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The Relationship Between Liquidity, Leverage, Cash Flow, and Profitability On Financial Distress

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ABSTRACT

This study examines the relationship between liquidity, leverage, cash flow, and profitability and financial distress in property and real estate companies listed on the Indonesia Stock Exchange from 2021 to 2024. Financial distress is a condition in which a company experiences financial difficulties, characterized by insufficient operating cash flow to meet long-term and short-term obligations during the fall. Using signaling theory as a theoretical framework, this study employed purposive sampling and obtained a sample of 20 companies with 80 observations per company-year. Data were collected from secondary data sources, namely annual reports, and analyzed using correlation tests with Stata 17 software. The results indicate that liquidity has a high positive relationship with financial distress, leverage has a very high negative relationship with financial distress, cash flow has a low positive relationship with financial distress, and profitability does not show a significant relationship with financial distress

Keywords: Liquidity, Leverage, Cash Flow, Profitability, Correlation Analysis

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INTRODUCTION

Enterprises are constituted with the fundamental aim of generating financial returns. Profit is defined as the net income of an entity, reflecting an increase in economic benefits within an accounting periode. This encompasses increments in assets or diminutions in liabilities that result in a corresponding rise in equity, as well as transactions conducted with shareholders (Sakinah & Muniarty, 2021). In the research, financial distress was evaluated utilizing the Altman Z-Score Model, owing to its established efficacy as ad predictive instrument for forecasting the likehood of corporate bankcrupty (Altman, n.d.). The phenomenon indicative of financial distress in this research centers on firms engaged in the property and real estate industry, publicy listed on the Indonesia Stock Exchange (IDX) throughout the 2021-2024 timeframe. To depict the fluctuations of financial distress, this study employs the Altman Z-Score ratio as a surrogate measure, as detailed in Figure 1.1

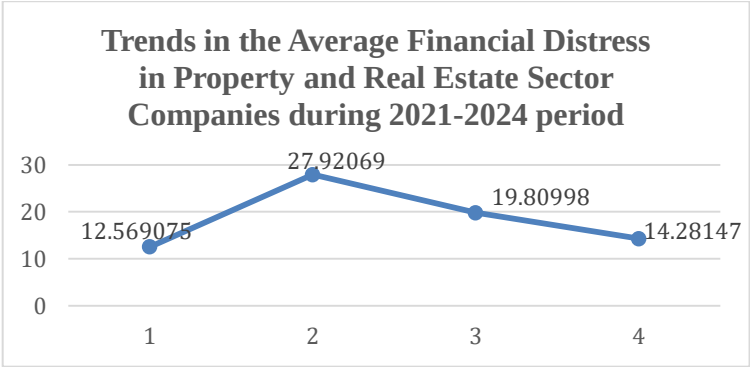


Figure 1. Trends in Average Financial Distress in Property and Real Estate Sector Companies during 2021-2024 period

Source: Researcher's processed data, 2025

This variability signifies that the firm's financial position is unstable. Such a condition emerges when an enterprise is incapable of fulfilling its financial obligations, particularly when confronted with challenges related to shot-term liquidity and solvency. A company is regarded as liquid if it is able to discharge its short-term liabilities promptly. To satisfy these obligations, the firm must maintain an adequate level of cash or other current assets that can be readily transformed into cash. Furthermore, short-term solvency serves as an indicator for evaluating a company's capacity to honor all of its commitments, encompassing both short-term and long-term liabilities (Hery, 2016).

Cash flow is recognized as a key determinant of financial distress, as it provides creditors and investors with insights into a firm's liquidity position and its capacity to generate earnings. It encompasses operating cash flows and current liabilities that contribute to revenue formation (Hery, 2016). Profitability ratios are likewise employed to assess a firm's efficiency in producing income from its operational activities. Ultimately, the fundamental objective of corporate operations is to maximize profitability over both short- and long-term horizons (Hery, 2016).

The present investigation employs signaling theory, which posits that firms disclose financial information to the capital market as a means of conveying their anticipated future performance and prospects (Brigham & Houston, 2016). This information can be a positive signal, such as an increase in profits, or a negative signal, such as a decrease in profits. A positive signal can also be indicated by a company's poor financial condition (financial distress), which indicates a company's good financial condition and good prospects (Wijaya & Suhendah, 2023).

Prior empirical studies investigating the determinants of financial distress have produced divergent findings. (Priana Farchan Nugraha, Amin.Moh, 2024) revealed that liquidity has a significant positive influence on financial distress; however, (Wijaya & Suhendah, 2023) identified a significant negative association, while (Darussalam et al., 2023) reported no significant relationship. The effect of leverage likewise remains inconclusive, with (Sudaryanti & Dinar, 2019) finding no association and (Fatimah et al., 2019) documenting a significant positive impact. Variations are also evident in studies concerning cash flow, where (Wijaya & Suhendah, 2023) observed a positive and significant relationship, yet (Dewi et al., 2022) concluded that cash flow exerts no significant influence on financial distress. Similarly, evidence regarding profitability is inconsistent: (Evita & Mildawati, 2019) reported a positive and significant effect, whereas (Oktaviani & Zaretta, 2024) identified a negative and significant association, and (Suryani, 2020) found no significant relationship. These empirical discrepancies highlight the need for further scholarly investigation to provide more conclusive evidence on the factors influencing financial distress.

This study builds upon the work of (Wijaya & Suhendah, 2023), who examined the influence of liquidity, leverage, and cash flow on financial distress among firms in the cyclical consumer sector listed on the Indonesia Stock Exchange (IDX). The findings of that research revealed that liquidity and cash flow exert significant positive effects on financial distress, whereas leverage demonstrates a significant negative effect. The present investigation extends this line of inquiry in several respects. First, profitability is incorporated as an additional independent variable, given that firms possess the capacity to optimize the utilization of their assets. Second, while (Wijaya & Suhendah, 2023) employed an

observation period spanning 2019–2021, this study encompasses the years 2021–2024, representing the post–COVID-19 economic recovery phase. Third, the current analysis concentrates on the property and real estate sector, which is undergoing a resurgence following the pandemic and plays a vital role in revitalizing the Indonesian domestic economy.

The primary objective of this research is to empirically investigate the associations between liquidity, leverage, cash flow, and profitability and their influence on financial distress. This investigation employs panel data obtained from the annual reports of property and real estate firms listed on the Indonesia Stock Exchange (IDX) throughout the 2021–2024 observation period.

MATERIALS AND METHODS

This research adopts a quantitative methodology, utilizing secondary data derived from corporate annual reports published by the Indonesia Stock Exchange (IDX) via its official website (www.idx.co.id) and respective company websites. The study focuses on property and real estate firms listed on the IDX during the 2021–2024 period. The research population comprises 94 companies, from which a sample of 20 firms was selected through a purposive sampling technique based on predetermined criteria

Table 1. Sample Selection Criteria

No	Description	Total Companies
1	Property and Real Estate sector companies listed on the Indonesia Stock Exchange (IDX)	94
2	Propery and Real Estate sector companies that conducted an Initial Public Offering (IPO) on the Indonesia Stock Exchange prior to 2021-2024	82
3	Companies that did not publish a complete Annual Report during the 2021-2024 period	47
4	Property and real estate companies that make profits	20
Total Research Sample		**20**
Research Period (2021-2024)		**4**
Total Research Observations		**80**

Source: Researcher's Processed Data, 2025

The dependent variable in this research is Financial Distress, whereas the independent variables comprise Liquidity, Leverage, Cash Flow, and Profitability.

Tabel 2. Operational Definition of Variables

No	Variable	Operational Definition	Measurement/Indicator	Scale
1	Financial Distress (Y)	Financial Distress is a condition in which a company experiences financial difficulties characterized by operating cash flow that is insufficient to meet long-term and short-term obligations when they fall due (Hakim, 2024)	$Z = 6{,}5X_1 + 3{,}26X_2 + 6{,}27X_3 + 1{,}05\ X_4$ (Altman, n.d.)	Ratio
2	Liquidity (X1)	Rasio yang digunakan untuk mengukur kemampuan perusahaan dalam memenuhi seluruh kewajiban jangka pendeknya yang segera jatuh tempo (Hery, 2016)	Current Ratio $= \frac{Aktiva\ Lancar}{Utang\ Lancar}$ (Kasmir, 2019)	Ratio
3	Leverage (X2)	Rasio yang digunakan untuk mengukur seberapa aset perusahaan yang dibiayai oleh utang atau	Debt To Total Assets $= \frac{\text{Total Utang}}{}$	Ratio

No	Variable	Operational Definition	Measurement/Indicator	Scale
		seberapa besar utang berpengaruh terhadap pembiayaan aset (Hery, 2016)	Total Aset (Kasmir, 2019)	
4	Cash Flow (X3)	The cash flow statement presents information about a company's cash inflows and outflows during a period. This report provides important insights into the company's ability to generate cash from operating activities, make investments, meet obligations, and pay dividends (Hery, 2016)	Arus Kas Operasi terhadap Kewajiban Lancar $= \frac{Arus\ Kas\ Operasi}{Kewajiban\ Lancar}$ (Hery, 2016)	Ratio
5	Profitabilitas (X4)	The ratio used to measure how much net profit is generated from the amount of assets used, also known as the return on investment rasio (Hery, 2016)	Return On Asset $= \frac{Laba\ Bersih}{Total\ Aset}$ (Kasmir, 2019)	Ratio

Source: Researcher's Processed Data, 2025

The data acquisition procedures in this investigation employed documentary evidence and a review of scholarly literature. The analysis utilized a correlation examination executed through the STATA software version 17. A correlation assessment constitutes an analytical approach designed to quantify the magnitude of association among two or more variables, thereby yielding a correlation coefficient that reflects the degree of interrelationship (Indartini & Mutmainah, 2024). The correlation analyses encompass several forms, namely the Pearson correlation analysis, the Spearman rank-order correlation analysis, and Kendall's tau correlation analysis.

RESULTS

The descriptive statistical analysis in this research delineates the fundamental attributes of each variable employed: the dependent variable Y (Financial Distress) and the independent variables X, comprising X1 (Liquidity), X2 (Leverage), X3 (Cash Flow), and X4 (Profitability). Table 4. Descriptive Statistical Results

Table 3. The Result of The Descriptive Statistical Analysis

```
. summarize CR DAR AR ROA ZSCORE
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Variable	Obs	Mean	Std. dev.	Min	Max
CR	80	10.79732	40.10567	.4131381	308.7904
DAR	80	.3233567	.1827539	.002312	.9643342
AR	80	.8040755	4.064544	-4.130572	36.09263
ROA	80	.0423597	.0323652	-.0284591	.1206637
ZSCORE	80	18.6453	64.62982	-3.615378	457.4965

Source: Stata 17 output (data processed by researchers, 2025)

The findings of the descriptive statistical examination indicate that the Financial Distress variable (Altman Z Score) exhibits an average magnitude of 18.6453 accompanied by a dispersion measure (standard deviation) of 64.62982, with the lowest observed value being -3.615378 and the highest recorded value reaching 457.4965; a maximum value exceeding the mean + 3 standard deviations indicates an outlier. The Liquidity (CR) variable has a mean of 10.79732 with a standard deviation of 40.10567, a minimum value of 0.4131381; a maximum value exceeding the mean + 3 standard deviations indicates an outlier. The Leverage (DAR) variable has a mean of 0.3233567 with a standard deviation of 0.1827539, a minimum value of 0.002312, and a maximum value of 0.9643342; a maximum value exceeding the mean + 3 standard deviations indicates an outlier. The Cash Flow (AR) variable exhibits an average value of 0.8040755 with a standard deviation of 4.064544, a minimum value

of -4.130572, and a maximum value of 36.09263; a maximum value exceeding the mean + 3 standard deviations indicates an outlier. Meanwhile, Profitability (ROA) has a mean of 0.0423597 with a standard deviation of 0.0323652, a minimum value of -0.0284591 and a maximum value of 0.1206637; this range of values is still considered reasonable so that no indication of outliers is found in this variable.

The presence of outliers needs to be considered in further analysis by carrying out a winsorizing procedure to tame the outliers so that the descriptive statistical results are more stable and representative.

Table 4 Descriptive Statistics Results for Variables Containing Outliers After Winsorizing

Variable	Obs	Mean	Std. dev.	Min	Max
CR_w	80	4.820758	7.699954	1.003628	36.59031
DAR_w	80	.3184663	.1621802	.0440837	.603573
AR_w	80	.4135573	.5214046	-.2971462	1.56754
ZSCORE_w	80	9.216876	17.14618	1.577286	82.65592

Source: Stata 17 output (data processed by researchers, 2025)

After the winsorization procedure, descriptive statistics show that the Financial Distress (Altman Z-score) variable experienced a mean decrease to 9.216876, with a standard deviation of 17.14618, a minimum observation of 1.577286, and a maximum of 82.65592. This indicates a more balanced data distribution with a reduced influence of extreme outliers. Similarly, Liquidity (CR) showed a mean decrease to 4.820758, with a standard deviation of 7.699954, a minimum observation of 1.003628, and a maximum of 36.59031, indicating a more consistent distribution without substantial outlier influence.Furthermore, Leverage (DAR) recorded an average decrease to 0.3184663 with a standard deviation of 0.1621802, a minimum of 0.0440837, and a maximum of 0.603573, indicating that the distortion caused by outliers has been effectively mitigated. The Cash Flow (AR) variable also showed an average decrease to 0.4135573, with a standard deviation of 0.5214046, a minimum of -0.2971462, and a maximum of 1.56754, reflecting a more uniform and reliable data distribution, indicating that the influence of outliers was successfully reduced. Next, a normality test was performed using the Skewness-Kurtosis method.

Table 5 NormalityTest Results

Skewness and kurtosis tests for normality

				Joint test	
Variable	Obs	Pr(skewness)	Pr(kurtosis)	Adj chi2(2)	Prob>chi2
CR_w	80	0.0000	0.0000	59.61	0.0000
DAR_w	80	0.5473	0.0013	9.28	0.0097
AR_w	80	0.0018	0.8517	8.54	0.0140
ROA	80	0.2896	0.3986	1.89	0.3883
ZSCORE_w	80	0.0000	0.0000	65.47	0.0000

Source: Stata 17 output (data processed by researchers, 2025)

The outcomes of the residual normality assessment employing the Skewness-Kurtosis Test (sktest) reveal that all variables under investigation deviate from a normal distribution. This condition is likewise observed in the Financial Distress variable (Altman Z-Score) has a Prob > chi2 0.0000 < 0.05, thus not normally distributed. The Liquidity (CR) variable has a Prob > chi2 0.0000 < 0.05, thus not normally distributed. The Leverage (DAR) variable has a Prob > chi2 0.0097 < 0.05, thus not normally distributed. The Cash Flow (AR) variable has a Prob > chi2 0.0140 < 0.05, thus not normally distributed. Meanwhile, the Profitability (ROA) variable has a Prob > chi2 0.3883, which is normally distributed. Thus, it can be concluded that all research variables do not meet the assumption of normality, so correlation testing uses the Spearman rank correlation

Table 6. Results of the Spearman Rank Correlation Test

```
. spearman CR_w DAR_w AR_w ROA ZSCORE_w, stats (rho p)
(obs=80)
```

Key
rho
Sig. level

	CR_w	DAR_w	AR_w	ROA	ZSCORE_w
CR_w	1.0000				
DAR_w	-0.4451	1.0000			
	0.0000				
AR_w	0.1690	-0.3531	1.0000		
	0.1340	0.0013			
ROA	-0.0082	-0.2869	0.7135	1.0000	
	0.9423	0.0099	0.0000		
ZSCORE_w	0.7506	-0.8507	0.3301	0.1770	1.0000
	0.0000	0.0000	0.0028	0.1163	

Source: Stata 17 output (data processed by researchers, 2025)

The outcomes of the Spearman correlation analysis indicate that the *Current Ratio (CR)* exhibits a correlation coefficient of 0.7506 with a significance level of 0.0000 (<0.05), signifying a strong and statistically significant positive association. This implies that greater liquidity corresponds to a higher *Z-Score*, suggesting that the company is positioned further away from potential *financial distress*. The *Debt to Asset Ratio (DAR)* reveals a correlation coefficient of -0.8507 with a significance value of 0.0000 (<0.05), denoting a very strong and significant inverse association, meaning that an increase in leverage corresponds to a decrease in *financial distress*, or conversely, a higher likelihood of financial vulnerability. Furthermore, *Operating Cash Flow (AR)* demonstrates a correlation coefficient of 0.3301 with a significance value of 0.0028 (<0.05), indicating a weak yet statistically significant positive linkage, implying that as operational cash flows increase, the firm tends to move further from the condition of *financial distress*. In contrast, *Return on Assets (ROA)* shows a correlation coefficient of 0.1770 with a significance value of 0.1163 (>0.05), which signifies a low and statistically insignificant positive relationship. Therefore, profitability does not exhibit a meaningful association with *financial distress* within the context of this analysis.

Discussion

The results of the Spearman correlation test substantiate this, showing a coefficient of 0.7506, which signifies a strong positive association between Liquidity and Financial Distress. Furthermore, the significance value of 0.0000 well below the 0.05 threshold confirms that this association is statistically meaningful. This indicates that as a firm's Liquidity, represented by its Current Ratio (CR), rises, its Z-Score likewise increases, thereby placing the company closer to financial distress. Within the perspective of signaling theory, comparatively high liquidity typically conveys a favorable signal, enhancing investor assurance that the firm maintains sound financial conditions. These findings are consistent with the study by (Septiani et al., 2021), which notes that liquidity levels illustrate a firm's capability to fulfill imminent short-term liabilities through its current assets. When a company is able to discharge these short-term obligations, the likelihood of encountering financial distress is diminished.

This conclusion is supported by the Spearman correlation test results, which yield a coefficient of –0.8507, signifying a markedly strong negative association between leverage and financial distress. Moreover, the significance value of 0.0000 well beneath the 0.05 threshold demonstrates that this relationship is statistically significant. This implies that as a firm's leverage, represented by the Debt to Asset Ratio (DAR), increases, its Z-score correspondingly declines, thereby heightening the firm's exposure to financial distress. Within the framework of signaling theory, a firm's leverage may convey an adverse signal to investors and creditors regarding its overall risk posture. Elevated leverage transmits an unfavorable signal because it reflects a substantial burden of liabilities. The results of this study are consistent with findings by (Wulandari & Jaeni, 2021), who assert that higher levels of debt financing amplify the likelihood of financial distress. Extensive reliance on debt is inherently perilous

due to the mounting obligations of interest payments. Nevertheless, if debt-derived funds are allocated prudently and employed effectively for instance, to support business expansion they may enhance corporate performance, thereby mitigating the firm's potential for financial distress.

This conclusion is supported by the Spearman correlation test, which yields a coefficient of 0.3301, signifying a low level positive association between Cash Flow and Financial Distress. Nevertheless, the significance value of 0.0028 falling below the 0.05 threshold indicates that the relationship between Cash Flow and Financial Distress is statistically meaningful. This suggests that as a firm's Operating Cash Flow, represented by AR, increases, its Financial Distress score also rises, thereby positioning the firm further away from potential financial distress. Within the framework of signaling theory, cash flow constitutes a key piece of financial information that conveys important signals to investors and creditors. A positive cash flow delivers a constructive signal, demonstrating that the company is capable of generating cash from its operational activities, which in turn strengthens market confidence in the firm's long-term viability. The outcomes of this study are consistent with research by (Wijaya & Suhendah, 2023), who argue that elevated operating cash flow reflects an increase in cash generated from sales. However, such an increase is often only sufficient to cover necessary expenditures, including production expenses, employee compensation, taxes, and debt or interest payments.

This outcome is demonstrated by the Spearman correlation test, which produces a coefficient of 0.1770, signifying a low-level positive association between profitability and financial distress. However, the significance value of 0.1163 exceeding the 0.05 threshold indicates that the relationship between profitability and financial distress lacks statistical significance. Within the framework of signaling theory, profitability serves as a crucial indicator for investors and creditors, reflecting management's efficiency in employing corporate assets to produce earnings. Elevated profitability conveys a favorable signal, suggesting that the firm demonstrates strong financial performance and possesses encouraging prospects for future profitability. Nonetheless, the findings of this study suggest that this signal is not sufficiently robust to account for financial distress. The nonsignificant association between profitability and the Z-Score implies that although a company may attain a certain level of earnings, profit is not invariably the dominant factor in mitigating the likelihood of financial distress. These results are consistent with the study by (Suryani, 2020), which contends that a firm's profitability level does not constitute a decisive variable influencing the financial distress it encounters. Profitability illustrates a company's capacity to generate earnings from its asset base; however, substantial profits do not necessarily ensure that a firm is insulated from financial distress.

CONCLUSIONS

This study analyzes the relationship between Liquidity, Leverage, Cash Flow, and Profitability to Financial Distress in property and real estate companies for the 2021-2024 period. This research examines the association between Liquidity, Leverage, Cash Flow, and Profitability and their linkage to Financial Distress in property and real estate firms during the 2021–2024 period. The findings reveal that Liquidity exhibits a positive and significant relationship, suggesting that liquidity levels not only demonstrate short-term financial resilience but also reflect the firm's broader financial management approach. Leverage, meanwhile, displays an exceptionally strong and significant negative association. This indicates that leverage within property and real estate companies remains elevated, whereby an increase in leverage as represented by the DAR correspondingly reduces the firm's Z-Score. A declining Z-Score denotes heightened exposure to financial distress. Cash flow demonstrates a moderate yet significant positive association. However, the rise in cash inflows appears adequate only to meet essential expenditures, including production costs, employee compensation, taxes, and obligations related to debt and interest payments. Consequently, the firm is unable to procure inventory for resale or for ongoing production activities, which ultimately results in reduced future sales. This deterioration in operational performance subsequently weakens the company's overall financial condition, thereby increasing the likelihood of experiencing financial distress. In contrast, profitability shows no discernible association with financial distress. The magnitude of a firm's profitability is not a decisive

factor in shaping its vulnerability to financial distress. Profitability represents the extent to which a company can generate earnings from its asset base; however, substantial profits do not necessarily ensure that a firm will remain insulated from financial distress.

This study has limitations because it only focuses on four main variables: Liquidity, Leverage, Cash Flow, and Profitability, thus not considering other factors such as sales growth, company size, good corporate governance, and macroeconomics. Furthermore, the research object is limited to the property and real estate sector on the Indonesia Stock Exchange, so the results cannot be generalized to other sectors. Furthermore, the analytical method used is still limited to correlation tests, which only show relationships between variables without describing causal influences in depth. Therefore, further research is recommended to add variables such as company size, sales growth, good corporate governance, and improve the analytical method using panel regression, moderation, mediation, or robustness tests such as the Oster test or variable instruments to reduce endogeneity bias so that the results are more robust.

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