Financial Metrics for Distress Prediction in Indonesia's Property and Real Estate Sector

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Abstract: In recent years, the Property and Real Estate sector has faced stagnation and decline attributed to various factors. Dynamic property development regulations and the disruptive presence of Covid-19 have imposed constraints on economic activity, hampering growth within the industry. Businesses in the Property and Real Estate sector are more vulnerable to financial difficulties as a result of this restricted growth. This study's main goal is to conduct an empirical investigation into the relationship between the occurrence of financial distress and important financial parameters such as profitability, liquidity, leverage, activity, and cash flow. The analysis uses 45 firms that are listed between 2017 and 2021 and are sampled from the Indonesia Stock Exchange. The debt-to-assets ratio (DAR) serves as a proxy for leverage, return on assets (ROA) serves as a proxy for profitability, current ratio (CR) serves as a proxy for liquidity, total asset turnover (TATO) serves as a proxy for activity, and cash flow to total assets (CFO/TA) serves as a proxy for cash flow. The results of this analysis reveal significant findings: ROA, TATO, and CFO/TA exhibit a substantial negative impact on financial distress, while DAR demonstrates a significant positive effect. Surprisingly, the CR variable exhibits no significant influence on financial distress.

Keywords: *Financial Distress, Profitability, Liquidity, Leverage, Cash Flow*

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1 INTRODUCTION

Over the past half-decade, the economic climate in Indonesia has exhibited notable oscillations. The Central Statistics Agency (BPS) reported a consistent upward trajectory in the Indonesian economy during the years 2017–2018. However, the year 2019 marked a pivotal juncture as Indonesia encountered a deceleration, witnessing a decline in economic growth from 5.17% in 2018 to 5.02% in 2019. This transition reverberated across various economic sectors, particularly impacting the Real Estate sector, which registered a discernible deceleration during the final quarter of 2019 in comparison to the preceding quarter. Specifically, the year-on-year growth rate within the Real Estate sector experienced a deceleration of 0.12% with comparison to the third quarter of the same year in the fourth quarter of 2019.

The economic landscape further took a substantial downturn in 2020, triggered by the advent of the Covid-19 pandemic. Indonesia's economic performance contracted by 2.07% in 2020 when compared to the preceding year. Concomitantly, the Real Estate sector encountered a pronounced slump in growth, particularly evident during the fourth quarter of 2020, during which the year-on-year growth rate experienced a substantial deceleration of 0.71% relative to the third quarter of 2020. These economic perturbations were exacerbated by a parallel diminution in stock prices within the Property and Real Estate sector throughout 2020 and 2021. The sector saw a significant decline in stock price growth, with a diminishment of -21.23% in 2020 and a further contraction of -19.11% in 2021. The pronounced deceleration and downturn witnessed within the Property and Real Estate sector can be attributed to a multifaceted set of factors. Drawing from insights provided by CNBC Indonesia (2019), these phenomena are primarily attributed to an array of regulatory modifications, most notably alterations in land regulations. Moreover, the sector bore the brunt of the economic repercussions induced by the Covid-19 pandemic, resulting in a contraction of revenues across the entirety of its business segments encompassing land transactions and property development.

The recurrent cycles of stagnation and regression characterizing the Property and Real Estate sector underscore the pressing concerns for both investors and creditors. This protracted scenario engenders heightened prospects of financial distress, a concept illuminated [1]. Financial distress, in this context, denotes a condition wherein a company's solvency is jeopardized, ultimately culminating in insolvency due to the enterprise's inability to meet its financial obligations promptly. Furthermore, the scholarship posited by [1] elucidates that companies undergoing financial distress exhibit the notable characteristic of sustaining negative Earnings Per Share (EPS) over consecutive fiscal periods. This analysis underscores the imperative for a comprehensive exploration of the economic milieu, the ramifications of regulatory amendments, and their profound ramifications on the Property and Real

Estate sector within the Indonesian context.

Table 1. Companies with negative EPS in the Property & Real Estate Sector in 2017–2021

No	Company Name	*Earnings Per Share* (EPS)				
		2017	2018	2019	2020	2021
1	Binakarya Jaya Abadi Tbk.	-25,28	-20,81	-7,13	-43,91	15,03
2	Duta Anggada Realty Tbk.	2,25	5,12	-11.10	-94,76	-97,76
3	Bakrieland Development Tbk.	0,74	70,45	-3,17	-1.70	-1,79
4	Lippo Karawaci Tbk.	27,04	-33,75	-24,33	-33,01	-25,57
5	Modernland Realty Tbk.	19,60	14,52	14,73	-27,85	-32,83
6	Indonesia Prima Property Tbk	-25,51	-26,80	-33,97	-51,03	-56,0

During the period spanning 2017 to 2021 (Table 1), numerous firms within the Property and Real Estate sector exhibited consistently negative Earnings Per Share (EPS). These persistent adverse earnings conditions have coincided with challenging circumstances in the Property and Real Estate sector, reaching critical junctures in 2020 and 2021. In these years, the Property and Real Estate sector notably emerged as the sector experiencing the most profound decline within the Jakarta Composite Index (JCI). Coupled with consecutive years of negative EPS among select companies in this sector, these developments underscore the potential for financial distress within the Property and Real Estate sector.

Given the pressing issue at hand, this study assumes paramount importance. Its core objective is to reevaluate the influence of key financial metrics encompassing profitability ratios, liquidity ratios, leverage ratios, activity ratios, and cash flow indicators on the likelihood of financial distress. This assessment is performed through logistic regression analysis, aimed at enhancing understanding of the Property and Real Estate sector's susceptibility to financial turmoil. The selection of the object as focal point of this study is substantiated by the sector's stark underperformance in 2020 and 2021, during which it sustained the most severe and consecutive declines.

This study seeks to contribute to a deeper comprehension of the intricate dynamics underlying financial distress within the Property and Real Estate sector, offering insights that may aid investors, creditors, and stakeholders in navigating the challenges inherent to this sector.

2 LITERATURE REVIEW

2.1 Financial Distress

According to [1], financial difficulties are characterized by a state of corporate insolvency, where the company faces challenges in meeting its financial obligations within stipulated timelines, potentially culminating in bankruptcy. This definition aligns with the perspective put forth by Platt and Platt (2002), who conceptualize financial distress as a condition wherein a company's overall financial health undergoes a decline of such magnitude that it carries the risk of bankruptcy or eventual liquidation. The root cause of financial distress primarily emanates from the company's incapacity to meet its obligations, especially those of a short-term nature.

2.2 Causes of Financial Distress

[1] assert that the causes of corporate bankruptcy can be categorized into two fundamental dimensions: internal factors and external factors. Internal factors contributing to the risk of bankruptcy encompass inefficiencies in management, leading to persistent financial losses that render the company unable to meet its financial obligations. Additionally, an imbalance between the company's capital structure and its debt obligations, as well as instances of moral hazard or fraudulent activities perpetrated by the company's management, are identified as significant internal contributors to bankruptcy. External factors include changes in customer desires that are not anticipated by the company, which results in customers switching to other similar products; raw material difficulties because suppliers can no longer supply the company's raw material needs; debtor factors that need to be anticipated so that debtors do not commit fraud; maintaining good relations with creditors; and increasingly fierce business competition and economic conditions both globally and regionally that must be anticipated.

2.3 Financial Ratio Analysis and Empirical Studies

Techniques designed to anticipate the occurrence of financial difficulties within an organization can be acquired through several means. An analysis of the company's financial ratios is a technique for predicting when a financial crisis will develop. According to [2], financial ratios are calculations that divide one number by another to compare the amounts in the financial statements. The profitability ratio, leverage ratio, liquidity ratio, and cash flow ratio are among the various ratios that make up financial ratios. Managers use the profitability ratio to assess how effective their management is in creating profits, whether they come from investments, sales, or other sources [2]. Return On Assets (ROA), a profitability ratio that describes a company's performance over a specific time period and indicates how efficiently it generates profits from its assets, is employed in this study. Numerous empirical research has explained the role that ROA plays in financial distress. Research by [3], [4], and [5] consistenly indicate ROA has negative impacts on financial distress. Regarding liquidity ratio as difined by [6] it represents a company's capability to settle

its financial obligations, particularly short-term ones. This study utilizes the Current Ratio (CR) to gauge liquidity, which assesses a company's ability to meet its short-term obligations. In simpler terms, the CR reflects a company's readiness to fulfill all immediate financial commitments [7]. [8], [9], and [4] discovered a positive association between current ratio and financial distress. According to [2], leverage quantifies how much debt a business utilizes to finance its assets. This study uses the Debt to Asset Ratio (DAR) to evaluate leverage, which shows how much of a company's assets are funded by debt and, accordingly, how debt affects asset financing. According to [10] along with [5], financial distress and DAR were found to be significantly positively correlated. The activity ratio is a metric that assesses how well a business uses all of its resources while also gauging how well the business uses those resources to generate profits [2]. Total Asset Turnover (TATO) is the activity ratio employed in this investigation. The ratio known as TATO is a useful tool for evaluating how well a company uses all of its assets to generate sales in order to improve its operational activities. [11] and [5] discovered that TATO significantly negatively affected financial distress. Cash flow is defined as variations in a company's ownership of a specific quantity of cash over a given time period [12]. Cash flow gives details on the cash income and expenses of the company during a given time period. Important details about the company's worth and financial stability can be found in the cash flow statement. A company's ability to successfully execute its operational activities may be determined by looking at its cash flow, which in turn affects the company's overall worth. A corporation may find itself in financial hardship if its maturing debts are unrepayable or if its cash flow position indicates that it will be unable to meet its obligations. Profits will rise with a higher cash flow ratio, and there is less chance of financial trouble [13]. [14] found that cash flow has negative significance on financial distress.

3 RESEARCH METHOD

In order to investigate the influence of various financial ratios on the incidence of financial distress among businesses in the Property and Real Estate sector, this study uses quantitative research within an explanatory framework. The study examines the impact of several metrics, including Return On Asset (ROA) for profitability, Current Ratio (CR) for liquidity, Debt to Asset Ratio (DAR) for leverage, Total Asset Turnover (TATO) for activity, and Cash Flow from Operations to Total Assets (CFO/TA) for cash flow.

Using a pooling data strategy, secondary data from company financial statements was used to gather data for this study. Purposive sampling, the technique used, produced a sample of 45 businesses that satisfied the study's requirements. Logistic regression is employed in the analysis to investigate the correlation between financial

hardship and ROA, CR, DAR, TATO, CFO/TA, and over the 2017–2021 period. This study's regression equation is as follows:

$$FD_{it} = b_0 + b_1 ROA_{it} + b_2 CR_{it} + b_3 DAR_{it} + b_4 TATO_{it} + b_5 CFO/TA_{it} + e \quad (1)$$

FDit = *Financial Distress,*
b = Koefisien Regresi,
ROA_{it} = *Return On Asset,*
CR_{it} = *Current Ratio,*
DAR_{it} = *Debt to Asset Ratio,*
$TATO_{it}$ = *Total Asset Turnover,*
CFO/TA_{it} = *Cash Flow From Operation,*
e = error

4 RESULTS AND DISCUSSION

4.1 Descriptive Statistics

Descriptive statistics provide a summary of the data features for the following variables: total asset turnover, debt to asset ratio, return on assets, current ratio, and cash flow from operations as seen from the lowest, highest, average, and standard deviation values.

Table 2. Descriptive Statistics

Information	ROA	CR	DAR	TATO	CFO/TA
Panel A. All samples					
Minimum	-37,500	14,680	1,300	0,430	-27,550
Maximum	27,740	6525,150	110,800	38,940	42,910
Average	1,961	346,153	36,101	14,095	1,770
Standard Deviation	6,822	532,052	19,383	8,913	5,887
Coefficient of Variation	3,478	1,537	0,536	0,632	3,325
Panel B. *Non-Financial Distress* Companies					
Minimum	-37,500	3,040	2,080	0,430	-27,550
Maximum	174,340	2488,190	217,430	177,840	199,710
Average	5,677	315,445	32,896	16,929	5,554
Standard Deviation	16,996	388,499	25,218	17,191	19,276
Coefficient of Variation	2,993	1,231	0,766	1,015	3,470
Panel C. *Corporate Financial Distress*					
Minimum	-20,900	0,110	-0,930	-0,940	-10,210

Maximum	415,970	6525,150	349,410	244,200	249,820
Average	4,133	365,344	43,124	14,560	2,394
Standard Deviation	42,242	676,485	36,817	24,963	25,433
Coefficient of Variation	10,220	1,851	0,853	1,714	10,627

4.2 Statistical Test Results

2 Log Likelihood Test

Table 3. Test Results -2 Log Likelihood

Information	Statistical Value
-2 Log Likelihood (*Block* 0)	309,133
-2 Log Likelihood (*Block* 1)	259,130

The value of -2 Log Likelihood in block 0 before the independent variable was entered into the model was 309.133, and the value of -2 Log Likelihood decreased to 259.130 in block 1 following the entry of the independent variable into the model, according to the results of testing the fit model using -2 Log Likelihood based on the table. This drop in the -2 Log Likelihood value suggests that the logistic model that results from including independent variables in the model can greatly improve the fit model or the predicted model fit with the data.

Cox and Snell's R Square dan Nagelkerke R Square Test

Table 4. Cox and Snell's R Square and Nagelkerke R Square Test Results

Information	Statistical Value
-2 Log *Likelihood*	259,130
Cox and Snell's R Square	0,199
Nagelkerke R Square	0,267

The values of the statistical tests in the table indicate that the Nagelkerke R Square is 0.267 and the Cox and Snell's R Square is 0.199. This indicates that the variables ROA, CR, DAR, TATO, and CFO/TA as independent variables can explain 26.7% of the financial distress variable as a dependent variable, while other variables not included in the model account for the remaining 73.3%.

Hosmer and Lemeshow's Goodness of Fit Test

Table 5. Hosmer and Lemeshow's Goodness of Fit Test Results

Information	Statistical Value
Chi Square	10,005
Significance Level	0,265

The Chi Square value of 10.005 with a significance level of 0.265, which is greater than $\alpha = 0.05$ or 5%, indicates that the model is stated to be fit and capable of predicting the observed value, according to the results of Hosmer and Lemeshow's

Goodness of Fit Test. After that, it can be said that the model fits the data and is appropriate.

2x2 Classification Table

Table 6. Classification Table Results 2 x 2

Information	Predictions		
	Non Financial Distress	*Financial Distress*	Classification Accuracy
Non Financial Distress	97	28	77,6%
Financial Distress	34	66	66%
Percentage (%) overall			72,4

The results of the 2 x 2 classification table show that the predicted value of *Non-Financial* Distress companies is 97 observational data while the other 28 data are included in *Financial Distress* conditions with a classification accuracy level of 77.6%. While the prediction value in Financial Distress companies is 66 data while 34 other observational data are included in *Non-Financial Distress* conditions with a classification accuracy level of 66% so that an overall accuracy level of 72.4% is obtained. The accuracy of predictions from the resulting prediction model is considered good because it has an accuracy of more than 50% [15].

Results of Logistic Regression Analysis

Table 7. Results of Logistic Regression Analysis

Variable	Regression Coefficient	Wald	Significance
Constant	-0,680	2,807	0,094**
ROA	-0,076	5,774	0,016**
CR	0,000	2,235	0.135ts
DAR	0,030	11,202	0,001***
TATO	-0,042	4,506	0,034**
CFO/TA	-0,091	5,410	0,020**

Remarks : **,*** = Significant at α 5% , 1% ; ts = insignificant

According to the findings of the logistic regression analysis, financial hardship conditions can be predicted by the variables ROA, TATO, and CFO / TA, all of which have a substantial negative effect, whereas the factors DAR have a significant positive effect. The CR variable is not predictive of financial distress circumstances and has no discernible influence.

4.3 Discussion

Return On Assets and Financial Distress

Based on the analysis results, it can be concluded that ROA has a significant negative impact on financial distress conditions because its regression coefficient is -0.076 at a significance level of 0.016, which is smaller or significant than the alpha value of α = 5% or 0.05. This means that H0 is rejected and H1 is accepted. This suggests that a company's likelihood of going through financial difficulties may increase with a lower ROA value. It was noted that for the previous five years, especially in 2019–2021, companies in the Property and Real Estate sector experienced slow growth. This was caused by many factors, namely the year to year increase in land prices due to increasingly limited land inventory and rising prices of building materials, causing property prices to increase from year to year, which has an impact on decreasing demand and results in a decrease in income. The decline experienced by the Property and Real Estate sector companies was also caused by the weak purchasing power of the community coupled with the Covid-19 pandemic, which caused economic activities to be slightly hampered. The results agree with research [3] and [4] who stated that ROA has a significant negative effect on *financial distress.*

Current Ratio and Financial Distress

The study's findings demonstrate that the CR variable has no influence because the regression coefficient of 0.000 with a significance level of 0.135 is bigger than the alpha value, which can be α = 1%, α = 5%, or α = 10%. This means that H0 is accepted and H2 is rejected. greatly to the circumstances of financial trouble. This indicates that a company's risk of experiencing financial difficulties is unaffected by growing or lowering CR values. The lack of significant differences between enterprises in the financial distress and non-financial distress categories accounts for the CR variable's lack of influence on financial distress conditions. Companies listed in the Property and Real Estate sector have a comparative composition of short-term debt and current assets that is diverse and varies between businesses classified as being in financial crisis and those that are not. The CR in companies in the financial distress and non-financial distress categories was not significantly different due to the nearly equal comparison of short-term debt and current assets, as well as the log of total assets that varied in the financial distress and non-financial distress categories in companies registered in the Property and Real Estate sector. In addition, the CR is composed of short-term debt that is interest-free or has no interest associated with it, limiting the company's liabilities and lowering the likelihood that it will experience financial trouble. The results are supported by research [3], [16], and [17], which stated that CR does not affect financial distress.

Debt to Asset Ratio and Financial Distress

It can be concluded that the DAR variable has a significant positive effect on financial distress conditions based on the research analysis results, which show that the variable has a regression coefficient of 0.030 with a significance level of 0.001, which is smaller or significant at α = 1% or 0.01 These results show that H0 is rejected and H3 is accepted. The average DAR for a number of businesses in the financial distress category that are registered in the Property and Real Estate industry is fairly high. This may occur as a result of the company's high likelihood of taking on debt or borrowing money from other sources to increase its assets. The corporation uses this debt to fund its operations in the face of the recent slowdown in the Property and Real Estate industries. On the other hand, a company's need to provide funds that are out of proportion to its overall asset value increases with the amount of debt it uses to fund its assets. A firm may experience high interest payments if it uses more debt for funding than it owns. If this is not offset by strong sales growth and earnings, the company may find itself in financial hardship or even financial disaster. The results agree with research conducted by [10] and [5], which stated that DAR had a positive effect on financial distress.

Total Asset Turnover and Financial Distress

Based on the analysis results, it can be concluded that the TATO variable has a significant negative effect on conditions. Specifically, the regression coefficient for TATO is -0.042 with a significance level of 0.034, smaller or significant at α = 5% or 0.05. This means that H0 is rejected and H4 is accepted. According to the findings of the TATO computations, the average TATO for businesses in the Property and Real Estate industry declined between 2017 and 2021. However, even though it has experienced a decline, the value of TATO is still able to fund all of the company's operational activities. This small TATO value can be caused by the company not maximally utilizing all the resources it has to generate sales. The Property and Real Estate sector is hampered by several obstacles such as increasingly stringent regulations and Covid-19, which also causes the use of assets to generate income to decrease, and this results in losses experienced by companies. The company's inefficient use of its resources and assets is a sign that it is performing poorly, which raises the possibility of future financial problems or troubles. The results agree with research [11] and [5], which stated that TATO has a negative and significant effect on financial distress conditions.

Cash Flow From Operation to Total Asset and Financial Distress

The analysis' findings demonstrate that the CFO/TA variable has a negative

influence, with a regression coefficient of -0.091 at a significance threshold of 0.020, smaller or significant at α = 5% or 0.05. This means that H0 is rejected and H5 is accepted, which is substantial to the circumstances of the financial crisis. In the Property and Real Estate industry, cash flow movements were generally flat, slow, and less volatile between 2017 and 2019. This is caused by a number of factors, including the numerous restrictions that impede the growth of the Property and Real Estate industry, the often high interest rates associated with mortgages, the complicated down payment requirements, and so on. In 2020–2021, the Covid-19 pandemic caused the Property and Real Estate sector to experience a sharp decline due to Large-Scale Social Restrictions (PSBB) and a reduction in community activities, especially for traveling and tourism, which also caused hotel and real estate occupancy levels to decrease, which caused the operational activities of Property and Real Estate sector companies to be disrupted. Delays in the company's operational activities will have an impact on cash inflows that are less than the expenses paid as a result of the company's ongoing operational activities. If this continues, the company will have difficulty paying employees as well as satisfying other obligations, which will cause the company to increase funding through loans that will increase the potential for the company to go bankrupt. The results agree with research of [14], which states that CFO is a good predictor in predicting financial distress conditions.

5 CONCLUSION

Based on the analysis carried out to find out how profitability, liquidity, leverage, and cash flow affect financial distress conditions, the following conclusions were drawn: the liquidity ratio with the CR (current ratio) proxy ratio has no significant impact on financial distress conditions, the profitability ratio with the ROA (return on assets) proxy has a significant negative impact on financial distress conditions, financial distress conditions are significantly impacted positively by leverage ratio when paired with the DAR (debt to asset ratio) proxy, and negatively by activity ratio when paired with the TATO (total asset turnover) proxy. Financial distress situations are significantly impacted negatively by cash flow, which is used as a stand-in for CFO/TA (cash flow from operations to total assets). The study highlights the significance of cash flow (CFO/TA) in averting financial distress. Companies can prioritize effective cash flow management, ensuring that cash generated from operations adequately covers financial obligations. This may involve optimizing working capital and implementing robust cash flow forecasting mechanisms.

Even while our study offers insightful information, it is important to recognize its limits. The study may have overlooked non-financial factors that could have an impact on financial distress because it focuses mostly on financial indicators. Additionally, the study does not delve into the intricacies of qualitative factors that

may contribute to financial distress. Therefore, it is suggested for future research to diversify research methodologies, encompass a broader spectrum of independent and dependent variables, and consider qualitative factors alongside quantitative metrics to gain a comprehensive perspective on financial distress. Additionally, incorporating variables that assess long-term debt management and conducting comparative analyses across regions and subsegments can further enrich the field's understanding of financial distress dynamics and inform practical strategies for resilience.

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