The Effect of Liquidity, Leverage, Operating Capacity, Profitability, and Sales Growth as Predictors of Financial Distress: (Property, Real Estate, and Construction Services Companies Listed on the IDX)

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Abstract

This paper begins with analyzing financial ratios by examining the effect of liquidity, leverage, operating capacity, profitability, and sales growth as predictors of firms' financial distress risk. The study employs a statistical method (logit model). Using 38 property, real estate, and construction services firms listed on the Indonesia Stock Exchange between 2016 and 2022, 646 observations were collected and analyzed using logistic regression. The results show that leverage, operating capacity, and profitability positively and significantly influenced predicting financial distress risk, while liquidity and sales growth do not affect predicting financial distress risk. The result of model calcification accuracy is 84%; this shows that the model can accurately predict the financial distress risk of property, real estate, and construction services companies in the study period of 543 observations from 646 observations or 84%. This study concludes that profitability, leverage, and operating capacity influence the financial distress risk on property, real estate, and construction services companies.

Keywords: Liquidity, Leverage, Operating Capacity, Profitability, Sales Growth, Financial Distress

A. INTRODUCTION

As a result, global competition has become increasingly severe. Those with business expertise will profit the most, while enterprises that are unable to adapt will struggle to compete with international firms (Inam et al., 2018; Kuhlman and Farrington, 2010; Najam et al., 2018; Ştefănescu-Mihăilă, 2015). This will cause several difficulties for the firm, one of which is poor financial health (financial distress), which might lead to Bankruptcy (Franks et al., 2015; Hassanpour and Ardakani, 2017; Succurro & Arcuri, 2019).

Various studies have been developed in various nations to anticipate company bankruptcy as an early warning system to avoid risk of financial Distress (Afgani et al., 2021; Hassan et al., 2017; Mihalovič, 2016; Jaffari, 2017; Ufo, 2015; Yakymova & Kuz, 2019; Larasati & Wahyudin, 2020; Laksmita & Sukirman, 2020; Widyaningsih, 2020; Inam et al, 2018; Balasubramanian et al., 2019; Bunyaminu & Issah, 2012; Al-Saleh & Al-Kandari, 2012). According to (Kordestani et al., 2011), there are several phases before a company declares Bankruptcy, with financial distress being the ultimate one.

External and internal factors contribute to financial distress. External factors, such as macroeconomic factors, significantly affect financial distress, including fluctuations in inflation, interest rates, gross domestic product, credit availability, employee wage levels, and international business competition (Liou, D. K. and Smith, 2007). According to Lizal, L. (2002), the internal factors that cause companies to experience financial Distress are Neoclassical, Financial, and Corporate Governance models. During the 1997-1998 Asian financial crisis, numerous studies cited weak financial health as a significant cause of companies' Financial Distress (Lu, Y. C. & S. L. Chang., 2009). Their financial ratios show that companies spared from financial distress can perform well (Kordestani et al., 2011).

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In sector property in Indonesia, the weakening of people's purchasing power in the property sector causes businesses in the property sector to experience difficulties in selling their products. This led to a property, real estate, and construction services crisis. The results of a survey by Bank Indonesia show that in 2017, the Residential Property Price Index (IHPR) experienced a slowdown in growth, where there is growth only slowed down 1.45% (qtq) or 7.92% (yoy) compared to the previous quarter (1.77%, qtq) or (11.51%, yoy). Based on the IDX's report on the movement of the Composite Stock Price (CSPI), property, real estate, and construction services companies faced a crisis beginning in 2016 and continuing until the peak in 2018 when the decline reached -9.64%. In 2020, during the Covid-19 pandemic, Hadiwardoyo (2020) will employ a qualitative phenomenological methodology. The results indicate that the most affected business sectors rely on groups, such as tourism and tourism-related businesses, such as hotels. This is because the market does not consume the newly constructed housing stock. Companies in the property, real estate, and construction sectors, as well as the service sector, are at risk of financial distress if it persists unabated.

Numerous researchers in the past have conducted theoretical studies on the relationship between financial ratios and the risk of financial distress. Studies (Afgani et al., 2021; Rivanda & Muslim., 2021) state that research factors influence the risk of financial distress, such as financial ratio and sales growth in textile and garment companies listed on IDX. A study (Yakymova & Kuz, 2019) predicts company financial distress in Ukraine with predictors of equity-assets ratio, current ratio, and average accounts receivable turnover. (Widyaningsih, 2020) used financial ratios on financial distress risk by including managerial ownership as moderation (Jihadi et al., 2021) and using liquidity, leverage, and profitability on firm value. (Jaffari, 2017) used profitability, liquidity, leverage, activity, and cash flow ratios to predict the financial Distress of Pakistan listed at KSE (Karachi Stock Exchange) and used profitability and employee efficiency, leverage and liquidity, asset utilization, growth ability, and size to predict corporate failure of UK's Listed Companies.

The measuring instrument used in assessing financial performance is the financial ratio method. Financial ratio analysis is conducted by contrasting two financial statement elements. The resulting ratio can be interpreted in a more illuminating manner than if the elements were examined separately. Financial ratios can be categorized as measures of (1) profitability, (2) liquidity, (3) management effectiveness, (4) leverage, and (5) valuation and growth (Syamsuddin, 2009). In this study, we use liquidity ratio, leverage, operating capacity, profitability, and sales growth as predictors of financial distress for financial ratio analysis. This study is expected to contribute in two ways, firstly providing empirical evidence to developing the literature related to financial distress. Second, it provides evidence of predictors of financial distress.

In this investigation, agency theory serves as the primary theory. The agency theory proposed by (Jensen and Meckling, 1976) discusses interactions between the principal and agent in which the principal delegates decision-making authority to the agent. According to agency theory, managerial ownership can decrease agency conflict. When management functions as the company's proprietor, management is also responsible for the company's risk. Therefore, management will enhance its performance to protect the company from financial distress.

Financial distress in this research is determined by the Interest Coverage Ratio (ICR) value, which indicates the extent of corporate financial health. When a company has a high level of liquidity, its financial health improves, as indicated by a higher ICR value. As the ICR value increases, the likelihood of a company experiencing financial distress declines. This demonstrates that liquidity positively influences a company's ICR value, reducing the risk of financial Distress (Widyaningsih, 2020). Liquidity is a ratio gauges a company's performance concerning its ability to settle current liabilities. The more liquid a company is, the greater its liquidity (Lakshan & Wijekoon, 2013).

Regarding human nature assumptions, agency theory explains that management and agents have self-interest. The agent's current debt is the consequence of past decisions to extend credit to creditors. If a company has substantial short-term debt, its liquidity will be reduced. Therefore, it is necessary to trace management's

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performance to determine if there is a management error or if the company's financial distress results from decisions founded exclusively on personal interests. According to research (Alifiah, 2014; Ufo, 2015), liquidity influences the risk of financial distress.

The leverage ratio measures how much of a company's wealth is supported by debt. According to (Jensen and Meckling, 1976), using corporate debt would incur agency costs. When the quantity of a company's debt increases, so will the agent fees incurred. If this is not accompanied by a strong ability to repay debts, the company will face financial distress; if this is not guaranteed, the possibility risk of financial distress. (Ong'era et al, 2017); Kristanti et al.,2016) and (Udin et al., 2016) showed that leverage affects the company's risk of financial distress.

Operational efficacy is measured by operational capacity, which indicates how much of the asset's capacity can generate sales. According to the agency theory, the agent is responsible for administering the company. Agents are instructed to maximize the use of company assets in order to increase sales. When an enterprise's assets are not effectively utilized, the company's profits will not be optimal, increasing the risk of financial difficulties. In contrast, if management can adequately optimize the company's assets, the company's revenue will increase, thereby preventing financial distress. A study (Antikasari & Djuminah, 2017; Prasetyo & Fachrurrozie, 2016) discovered that operational capacity affects financial distress risk.

The profitability ratio can be used to predict conditions of financial distress. According to (Hanafi, 2012:157), the profitability ratio measures a company's ability to generate net profit at a predetermined rate of sales, assets, and equity. Return on Assets (ROA) represents this ratio. Research comparing profitability and financial distress shows that profitability affects financial Distress (Antikasari & Djumina, 2017). Sales growth is the ratio used to forecast the company's future development based on receipts generated from selling products or services and sales revenues. This ratio is determined by subtracting the current period's sales from those of the previous period and then dividing the result by the sales of the previous period (G. Anggana Lisiantara, 2018). (Widhiari and Merkusiwati's, 2015) research on financial distress revealed that sales growth affects financial distress.

Based on this explanation, the research hypothesis is formulated as follows:

H1: Liquidity has an effect as a predictor of financial distress risk.

H2: Leverage has an effect as a predictor of financial distress risk.

H3: Operating capacity has an effect as a predictor of financial distress risk.

H4: Profitability capacity is a predictor of financial distress risk.

H5: Sales Growth capacity has an effect as predict of financial distress risk.

B. RESEARCH METHOD

This study used a quantitative approach in which the process of concluding is done using a statistical approach. The research design used a hypothesis testing study involving quantitative secondary data analysis. This study included all property, real estate, and construction services firms listed on the IDX between 2016 and 2022, a total of 38 firms. Purposive sampling was used as a sampling technique with the following criteria presented in Table 1.

Table 1. Sample Determination Criteria

No	Criteria	Beyond the Criteria	Meeting the Criteria
1	Property, real estate, and construction services companies listed on the Indonesia Stock Exchange in 2016-2022		81
2	Companies that publish annual reports in a row for 2016-2022.	(40)	41
	The company does not provide complete data for the period research, namely 2016-2022, related to financial distress, interest coverage ratio, liquidity ratio, leverage, operating capacity, profitability, dan sales growth.	(3)	38
3	The sample used		38
4	The sample used in the study period (38 companies x 7 years)		646

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The independent variables consisted of liquidity ratio, leverage, operating capacity, profitability, dan sales growth. Interest Coverage Ratio (ICR) (earnings ratio before interest and taxes on interest expense) was used as a proxy for the financial distress variable that shows the level of corporate financial health. Financial Distress is presented as a dummy variable; if the company has an interest coverage ratio of less than one, then the company is categorized as experiencing financial distress and given a score of 1, while those who did not experience financial distress were given a score of 0. The operational definition of the variables is presented in Table 2. This study used the documentation method as a data collection technique. The research data was listed in the annual report from the official IDX and company websites.

Table 2. Operational Definition of the Variables

No	Variables	Definition	Measurement	Scale
1	Financial Distress (ICR) (Dummy)	Interest Coverage Ratio (ICR) indicates the company's ability to generate enough gross profit to cover its interest expenses. It is interesting to compare gross profit and expenses to see the figures for both factors. Agents and principals must collaborate to produce a comparison with a more significant gross profit. (Larasati & Wahyudin, 2019).	If Companies with an Interest Coverage Ratio (ICR) value of less than one will experience financial distress and be given a score of 1. If more than one company is not in financial distress, then financial distress is not present and is given a score of 0.	Nominal
2	Liquidity (CR)	The company's ability to meet its short-term debt (maturities of less than one year) using current assets (Dewi, Khairunnisa, dan Mahardika, 2017)	CR : (Current Assets/ Current Liabilities)	Ratio
3	Leverage (DAR)	Leverage is the capacity of an entity to repay long-term or seamless debt, or the ratio used to determine the extent to which the entity is financed by debt (Ibrahim and Isiaka, 2020; Al-Slehat,2020)	DAR : (Total Liabilities/ Total Assets)	Ratio
4	Operating Capacity (STA)	Measure the effectiveness of the company's activities in utilizing its inventory to generate sales.	STA : (Sales / Total Assets)	Ratio
5	Profitabilitas (ROA)	The level of net profit that a company can attain by operating its operations. (Tui et al.,2017); (Paramitha, 2020)	ROA : (Earning After Tax/ Total Assets)	Ratio
6	Sales Growth (SG)	Sales growth is an indicator of a product or service's market acceptability, and the revenue generated from such transactions can be used to determine the sales growth rate. (Simanjuntak, Titik, dan Aminah, 2017).	SG : $(Sales_t - Sales_{t-1}/ Sales_{t-1})$	Ratio

Source: Data Processed by Researchers, 2023

In this study, the financial distress prediction model refers to the multinomial logit with the dependent variable binomial logit, popularized by (Ohlson, 1980) using logistic regression analysis. This study used data analysis techniques: descriptive statistical analysis, multicollinearity test, logistic regression analysis, and interaction test with a significance level of 5%. The logistic regression equation is shown in Equation 1.

$$Ln \frac{P}{(1-p)} = \alpha - \beta_1 CR_1 + \beta_2 DAR_2 + \beta_3 STA_3 + \beta_4 ROA_4 + \beta_5 SG_5 + \varepsilon$$

$n \frac{P}{(1-p)}$: *dummy variable,* financial distress condition

(0 if non-financial distress condition, and 1 when in financial distress*)*

α : Constant
CR : Liquidity (Current Ratio)
DAR : Leverage (Debt to Assets Ratio)
STA : Operating Capacity (Sales to Total Assets Ratio)
ROA : Profitability (Return on Assets Ratio)
SG : Sales Growth (Sales Growth Ratio)
ε : Residual

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C.   RESULTS AND ANALYSIS

Descriptive statistical analysis in this study describes the maximum, minimum, mean, and standard deviation values for each variable. Table 3 shows the results of the descriptive statistical test in this study.

Table 3. Results of Descriptive Statistical Analysis

Variable	N	Minimum	Maximum	Mean	Std. Deviation
CR	646	0.103	4.190	2.53644	0.725887
DAR	646	0.035	0.944	0.56934	0.178280
STA	646	0.170	2.353	0.51525	0.337888
ROA	646	-0,748	0,492	0.37245	0.137825
SG	646	-0,779	3,232	0.57445	0.402785
Valid N (listwise)	646				

Source: Secondary data processed, 2023

Descriptive analysis shows that the data used in this study was 646 observations analysis units, samples taken from the annual publication financial reports of property, real estate, and construction services companies listed on the Indonesia Stock Exchange in the 2016-2022 period. These results are obtained from the data where the 38 companies are multiplied by the period of the year of observation (7 years) so that the observations in this study become 38 x 7 = 646 observations (N).

The result of the multicollinearity test indicates no symptom of multicollinearity in the research model. Assessing the overall model (overall model fit) is indicated by the difference between the initial block number 0 shows a value of -2 log-likelihood of 186.787, while block number 1 shows a value of -2 log-likelihood of 127.055. From the two blocks, it can be seen that there is a decrease in the value of -2 log-likelihood. Adding liquidity, leverage, operating capacity, profitability, and sales growth variables into the model improves the model's fit.

The result of Hosmer and Lemeshow's Goodness of Fit Test of chi-square value is 14.895 with a p-value (sig) of 0.061 or more than 0.05, indicating that the regression model is feasible for the subsequent analysis. The Nagelkerke R^2 value of 0.658 indicates that the independent variable in the research model can explain the dependent variable by 65.8%, and other variables outside the research model explain the remaining 34.2%. The accuracy of the overall model for predicting the acceptance of financial distress risk is 84.0%. Based on the hypothesis testing, the logistic regression equation is presented in the equation, and the results of hypothesis testing are presented in Table 4.

$$Ln \frac{P}{(1-p)} = -0{,}898 - 0{,}434\,CR - 0{,}023\,DER + 1{,}279\,STA + 27{,}082\,ROA + 0{,}028\,SG + \varepsilon$$

Table 4. Hypothesis Testing Results

	Hypothesis	Regression Coefficient Value (β)	Significance Value (Sig)	Results
H_1	Liquidity has an effect as a predictor of financial distress risk.	-0,434	0,534	Rejected
H_2	Leverage has an effect as a predictor of financial distress risk.	-0,023	0,043	Accepted
H_3	Operating capacity has an effect as a predictor of financial distress risk.	1,279	0,041	Accepted
H_4	Profitability has an effect as a predictor of financial distress risk.	27,082	0,020	Accepted
H_5	Sales Growth has an effect as predict of financial distress risk.	0,028	0,949	Rejected

Source: Secondary data processed, 2023

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Based on Table 5, the classification power of observations with non-financial distress conditions has been determined to be 88%, with 386 observations correctly classified, while 53 observations suspected of not experiencing financial distress appear to be in the category of financial distress. A total of 157 observations that allegedly suffered financial distress were correctly classified, while 50 observations suspected of being in financial distress had non-financial distress with a model classification power of 76%, despite an overall model classifying power of 84%.

Table 5. Classification and Accuracy Logistic Regression Models

Classification	Logistic Regression		
	Non-Financial Distress	Financial Distress	%
Non-Financial Distress	386	53	88 %
Financial Distress	50	157	76 %
Total	**436**	**210**	**84 %**

Source: Secondary data processed, 2023

The Effect of Liquidity as Predict of Financial Distress Risk

Liquidity assessed through the current ratio (CR) does not affect the risk of financial distress. The unimportant liquidity variable is thought to be due to the large value of the company's inventories in real property and the plantation sector. The type of property and real estate business is the sale and rental of land and buildings; therefore, the current assets in this sector are dominated by large amounts of inventory held. In this case, inventory is also used to pay off current liabilities; it takes quite a while to turn it into cash. Therefore, no level of company liquidity can be used to influence future financial distress risk.

This is supported by the results of the descriptive statistical test in Table 3, which states that the average liquidity is 2.5, which means the company is in a liquid state. Therefore, the cause of liquidity does not affect the risk of financial distress, perhaps due to the short term. Debt owned by the company can be directly covered by its current assets. The results of this study are consistent with research conducted by (Lakshan & Wijekoon 2013; Alifiah, 2014; Kristanti et al., 2016), which explains that liquidity does not affect the company's financial distress risk.

The Effect of Leverage as Predict of Financial Distress Risk

This study shows that the greater the level of corporate leverage, the greater the likelihood of financial distress. Leverage has a negative effect on the interest coverage ratio (ICR) value of the company. Due to the modest ICR value, the company's financial health is viewed as deteriorating, increasing the likelihood of financial distress. A high quantity of leverage is associated with a high risk of financial distress.

This is consistent with agency theory, which explains that when a company's debt is substantial, the agency burden becomes even greater. If this is not followed by a strong ability to pay debts, the company's financial health is also poor, thereby increasing the danger of financial distress. Companies seeking additional debt must also be prepared to increase their assets. If a company cannot generate additional assets to offset its significant debts, it will experience financial difficulties. According to previous research (Khaliq, 2014; Kristanti et al., 2016; Larasati & Wahyudin, 2020), the results of this study confirm that the higher the level of leverage, the greater the risk of financial distress.

The Effect of Operating Capacity as Predict of Financial Distress Risk

This study shows that the value of a company's operating capacity is inversely proportional to the risk of financial distress. Operating capacity has a positive impact on the ICR value of a company. Companies with a higher ICR score are deemed to have a higher level of financial stability, thereby reducing the risk of financial distress.

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According to agency theory, agents are solely responsible for making decisions regarding the management of company assets. The greater the management's performance in utilizing company assets to generate sales, the greater the company's profit. This affects the company's improving financial health, reducing the risk of financial distress. This study's findings are consistent with those of (Widhiari & Merkusiwi, 2015) and (Larasati & Wahyudin, 2020), who found that the higher the level of operational capacity, the lower the likelihood of financial distress.

The Effect of Profitability as Predict of Financial Distress Risk

According to the findings of this research, the level of financial stress risk is significantly correlated with the return on assets. According to the logistic regression findings and descriptive statistics shown in Table 3 of return on assets and financial distress, the return on assets tends to drop, although financial hardship has grown. This can be inferred from the fact that both variables are shown to have increased. The relatively modest growth in annual net profit made by the firm led to a decline in the return on assets, which was caused by the fact that this decline was not related to the relatively large number of assets acquired annually.

The Effect of Sales Growth as Predict of Financial Distress Risk

Sales growth variables do not affect a prediction of financial distress risk. This study shows that sales expansion, as measured by sales, produces inconsistent results year after year, while the level of financial hardship has worsened. The high and low sales in the previous year were the root cause of the variable value of the rise in sales revenue. Despite this, there is an upward trend in annual revenues, which strongly indicates that the firm enjoys healthy profitability. It is possible to assert that there will be no negative earnings for the firm and that it will not be in a state of financial difficulty if the company has annual sales considerably higher than the previous year. However, this movement cannot be backed by other movements that have already occurred since even sales that continue to expand cannot always protect against financial difficulty.

The findings of this research are consistent with the findings of a study (Istiantoro & Indrawati, 2015). According to their findings, sales growth does not substantially impact the condition of financial hardship. The findings of this study support their findings.

D.   CONCLUSION

This study intends to examine the effect of the company's financial ratios to predict the risk of financial distress in property, real estate, and construction services companies listed on the Indonesia Stock Exchange in 2016-2022. Statistical results and discussion of the role of show leverage, operating capacity, and profitability had positive and significant effects on predicting financial distress risk, while liquidity and sales growth do not affect predict financial distress risk. The resulting accuracy of the model classification was 84%. This indicates that the model can predict financial distress risk in property, real estate, and construction services companies in the study period of 543 observations from 646 observations or 84%.

This research can be improved by adding several indicators or other variables that affect a condition of financial distress, such as the mechanism of good corporate governance. In addition, other researchers can expand the research area to property, real estate, construction services companies, and other sectors.

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