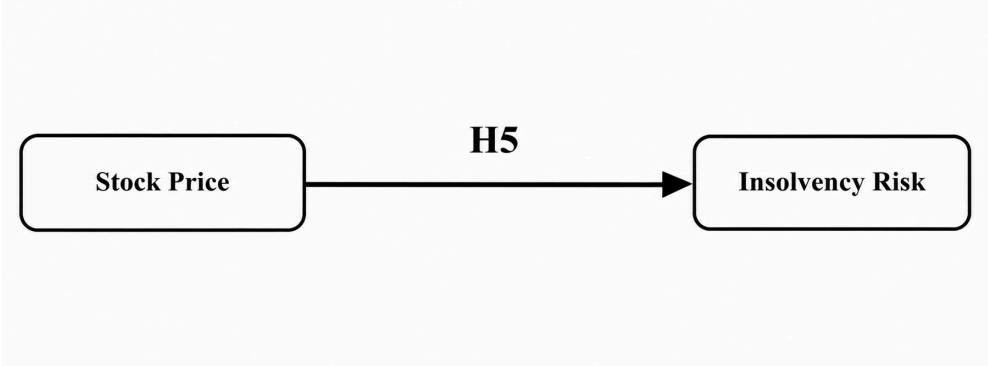

Figure 4. Research model for the relationship between stock price and insolvency risk

3. Research Methodology

This paper uses quantitative research methods to analyse the association between financial ratios, share prices and insolvency for non-financial companies listed on the Indonesia Stock Exchange (IDX). The study uses purposive sampling technique to ensure data consistency and reliability. The sampling criteria require that companies must have been listed on the IDX prior to 2017, must publish financial statements denominated in Indonesian Rupiah (IDR), and must provide complete financial and non-financial data required for the study throughout the observation period. The original population consisted of 29 non-financial companies observed over the period 2017–2024. After residual-based outlier filtering, the final sample was reduced to 19 firms, yielding 152 firm-year observations.

In this paper we use financial ratios (liquidity, solvency, profitability, activity and turnover), alongside non-financial variables (age of the company, number of employees and number shareholders). Stock price functions as a mediating variable, whereas insolvency risk serves as the dependent variable and is considered as a dichotomous indicator. Insolvency is proxied using the Debt-to-Equity Ratio (DER), consistent with prior literature emphasizing leverage as a principal marker of financial fragility (Nukala & Prasada, 2021). In line with empirical insolvency-risk classification practices, this study adopts a threshold of DER > 1 to identify firms exhibiting elevated financial risk, reflecting

capital structures in which liabilities exceed equity and exposing firms to heightened distress probability (Altman, 1968).

To examine the impact of financial and non-financial variables on insolvency risk, as well as the relation between stock price and insolvency, binary logistic regression is used. Multiple linear regression analysis is a statistical model used by regressing a single dependent variable on several independent variables (Ganesh, 2010). Multiple linear regression is employed to examine the influence of financial and non-financial variables on stock prices. Prior to estimation, we checked the classical linear regression's assumption to asses the model's validity. Among them are normality, homoscedasticity, autocorrelation and multicollinearity test among the regressors as conceptualized in the Classical Linear Regression Model (Gujarati & Porter, 2009). Normality concerns the distribution of residuals, heteroscedasticity refers to non-constant error variance, autocorrelation reflects correlation among disturbance terms, and multicollinearity arises When independent variables are very highly correlated to each other. Diagnostic testing of these assumptions is conducted to ensure unbiased and efficient estimation

Table 1. Financial ratio measurement and calculation formulas

Ratio	Formula	Source
Quick Ratio	$\frac{\text{Current Assets}-\text{Inventory}}{\text{Current Liabilities}}$	(Zutter & Smart, 2019)
Debt to Equity	$\frac{\text{Total Liabilities}}{\text{Total Equity}}$	(Zutter & Smart, 2019)
Return on Equity	$\frac{\text{Net Income}}{\text{Total Equity}}$	(Vătavu, 2015)
Total Asset Turnover	$\frac{\text{Sales}}{\text{Total Assets}}$	(Weidman et al., 2019)
Inventory Turnover	$\frac{\text{Cost of Goods Sold}}{\text{Inventory}}$	(Zutter & Smart, 2019)

Data processing is conducted using IBM SPSS 25 due to its efficiency in handling descriptive statistics, correlation analysis, and regression modeling (Han, Wu, Wang, & Hong, 2018). Model evaluation for linear regression utilizes R^2, Adjusted R^2, F-tests, and t-tests, while logistic regression is assessed using -2 Log Likelihood and Nagelkerke R^2. This method allows for a thorough evaluation of the impact of firm characteristics and financial performance on stock price fluctuations and bankruptcy risk in Indonesian non-financial companies. The financial variables used in this study are operationalized using established accounting ratios to measure liquidity, leverage, profitability, asset utilization, and inventory efficiency. The measurement formulas and supporting references for each financial ratio are presented in Table 1 . In addition to financial indicators, this study incorporates several non-financial firm characteristics as explanatory variables, including firm age, number of employees, number of court cases, and number of shareholders. The operational definitions and supporting references for these variables are presented in Table 2.

Table 2. Non financial firm characteristic and measurement references

Variables	Reference
Age of Company	(Kieschnick & Moussawi, 2018)
Number of Employees	(Navarro-Galera, Gómez-Miranda, Lara-Rubio, & Buendía-Carrillo, 2024)
Number of Court Cases	(Navarro-Galera, Gómez-Miranda, Lara-Rubio, & Buendía-Carrillo, 2024)
Number of Shareholders	(Russo, 2020)

4. Results and Discussions

4.1 Results

4.1.1 Normality Test

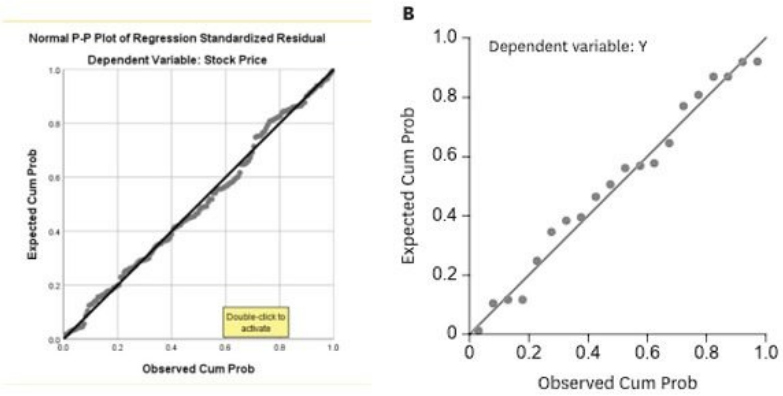

Figure 5. Our P-plot (left) and Kim (2019) P-plot (right)

Normality test in this research is tested based on Percentile-percentile plot. According to Kim (2019), a normal percentile-percentile plot (P plot) should have dots running along the diagonal line as seen in Figure 5 . This demonstrates that our data is normally distributed.

4.1.2 Heteroscedasticity test

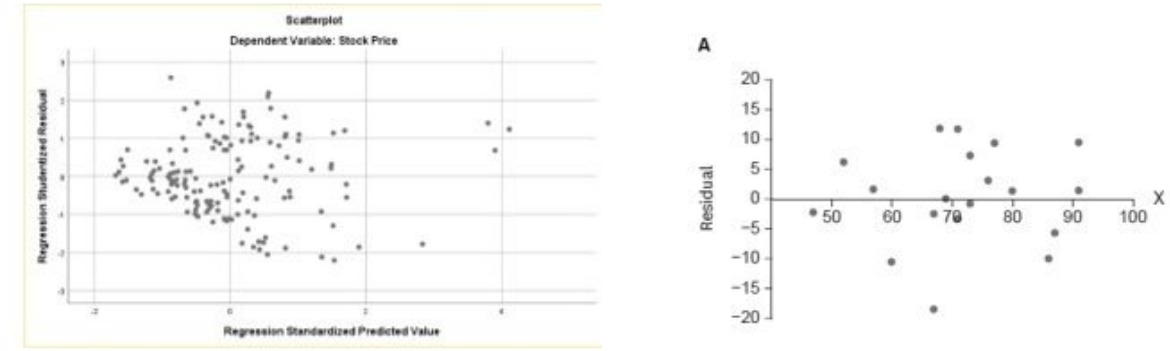

Figure 6. Our scatterplot (left) and Kim (2019) scatterplot (right)

We assess the homoscedasticity assumption in this study using a residual scatterplot. Homoscedasticity occurs when the variance of the residuals is constant across fitted values, while heteroscedasticity indicates the presence of unequal variances (Kim, 2019). Figure 6 shows our residual plot indicates minor heteroscedasticity, because there is more dispersion on residuals in line with increasing fitted values. However, because to the minor heteroscedasticity found, the regression findings remain readable, although robust standard errors can be considered to mitigate potential bias.

4.1.3 Multicollinearity Test

Multicollinearity was assessed using the Variance Inflation Factor (VIF) and tolerance values. Following Gujarati and Porter (2009)VIFs lower 10 and tolerance values close to 1 indicate no severe multicollinearity**.** However, VIFs above 10 and tolerance score close to 0 means variables are highly collinearity. The results of the multicollinearity assessment and regression analysis are presented in Table 3.

Table 3. Regression analysis

Model		**Unstandardized coefficients**			**T**	**sig**	**Collinearity statistics**	**Collinearity statistics**
		B	Std error	Beta			Tolerance	VIF
1	Constant	156.601	156.534		1.000	0.319		

Model		Unstandardized coefficients			T	sig	Collinearity statistics	Collinearity statistics
1	Quick ratio	50.662	29.154	0.145	1.738	0.084	0.525	1.906
	Debt to equity	-289.641	115.133	-0.259	-2.516	0.013	0.346	2.890
	ROE	2896.339	560.492	0.365	5.167	0.000	0.731	1.367
	Asset turnover	214.798	112.857	0.225	1.903	0.059	0.262	3.821
	Inventory turnover	3.964	4.700	0.059	0.844	0.400	0.739	1.353
	Age of company	3.071	2.031	0.107	1.512	0.133	0.735	1.361
	Number of employees	0.006	0.002	0.333	3.060	0.003	0.309	3.232
	Number of shareholders	-0.008	0.003	-0.165	-2.533	0.012	0.865	1.156

4.1.4 Autocorrelation Test

Durbin Watson is used to detect auto correlation in this research. According to (Porter & Gujarati, 2009) durbin Watson is one of the most used method to detect auto correlation, often used. The results of the Durbin–Watson test and model summary are presented in Table 4.

Table 4. Model summary durbin watson

Model	R	R Square	Adjusted R Square	Std error of The Estimate	Durbin Watson
1	0.691	0.478	0.448	438.380	0.472

Table 4 shows a Durbin Watson statistic of 0.472. Given one independent variable, the corresponding lower and upper critical values are dL = 1.6397 and dU = 1.8320, according to the Durbin Watson critical value table provided by (Porter & Gujarati, 2009) Since the calculated statistics falls below the lower bound, the null hypothesis of no autocorrelation is rejected, indicating the presence of positive autocorrelation in the regression residuals. The decision criteria for identifying autocorrelation based on the Durbin-Watson d-statistic are presented in Figure 7. According to Figure 7, the Durbin–Watson statistic was calculated at 1.98, satisfying the non-rejection condition and demonstrating the absence of first-order autocorrelation (Gujarati & Porter, 2009). This statistical robustness guarantees that the model faithfully preserves the integrity of the underlying human-centered phenomena, providing a trustworthy foundation for empathetic policy-making and organizational support.

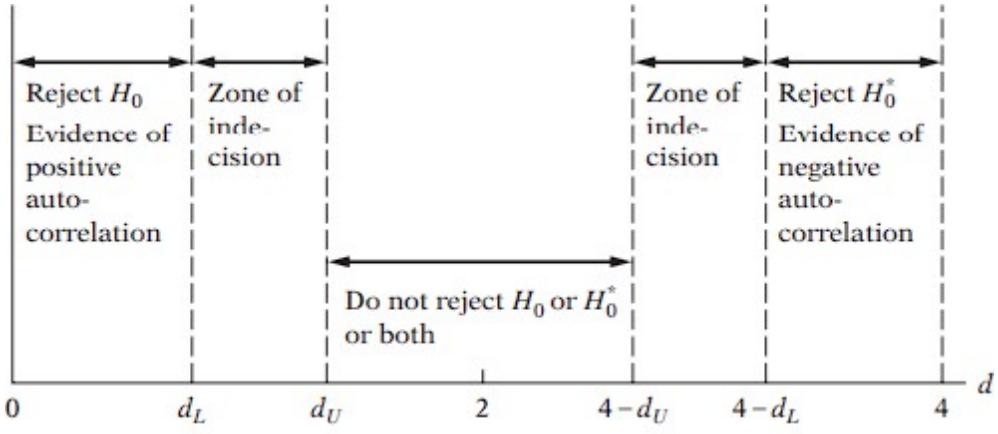

Figure 7. Durbin–Watson d statistic

4.1.5 Multiple Regression Results

Multiple regression linear results on non financial and financial variables (X) effects on stock prices (Y_1). The multiple linear regression analysis was applied to understand the significance of financial and non financial variables on stock price movement. Mermer and Demir (2025)states A value of R over 0.8 signifies a strong correlation, a value less than 0.2 denotes a weak correlation, and values between 0.2 and 0.8 suggest a moderate connection. Table 2 shows R used to conduct correlation

analysis, our results shows R is measured at 0.691, indicating statistically the relationship between dependent variable stock price and independent financial and non financial variable is moderate.

Table 5. Anova

Model		Sum of Square	Df	Mean Square	F	Sig
1	Regression	25148652.150	8	3143581.519	16.336	0.000
	Residual	27518277.745	143	192435.509		
	Total	52666929.895	151			

Moreover, Table 5 presents the adjusted R-squared value, which is used to assess the explanatory power of the regression model. According to Mermer and Demir (2025), adjusted R^2 is a more appropriate metric than R^2. The adjusted R^2 value ranges from 0 to 1, where values closer to 1 indicate that the independent variables explain a greater proportion of the variation in the dependent variable, reflecting stronger predictive accuracy. The results show that the adjusted R^2 value is 0.449, indicating that approximately 44.9% of the variation in the dependent variable stock price can be explained by the financial and non-financial independent variables included in the model, while the remaining 55.1% is attributable to other factors not captured by this model.

Model fitness was assessed with the F-test. The null hypothesis (H_0) states the model is not fit to use for this research, while the alternative hypothesis (H_1) states model is fit for research. Following Gujarati and Porter (2009), a regression model is statistically significant at the 5% level if the F-statistic exceeds the critical value. Table 5 shows the F-statistic for this model is 16.336, and the critical F-value is 2.07. Accordingly, H_0 is rejected, indicating that the model is fit for usage on this research. The regression equation was specified following the multiple linear regression framework proposed by Gujarati and Porter (2009), The statistical significance of individual coefficients was assessed using the t-test at the 5% significance level Gujarati and Porter (2009). The general form of the estimated model is expressed in Formula 6 :

$$\begin{aligned}\hat{Y}_i &= \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} \\ &+ \beta_4 X_{4i} + \beta_5 X_{5i} + \beta_6 X_{6i} + \beta_7 X_{7i} + \beta_8 X_{8i}\end{aligned} \tag{6}$$

By substituting the unstandardized coefficients (B) reported into the model, the estimated regression equation presented in Formula 7 :

$$\begin{aligned}\hat{Y}_i = {} & 156.601 + 50.662 QuickRatio - 289.641 DebttoEquity \\ & + 2896.339 ReturnonEquity + 214.798 AssetTurnover \\ & + 3.964 InventoryTurnover + 3.071 AgeofCompany \\ & + 0.006 NumberofEmployees - 0.008 NumberofShareholders\end{aligned} \tag{7}$$

The regression model demonstrates how independent variables influence stock price while controlling for other factors. The results indicate that DER has a negative and significant effect, suggesting that higher leverage reduces market valuation, while ROE positively influences stock price, highlighting profitability as an important valuation factor. Number of employees also shows a positive significant effect, whereas the number of shareholders has a negative significant relationship, indicating that ownership dispersion may reduce firm value. Other variables, including liquidity, activity, turnover, and firm age, do not significantly affect stock price.

The t-test results confirm that DER significantly affects stock price ($t = -2.516$, $p = 0.013$), supporting the role of financial factors in market valuation. ROE shows a strong positive effect ($t = 5.167$, $p = 0.001$), indicating that profitability attracts investors. Number of employees positively affects stock price ($t = 3.060$, $p = 0.003$), while number of shareholders negatively affects stock price ($t = -2.533$, p

= 0.012). These findings suggest that leverage, profitability, operational capacity, and ownership structure are important determinants of stock price movements.

4.1.6 Binary Logistic Results

Block-wise binary logistic regression was computed. Block 0 contained the intercept only, while Block 1 included the predictors. According to Hosmer, Lemeshow, and Sturdivant (2013) model goodness-of-fit was evaluated using the likelihood test and overall model fit was evaluated using Hosmer-Lemeshow goodness-of-fit test, Nagelkerke R^2, and -2 log likelihood. The regression model excludes DER, which specifies the binary insolvency risk proxy, as it would directly affect the dependent variables, leading to endogeneity and multicollinearity concerns.

Table 6. Iteration history step 0

Iteration		-2 Log likelihood	Coefficient Constat
Step 0	1	154.577	-1.184
	2	153.773	-1.353
	3	153.771	-1.362
	4	153.771	-1.362

Table 7. Iteration history step 1

Coefficients										
Iteration		-2 log likelihood	Constant	Quick Ratio	ROE	Asset Turnover	Inventory Turnover	Age Of Company	Number Of Employees	Number Of Sharehol Der
Step 1	1	105.249	-1.196	- 0.235	- 1.146	0.043	0.066	-0.004	0.000	0.000
	2	90.635	-1.178	- 0.563	- 2.120	0.082	0.093	-0.006	0.000	0.000
	3	84.479	-0.555	- 1.030	- 2.608	0.095	0.104	-0.012	0.000	0.000
	4	81.246	0.390	- 1.619	- 2.163	0.083	0.113	-0.025	0.000	0.000
	5	79.980	1.263	- 2.240	- 1.480	0.072	0.125	-0.037	0.000	0.000
	6	79.786	1.694	- 2.593	- 1.186	0.071	0.134	-0.043	0.000	0.000
	7	79.781	1.772	- 2.659	- 1.146	0.071	0.136	-0.044	0.000	0.000
	8	79.781	1.774	- 2.661	- 1.145	0.071	0.136	-0.045	0.000	0.000
	9	79.781	1.774	- 2.661	- 1.145	0.071	0.136	-0.045	0.000	0.000

Seen in Table 6 and Table 7, the -2 Log Likelihood decreased significantly from 153.771 in block 0 to 79.781 in block 1 indicating that model fit was drastically improved. Hosmer et al. (2013) claim that a decrease in -2 Log Likelihood between multiple models signifies that the predictors collectively improve the model's capacity to explain the observed outcome compared to the intercept-only specification.

Table 8. Model summary

Step	-2 log likelihood	Cox and Snell R Square	Nagelkerke R Square
1	35.785	0.300	0.401

Table 8 also demonstrates that the Nagelkerke R^2 of 0.401 shows considerable explanatory power, which is in line with standard interpretations of pseudo-R^2 measures in logistic regression (Linneman, 2021).

We used the Hosmer-Lemeshow goodness-of-fit test to check how well the model fit. The test checks the null hypothesis (H_0) that the model is fit with the observed data. Table 9 shows, the significance score of 0.450 (> 0.05) shows that the null hypothesis cannot be rejected, which means that the model fits the observation well.

Table 9. Hosmer and lemeshow test

Step	Chi Square	df	Sig
1	7.834	8	0.450

Table 10. Results of binary logistic

Variables	B	S.E.	Wald	df	Sig.	Exp(B)
Quick Ratio	-2.674	1.028	6.767	1	.009	0.069
ROE	-0.843	5.107	0.27	1	.869	0.430
Asset Turnover	-0.124	0.980	0.016	1	.899	0.883
Inventory Turnover	0.135	0.042	10.095	1	0.001	1.144
Age of the Company	-0.046	0.032	2.025	1	0.155	.955
Number of Employees	0.000	0.000	0.581	1	0.446	1.000
Number of Shareholders	0.000	0.000	1.990	1	0.158	1.000
Constant	2.041	1.680	1.476	1	0.224	7.695

Table 10 reports the coefficient estimates used to test the study's hypotheses regarding the effects of firm characteristics on insolvency risk. Consistent with H_3, the results show that Quick Ratio (sig = 0.009) and Inventory Turnover (sig = 0.001) are statistically significant predictors of insolvency risk, as their p-values fall below the 0.05 threshold. This shows low liquidity and high inventory turnover impact firm insolvency, because low liquidity reflects the incapabilities to pay short term obligations while abnormally high inventory turnover showcases frequent stockouts, decreasing sales volume and high operational cost. Return on Equity, Asset Turnover, Firm Age, Number of Employees, and Number of Shareholders have sig values over 0.05, showing no predictive influence. These results provide limited support for H_4, as the non-financial variables included in the model do not demonstrate meaningful predictive power.

Overall, the findings indicate that liquidity and inventory-related operational efficiency are the primary firm-level contributors to insolvency risk in the sampled enterprises. However, the model also suggests that a substantial portion of insolvency risk remains unexplained, pointing to potential influences from macroeconomic, structural, or governance-related factors not included in the model. Future research may enhance predictive accuracy by incorporating external variables such as market conditions, governance indicators, or composite measures like the Altman Z-score.

5. Conclusions

5.1 Conclusion

Our research investigates the impact of both financial ratios and nonfinancial firm characteristics on stock prices and corporate bankruptcy risk among non-financial firms listed in Indonesia Stock Exchange over 2017–2024. Inspired by the growth and financial fragility of the market post COVID-19 pandemic, the study combines company fundamentals and company characteristics to examine whether stock prices convey information about corporate insolvency in a growing markets.

The empirical results from the multiple linear regression model indicate that stock prices are significantly driven by core financial fundamentals and firm charateristics. Profitability ratio (ROE) stands out as the most significant positive factor influencing stock prices, confirming the belief that more profitable companies are seen more favorably by investors. In contrast, solvency ratio (DER) has a significant negative effect on stock prices, reflecting investor sensitivity to financial risk. Among non-financial variables, the number of employees is positively correlated with stock prices, suggesting that workforce volume, operational capacity or firm expansion functions as a good market signal, whereas number of shareholders provides a negative effect on stock price, proposing that more ownership dispersion may be perceived by investors as a weaker control of market supply and demand.

5.2 Research Limitations

Despite providing robust theoretical insights into corporate survival and market behavior, this study carries inherent limitations that must be acknowledged through both an empirical and humanistic lens. Methodologically, the analysis is restricted to non-financial listed firms within Indonesia capital market from 2017 to 2024, which limits the direct transferability of these insights to unlisted

small-to-medium enterprises (SMEs) or banking sectors where human capital vulnerabilities and liquidity mechanisms operate under distinct regulatory pressures. Furthermore, while quantitative metrics such as workforce scale and shareholder base served as proxies for organizational structure, the empirical framework relied primarily on periodic accounting statements without capturing qualitative, human-centric governance dimensions—such as executive empathy, employee welfare policies, or Environmental, Social, and Governance (ESG) commitments—which profoundly influence organizational resilience and stakeholder trust during crises. Finally, the static parameterization of binary logistic modeling, though effective for structural evaluation, does not fully absorb dynamic, external macroeconomic shocks like inflationary pressures or foreign exchange volatility that directly impact real-world household stability and corporate treasury management.

5.3 Suggestions and Directions for Future Research

Despite its rigorous empirical framework, this study is subject to several limitations that provide opportunities for future research. First, the study focuses exclusively on non-financial firms listed on the Indonesia Stock Exchange, which may limit the generalizability of the findings. Future studies should extend the analysis to financial institutions or conduct cross-country comparisons across ASEAN emerging markets to examine the broader applicability of the structural decoupling phenomenon. Second, the empirical models rely on panel multiple linear regression and binary logistic regression without explicitly incorporating continuous macroeconomic uncertainty indicators, such as inflation volatility, interest rate shocks, and exchange rate fluctuations. Future research may employ dynamic panel GMM or Structural Equation Modeling (SEM) to capture potential non-linear relationships and macroeconomic moderating effects. Third, although this study incorporates workforce scale and shareholder structure as non-financial characteristics, future investigations should include broader qualitative governance dimensions, such as Environmental, Social, and Governance (ESG) performance, board diversity, and executive compensation structures, to provide deeper insights into how managerial governance influences solvency risk.

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Author Contributions

To ensure transparency and individual accountability for this research, the authors declare their specific contributions according to the CRediT (Contributor Roles Taxonomy) framework. TD and DO contributed to the conceptualization of the study. AF and DT were responsible for the methodology and study design. DO contributed to data collection and curation. TD and AF conducted data analysis and econometric modeling. TD prepared the original draft, while DO and AF contributed to writing review and editing. All authors were involved in supervision and project administration. Finally, TD and AF contributed to funding acquisition.

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