### Journal of Economics, Finance and Management Studies

ISSN (print): 2644-0490, ISSN (online): 2644-0504 Volume 06 Issue 11 November 2023 Article DOI: 10.47191/jefms/v6-i11-49, Impact Factor: 7.144 Page No: 5689-5696

# Financial Distress with Firm Size as a Moderating Variable in the Construction Sub Sector on the Indonesian Stock Exchange

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**ABSTRACT:** Financial distress is a stage where the company's financial condition has decreased significantly. The occurrence of financial distress starts from a decrease in the company's financial condition starting from the company's inability to meet short-term obligations, including liquidity obligations and obligations in the leverage category before bankruptcy. Financial distress can be calculated with various calculation models, one of which is the Zmijewski model. The purpose of this study is to give empirical data on the effect of profitability, liquidity, and leverage on financial distress with firm size as a moderating variable in construction sector companies on the Indonesian stock exchange for the 2019-2022 period. The sample obtained was 14 companies with a total of 56 company financial report data. The sampling technique used purposive sampling technique. The analysis method in this studyuses moderation regression analysis using the SPSS tool. The study's conclusions state that the profitability ratio does not contributeto financial distress, liquidity can contribute to financial distress, leverage can contribute to financial distress, firm size moderates the leverage relationship to financial distress, firm size does not moderate the profitability relationship to financial distress, firm size is unable to moderate the liquidity relationship to financial distress.

KEYWORDS: Current ratio, Debt to assets ratio, financial distress, Firm size, Return on Assets, Zmijewski.

#### I. INTRODUCTION

The expansion of globalization at this time has resulted in countries being able to develop and grow without restrictions so that world can experience rapid development. The economic sector is also the impact of this phenomenon; the development of the world economy, which tends to go up and down, increases competition between companies. So, companies must be ready to compete to maintain their business. Given that Indonesia is a developing country where the level of economic fluctuations is relatively high, this will also be one of the factors for financial distress.

The construction sector is one of the critical sectors in Indonesia's economic growth. The construction industry has a vital role in accelerating Indonesia's economic growth. Based on data from the Central Bureau of Statistics, the Indonesian economy in 2022 grew by 5.31 %, higher than the achievement in 2021, which experienced a growth of 3.70 %. Construction's contribution to the Indonesian economy ranks fifth, 9.14 % of Indonesia's Gross Domestic Product in the second quarter of 2022. reported the construction business field constructed by 6.05 % in the second quarter of 2022. While on an annual basis, the construction business grew by 1.02 % and 2.95 % cumulatively.

As a sector directly related to infrastructure and housing development, the construction industry plays a role in providing accessibility and convenience in transportation, increasing economic productivity, and opening up new investment and business opportunities. The Indonesian government has also placed the construction sector as one of the priorities in national development, which is realized through various infrastructure and settlement development programs. With this goal, the company management must improve the company's performance and activities optimally to avoid unwanted conditions. Company performance is shown in an audited and published financial report. A financial report is a report that describes the financial position of the results of an accounting process during a specific period, which is used as a communication tool for interested parties. Financial reports can be an indicator to see whether the company is developing well or not. To find out the company's financial condition to avoid financial distress, the company can anticipate early by analyzing the financial statements. Bankruptcy prediction factors can be analyzed through several accounting dimensions: financial risk, liquidity, operating risk, market perception, and profitability.

It is necessary to analyze the financial statements carefully using the correct analysis methods and techniques. As for the types



of financial statement analysis techniques, one of them is ratio analysis. In relation to signaling theory, financial ratio analysis can be a positive or negative signal of the company that can be known from the information presented in the financial statements. Thiscan be shown if profits increase and the company's track record is good, and then the company gives a positive signal to external parties. The leverage ratio can also measure the company's ability to use company funds as debt.

There is a positive influence between leverage and financial distress. Because the higher the company's leverage, the higher therisk of the company experiencing financial distress. If the company has a low level of leverage, the company can be said to have a Low risk of experiencing financial difficulties. According to Brigham and Daves, financial distress begins when a company cannot meet its payment schedule or cash flow projections indicate that it will soon be unable to meet its obligations. Financial distress is a condition in which the company cannot meet its financial obligations, and there is a possibility that the company will experience financial failure or bankruptcy. Defines financial distress as a situation where the company is experiencing severe financial difficulties and cannot meet its financial obligations, so the company must take action to overcome the problem, such as debt restructuring or selling assets.

Financial distress is a condition where the economic failure of a company is associated with an imbalance of income with expenses. The problem of bankruptcy in a company is characterized by financial distress, which is a state of the company being weakened in generating profits, or it can be said that it tends to be in deficit, with another meaning that bankruptcy is the failure ofthe company to carry out company operations to earn profits. Bankruptcy itself is also often called company liquidation of companyclosure. Bankruptcy as a failure is defined as financial difficulty, financial failure, or financial failure. Apart from using financial ratios, financial distress can also be seen through company size. Based on the phenomena that occur and the results of previous research on the exposure above, the authors are interested in researching with the title "Financial distress analysis with company size as a moderating variable in the construction sub-sector on the Indonesia Stock Exchange".

#### II. STUDY OF THEORY AND HYPOTHESES

#### A. Signaling Theory

Signaling theory or signal theory, developed by Ross (Surdayanti & Dinar, 2019), explains the impetus or reason for a companyto provide certain information to outsiders. The theory is motivated by the assumption that the management or internal company has more information about the company's condition than those owned by outsiders or external parties. The message will then be responded to as a good or lousy signal by outsiders so that the market can respond to this response to assess the company's quality and help companies make policies to improve company performance. Signal theory that provides financial information can reduce asymmetric information between management and investors. Information obtained from financial reports can assess whether the company is experiencing financial distress.

#### **Research Model**

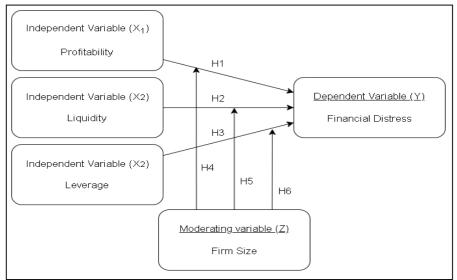


Figure 1. Research Theoretical Framework

#### Hypothesis

H1: Profitability has a positive effect on financial distress.H2: Liquidity has a positive effect on financial distress. H3: Leverage has a positive effect on financial distress.

H4: Firm size moderates the effect of profitability on financial distress.H5: Firm size moderates the effect of liquidity on financial distress.

H6: Firm size moderates the effect of leverage on financial distress.

#### RESEARCH METHODS

#### Sampling Method

Research using a quantitative approach emphasizing causality and moderation aims to test this study's relationship between phenomena and variables. The population in this study used the financial data of construction companies listed on the Indonesia Stock Exchange and obtained 28 companies as the research population. In selecting the research sample, the purposive sampling method was used by considering specific criteria and data limitations during the observation period so that 56 samples from 14companies were obtained, which could be used as research samples over 4 years.

#### **Coefficients**<sup>a</sup> tandardized Coefficients Unstandardized Coefficients Model Sig. Std. Error Beta B (Constant) -6,221 ,174 35,856 000 ROA (X1) -,009 ,010 ,015 -,889 378 8,266 ,177 1,174 46,760 000 DAR (X2) CR (X3) ,261 ,053 ,108 4,902 000 .003 .001 .705 .007 FIRM SIZE (X4) 2.845 -5,849E-5 .000 462 ,016 -,742 X1\*X4 X2\*X4 ,001 003 ,004 ,780 -3,153 X3\*X4 ,000 000 .077 -1,509138 Dependent Variable: Financial Distress (Y)

#### Table 1. Moderated Regression Analysis (MRA) Test Results

Table 1 explains the research model Y= (-6.221) + (-0.009) X1 + 8.266 X2 + 0.261 X3 + (-5.849E-5) X X14 + (-0.004) X X24 + 0.000 X X34 + e

#### Classic Assumption Test ResultsTable 2. Normality Test Result One-Sample Kolmogorov-Smirnov Test

|  |                | UnstandardizedResidual |
|--|----------------|------------------------|
| Ν                                      |                | 56                     |
| Normal Parameters <sup>a,b</sup>       | Mean           | ,000000                |
|  | Std. Deviation | ,60406758              |
| Most Extreme Differences               | Absolute       | ,211                   |
|  | Positive       | ,128                   |
|  | Negative       | -,211                  |
| Test Statistic                         |                | ,211                   |
| Asymp. Sig. (2-tailed)                 |                | ,200 <sup>C</sup>      |
| a. Test distribution is Normal.        |                |                        |
| b. Calculated from data.               |                |                        |
| c. Lilliefors Significance Correction. |                |                        |

It was found that all the variables studied had a normal distribution where the Asymp. Sig (significance) unstandardized residualof 0.200 or greater than 0.05 or non-significant so it can be concluded that all data in this study meet the assumptions of normal distribution.

#### Table 3. Multicollinearity Test Results

**Coefficients**<sup>a</sup>

|       |                             | Collinearity Sta | tistics |
|-------|-----------------------------|------------------|---------|
| Mod   | el                          | Tolerance        | VIF     |
| 1     | ROA (X1)                    | ,968             | 1,033   |
|       | DAR ((X2)                   | ,312             | 3,207   |
|       | CR (X3)                     | ,425             | 2,355   |
|       | FIRM SIZE (X4)              | ,571             | 1,752   |
| a. De | pendent Variable: Finansial | Distress (Y)     | -       |

In testing the classical assumptions of multiple linear regression analysis, it states that the results of this research analysis show the absence of multicollinearity symptoms in all independent variables (ROA, DAR, CR, and Firm Size) where the VIF value on the independent variables is smaller than 10. The requirement for multicollinearity occurs if the VIF (Variance Inflation Factor) value is> 10.

#### Table 4. Heteroscedasticity Test Results

Correlations

|          |            |                           | ROA (X1) | DAR(X2)            | CR(X3)              | M SIZE(X4)          | Unstandardiz<br>ed Residual |
|----------|------------|---------------------------|----------|--------------------|---------------------|---------------------|-----------------------------|
| pearman' | sROA (X1)  | Correlation Coefficient   | 1,000    | -,157              | ,260                | ,059                | -,263*                      |
| ho       |            | Sig. (2-tailed)           |          | ,247               | ,053                | ,663                | ,050                        |
|          |            | Ν                         | 56       | 56                 | 56                  | 56                  | 56                          |
|          | DAR ((X2)  | Correlation Coefficient   | -,157    | 1,000              | -,741**             | ,735 <sup>**</sup>  | -,286*                      |
|          |            | Sig. (2-tailed)           | ,247     |                    | ,000,               | ,000                | ,033                        |
|          |            | Ν                         | 56       | 56                 | 56                  | 56                  | 56                          |
|          | CR (X3)    | Correlation Coefficient   | ,260     | -,741**            | 1,000               | -,524 <sup>**</sup> | ,097                        |
|          |            | Sig. (2-tailed)           | ,053     | ,000               |                     | ,000                | ,479                        |
|          |            | Ν                         | 56       | 56                 | 56                  | 56                  | 56                          |
|          | FIRM SIZ   | ECorrelation Coefficient  | ,059     | ,735 <sup>**</sup> | -,524 <sup>**</sup> | 1,000               | -,148                       |
|          | (X4)       | Sig. (2-tailed)           | ,663     | ,000               | ,000,               |                     | ,275                        |
|          |            | Ν                         | 56       | 56                 | 56                  | 56                  | 56                          |
|          | Unstandard | i Correlation Coefficient | -,263*   | -,286*             | ,097                | -,148               | 1,000                       |
|          | zed        | Sig. (2-tailed)           | ,050     | ,033               | ,479                | ,275                |                             |
|          | Residual   | Ν                         | 56       | 56                 | 56                  | 56                  | 56                          |

Based on the results of the correlation analysis between the independent variables and Unstandardized residuals, it shows that the independent variables, namely ROA, DAR, CR, and Firm Size, show that there is no significant correlation with residuals, where (Sig value is greater than 0.05 or non significant so the results of this analysis can be concluded that all research variables do not occur Heteroscedasticity.

#### Table 5. Coefficient of determination test results

Model Summary<sup>b</sup>

|   |                   |          | Adjusted RSquare | Std. Error of the |               |  |  |
|---|-------------------|----------|------------------|-------------------|---------------|--|--|
|   |                   |          |                  | Estimate          |               |  |  |
| Model   | R                 | R Square |                  |                   | Durbin-Watson |  |  |
| 1   | ,909 <sup>a</sup> | ,826     | ,812             | ,62731            | 2,140         |  |  |
| a. Predictors: (Constant), FIRM SIZE (X4), ROA (X1), CR (X3), DAR ((X2) |                   |          |                  |                   |               |  |  |
| b. Dependent Variable: Finansial Distress (Y)                           |                   |          |                  |                   |               |  |  |

For classical assumptions that detect the presence of autocorrelation here, it is seen from the results of the analysis, which show the results that the Durbin-Watson value is 2.140. The Durbin Watson Table value with the amount of data (N) = 56 and the number of independent variables (K) = 4 and  $\alpha$  = 0.05 is dL = 1.246 and dU = 1.548. By comparing the calculated Durbin Watson value with the Durbin Watson table, it can be seen that the calculated Durbin Watson (DW) value lies in the area of no positive or negative autocorrelation. So, it can be concluded that the multiple linear regression model obtained in this study for data quality has met the classical assumptions, namely fulfilling multicollinearity, heteroscedasticity, autocorrelation and data normality for all variables. **Simultaneous Test Results F** 

#### ANOVA<sup>a</sup>

| Mo    | del   | Sum of Squares | df | Mean Square | F       | Sig.              |  |  |
|-------|---|----------------|----|-------------|---------|-------------------|--|--|
| 1     | Regression  | 95,479         | 7  | 13,640      | 825,513 | ,000 <sup>b</sup> |  |  |
|       | Residual  | ,793           | 48 | ,017        |         |                   |  |  |
|       | Total   | 96,272         | 55 |             |         |                   |  |  |
| a. D  | a. Dependent Variable: Financial Distress (Y)   |                |    |             |         |                   |  |  |
| b. Pi | b. Predictors: (Constant), X3*X4, ROA (X1), CR (X3), X1*X4, DAR (X2), X2*X4, FIRM SIZE (X4) |                |    |             |         |                   |  |  |

Based on the test results with the F test, it shows that the significance value (Sig.) = 0.000 < 0.05, it can be concluded that the multiple regression analysis tool used as an analysis tool in this research model is appropriate or feasible to use as a research model with a significant level of 0.000.

#### Table 7. Partial Test Results (t)

#### **Coefficients**<sup>a</sup>

|      |   |              |                             | Standardized<br>Coefficients |         |      |  |
|------|---|--------------|-----------------------------|------------------------------|---------|------|--|
|      |   | Unstandardiz | Unstandardized Coefficients |                              |         |      |  |
| Mo   | del   | В            | Std. Error                  | Beta                         | t       | Sig. |  |
| 1    | (Constant)                                    | -6,221       | ,174                        |                              | -35,856 | ,000 |  |
|      | ROA (X1)                                      | -,009        | ,010                        | -,015                        | -,889   | ,378 |  |
|      | DAR (X2)                                      | 8,266        | ,177                        | 1,174                        | 46,760  | ,000 |  |
|      | CR (X3)                                       | ,261         | ,053                        | ,108                         | 4,902   | ,000 |  |
|      | FIRM SIZE (X4)                                | ,003         | ,001                        | ,705                         | 2,845   | ,007 |  |
|      | X1*X4   | -5,849E-5    | ,000                        | -,016                        | -,742   | ,462 |  |
|      | X2*X4   | -,004        | ,001                        | -,780                        | -3,153  | ,003 |  |
|      | X3*X4   | ,000         | ,000                        | -,077                        | -1,509  | ,138 |  |
| a. D | a. Dependent Variable: Financial Distress (Y) |              |                             |                              |         |      |  |

Based on the partial test results (t) in Table 7 above, the hypothesis test can be explained as follows:

#### First hypothesis testing

Profitability (ROA) has a positive effect on financial distress cannot be accepted, with a coefficient of -0.009 and a sig level. 0.378>  $\alpha$  = 0.05 with non-significant results.

#### Second hypothesis testing

Liquidity (DAR) has a positive effect on financial distress and can be accepted, with a coefficient of 0.261 and a sig level. 0.000 <  $\alpha$  = 0.05 with positive significant results.

#### Third hypothesis testing

Leverage (CR) has a positive effect on financial distress and can be accepted, with a coefficient of 8.266 and a sig level. 0.000 <  $\alpha$  = 0.05 with positive significant results.

#### Fourth hypothesis testing

Firm size moderates the effect of profitability on financial distress cannot be accepted, with a coefficient of -5.849E-5 and sig level.  $0.462 > \alpha = 0.05$  with non-significant results.

#### Fifth hypothesis testing

Firm size moderates the effect of liquidity on financial distress cannot be accepted, with a coefficient of 0.000 and a sig level. 0.138>  $\alpha$  = 0.05 with non-significant results.

#### Sixth hypothesis testing

Firm size moderates the effect of leverage on financial distress can be accepted, with a coefficient of -0.004 and a sig level.  $0.003 < \alpha = 0.05$  with negative significant results

#### A. Discussion of Research Results

#### **Effect of Liquidity on Financial Distress**

Based on the results of hypothesis testing that researchers have carried out, the significance value of the Current ratio has a significant positive effect on financial distress, so the second hypothesis states that the Liquidity ratio proxied by CR has a positive influence on financial distress and can be accepted. The current ratio is the ratio between the amount of current assets to current liabilities. The extent to which the proportion of the company's current assets can guarantee its current liabilities. The company needs a sufficient amount of cash from current assets to fulfill its current obligations. The results of this study are in line with previous research conducted by (Susanti and Takarini., 2022), Arohmawati and Pertiwi (2021), and (Ariqoh and Yuniningsih., 2022), which state that liquidity has a positive effect on financial distress. However, this research is different from research conducted by Rachmawati & Nur (2021) and Susilo & Suwaidi (2022), which state that liquidity does not contribute to financial distress.

#### Effect of Leverage on Financial Distress

The results of hypothesis testing conducted by researchers indicate that the Debt-assets ratio has a significant positive impact onfinancial distress. Therefore, the second hypothesis, which suggests that the Leverage ratio, as proxied by DAR, has a positive influence on financial distress, can be accepted. The ratio of debt to assets quantifies the amount of debt utilized to finance assets. As the ratio increases, so does the risk that the company will have to confront. Similarly, a low ratio indicates that the company will be financed more heavily with debt, resulting in a smaller company. According to the research, the debt-to-asset ratio indicates a positive condition. An elevated DAR ratio indicates an alarming sign as it may signify impending financial difficulties. This research in line with research conducted by Ariqoh & Yuniningsih (2020), Rachmawati & Nur (2021), and Susanti & Takarini (2022), which states that leverage affects financial distress. However, this research is not in line with research conducted by Arohmawati &Pertiwi (2021), Susilo & Suwaidi (2022), and Kushidayati & Nur (2021), which state that leverage does not contribute to financial distress.

#### Firm size moderates the effect of profitability on financial distress.

Researchers have found through hypothesis testing that the significance value of Firm size does not have a moderating effect onthe relationship between profitability and financial distress. The second hypothesis, which suggests that firm size has the ability to moderate the impact of profitability on financial distress, is not supported. The size of a firm typically has a greater impact on factorslike operational scale, access to financial markets, and resource management efficiency rather than directly affecting profitability'simpact on financial distress. Whether a company is large or small, its level of profitability varies, but this does not impact the issue of financial distress that each company may face. The size of a firm and its level of profitability do not impact financial distress. The results of this study are related to Putri & Ardini (2020). The firm size variable does not have a negative significant effect, meaning that the larger the company, the less likely the company will experience financial distress.

#### Firm size moderates the effect of liquidity on financial distress.

The fifth hypothesis, claiming that firm size can moderate the impact of liquidity on financial distress, has been rejected. The

findings suggest that the size of the firm does not have an impact on the relationship between liquidity and financial distress. A large company size indicates that the company owns a greater number of assets, including both current and fixed assets. Larger companies with substantial total assets have the ability to secure external funding for asset management or acquisition. This, in turn, leads to alarger potential liability for the company in the future.

On the other hand, the company is of considerable size. If the company is unable to utilize its assets effectively, it will lead to an increase in the company's debt. The company will face financial difficulties due to these circumstances. If a company is unable to effectively handle a large volume of assets, it will not be able to generate the highest possible revenue and profit. If not assessed properly, this could lead to a gradual decrease in the company's liquidity value. This could lead to the company experiencing financial difficulties. The results of this study align with previous research conducted by Ariqoh & Yuniningsih (2022) and Kariani& Budiasih (2017), which state that firm size as a moderating variable cannot moderate the effect of liquidity on financial distress. However, this research differs from research conducted by (Mujiani Jum'atul, 2020), which states that firm size can moderate the effect of liquidity on financial distress.

#### Firm size moderates the effect of Leverage on financial distress.

Researchers have found that the significance value of firm size can moderate the effect of leverage on financial distress based on the results of hypothesis testing. The second hypothesis, which suggests that firm size can moderate the impact of profitability on financial distress, cannot be supported. Larger companies with a strong foundation are more likely to withstand external challenges, such as uncertain economic conditions (Efendi et al., 2022). Corporate debt funding can be supported by the size of thefirm. Big corporations have easier access to the capital market and greater flexibility in obtaining funds. The likelihood of facing financial distress increases as the size of the company decreases. Small companies have greater potential for growth and often encounter conflicts of interest between the principal and agent. This is why. As a result of this situation, small businesses rely heavily on external loans to finance their everyday operations. The results of this study align with research (Ariqoh & Yuniningsih, 2022), which states that leverage moderated by firm size can moderate by weakening the effect of leverage on financial distress.

#### III. CONCLUSIONS

The company should be able to manage debt well to increase company activities so that the interest costs charged to the company are not too high and can be resolved immediately. The company must increase sales to increase assets. The company must manage its debt well, pay attention to the level of debt and good risk management and also pay attention to managing current assets and current liabilities. The company must maintain cash to avoid financial distress. For further research, if using a similar theme, it is better to use other sectors besides the construction sector. Different results may be obtained in other sectors because each type of company has different characteristics using other financial distress measurement models such as the Springate and Grover models.Add other variables such as company size, good corporate governance, and growth that have a possibility of impacting financial distress.

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