The Effect of Profitability, Liquidity, and Solvency on Financial Distress of Textile and Garment Companies in Indonesia

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ABSTRACT
Indonesia's manufacturing GDP growth experienced a downward trend from 2015-2020. All manufacturing companies experienced a decline, including textile and garment sub-sector companies. There are 4 textile and garment sub-sector companies that have suffered consecutive losses and high raw material costs caused indications of financial distress in textile and garment sub-sector companies. This study aims to determine the effect of profitability, liquidity, and solvency on financial distress in textile and garment sub-sector companies for the period 2015-2020. Profitability is measured by Return On Asset (ROA), liquidity is measured by Current Asset (CR), solvency is measured by Debt to Asset (DAR), and financial distress is measured by Altman Z-score. This study sample used 15 textile and garment sub-sector companies listed on the Indonesia Stock Exchange. This study uses a quantitative approach. Data analysis method using Pooled Least Square. The results showed that profitability and liquidity had a positive and significant effect on financial distress. Solvency has a negative and significant effect on financial distress.

Keywords: Altman Z-score, financial distress, textile and garment sub-sector manufacturing, profitability, liquidity, solvency

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INTRODUCTION

Today, competition in the business world is getting tighter, especially the manufacturing sector. Competition in terms of innovation, effectiveness, and efficiency. Companies that cannot compete will experience a decrease in performance. Declining performance has an impact on the profitability of the company. If profitability declines in a row, the company will experience financial distress (Sudaryanti & Dinar, 2019).

Indonesia's manufacturing GDP growth decreased from the period 2015-2020. Manufacturing GDP growth in 2015 amounted to 5.05% and decreased until 2020. Manufacturing GDP growth in 2020 amounted to -2.93%. The decline in Indonesia’s manufacturing GDP growth has decreased due to people's declining purchasing power and the effects of the trade war between America and China (CNBC, 2019). The performance of the manufacturing sector has decreased, including textile and garment sub-sector companies. Textile and garment sub-sector companies are strategic sub-sectors. The textile and garment sub-sector company has an export contribution of 63,016 million USD. Textile and garment sub-sector companies are labor-intensive sectors because they absorb 3.73 million workers (Kemenperin, 2020). The government needs to pay attention to and evaluate the textile and garment sub-sectors considering that the textile and garment sub-sectors contribute greatly to the Indonesian economy.

Textile and garment sub-sector companies have constraints on raw materials. The cost of raw materials of Indonesia's textile and garment sub-sector is 13% more expensive than the cost of foreign raw materials (Kontan, 2018). This causes local products to lose competitiveness with imported products because imported products have a cheaper price. There are 9 textile and garment sub-sector companies that went bankrupt in the period 2018-2019 due to the high number of fabric imports of 900,000 tons in 2018 (Tempo, 2019). Raw material cost constraints cause the burden of textile and garment sub-sector companies to increase so that they have the potential to experience losses. There are 7 textile and garment sub-sector companies listed on the Indonesia Stock Exchange (IDX) experiencing losses, namely ADMG, ARGO, CNTX, HDTX, MYTX, POLY, and SSTM companies. Four of the 7 companies suffered consecutive losses in the period 2015-2020, namely ADMG, ARGO, HDTX, and MYTX companies. The constraints experienced by textile and garment sub-sector companies indicate a decrease in the company's performance so that it has an impact on the company's financial condition. Unhealthy financial conditions have the potential for financial distress.

Financial distress is a condition that companies have difficulty paying obligations due to lack of cash flow (Altman et al., 2019). The financial distress condition of a company can be known through the analysis of financial statements (Nakamura, 2021). Analysis of financial statements is carried out by analyzing the financial ratios of profitability, liquidity, and solvency. Analysis of profitability, liquidity, and solvency ratios is used to determine financial distress conditions (Ali et al., 2020; Moch et al., 2019).

Profitability is used to measure a company's ability to utilize the assets and capital owned by the company. Companies with high profitability will avoid financial distress because the company is able to meet the company's operating costs (Soekotojo & Hariansyah, 2019). Companies with low profitability will be vulnerable to financial...
distress due to losses / profits generated cannot cover operational costs.

Liquidity is used to measure a company's ability to meet short-term obligations. Companies with high liquidity ratios indicate that the company has the existence of current assets that are ready to be used in meeting current debt maturities. Companies that have no difficulty in paying current debts avoid indications of financial distress. Companies with low liquidity indicate that the company does not have enough current assets to meet the maturity of current debt so that there is a default. The default condition experienced by the company indicates that the company is experiencing financial distress.

Solvency is used to determine the percentage of debt used in running the company. Companies with a high solvency ratio indicate a high percentage of debt in running the company so that it has a great chance of defaulting. Companies with high debt will be vulnerable to financial distress. Companies with low solvency indicate that the percentage of debt in running the company is not high so that there is a small chance of defaulting.

Researchers use Return On Asset (ROA) as an indicator of profitability, Current Ratio (CR) as an indicator of liquidity, and Debt to Asset (DAR) as an indicator of solvency. The financial distress indicator uses the Altman Z-score calculation approach. Researchers used ROA, CR, and DAR because of previous studies and related to Altman Z-score calculations. This research uses the textile and garment industry as a research object because the Indonesian textile and garment industry is less competitive with imported products, raw material cost constraints, and there are 4 companies that have suffered losses in a row. The selection of the 2015-2020 period is due to a downward trend in Indonesia's manufacturing GDP growth and a negative profit trend for the 2015-2020 period experienced by textile and garment sub-sector companies. Based on the background of the study, researchers formulated a problem formulation, namely: 1) Does profitability affect financial distress? 2) Does liquidity affect financial distress? 3) Does solvency affect financial distress?

LITERATURE REVIEW

Early Bankruptcy Theory

Early Bankruptcy Theory (EBT) is a theory that explains the condition of a company before bankruptcy. This theory was put forward by Alan Schwartz in 2005. EBT explains the state of the company when it cannot pay debts or liabilities can cause financial difficulties or financial distress (Schwartz, 2005). EBT explains financial distress occurs because the company cannot pay operational costs (Schwartz, 2005). The state of financial distress caused by the company experiencing losses or profits generated cannot meet the company's costs and obligations (Schwartz, 2005).

Financial Distress

Financial distress is a condition of companies that experience a lack of cash flow to meet debt obligations (Altman et al., 2019). Financial distress is characterized by the condition of the company experiencing financial difficulties or liquidation that must be faced before the occurrence of bankruptcy (Mahaningrum & Merkusiwati, 2020; Tanjaya & Santoso, 2020). There are several indicators to determine financial distress conditions, namely negative profits in a row, negative working capital, negative cash flow and difficulty in paying obligations (Kristanti, 2019). There are 2 factors that affect financial distress, namely internal
company and external company. Internal factors of the company include the quality of human resources and products are less competitive, unrealistic pricing, and cannot adapt to technological developments. External factors of the company include macroeconomic and legal conditions that do not support business operations (Kristanti, 2019). Financial distress conditions can be known by the Altman Z-score calculation approach. Here is the formula of the Calculation Altman Z-score (Altman et al., 2019):

$$Z\text{-score} = 1.2X_1 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 1.0X_5$$

(1)

Information:

- a) $X_1 = \frac{Working\ Capital}{Asset\ total}$
- b) $X_2 = \frac{Retained\ earnings}{Asset\ total}$
- c) $X_3 = \frac{Earnings\ before\ interest\ and\ tax}{Asset\ total}$
- d) $X_4 = \frac{Equity}{Liability}$
- e) $X_5 = \frac{Sales}{Asset\ total}$

The optimal cut off in determining the Z-score classification is 2.675 thus eliminating the company’s classification in gray conditions (Finishtya, 2019). If the Z-score is above 2.675, the company is said to be in good health. If the Z-score is below 2.675, the company is said to be in a state of financial distress.

Profitability Ratio

Profitability ratio becomes a benchmark in seeing the effectiveness of the company in utilizing existing assets and capital. Rasio profitability is a ratio that indicates the influence of a combination of liquidity, asset management, and debt on operating results (Brigham & Houston, 2018). Researchers used ROA to analyze the effect of profitability on financial distress. Here is the ROA formula (Brigham & Houston, 2018):

$$ROA = \frac{Net\ Income}{Asset\ total}$$

(7)

Liquidity Ratio

Liquidity measures the ability of current assets to pay a company’s short-term liabilities. Liquidity ratio is a ratio that indicates the relationship between the company’s cash and current assets with current liabilities (Brigham & Houston, 2018). Researchers used CR to analyze the effect of liquidity on financial distress. Here is the CR formula (Brigham & Houston, 2018):

$$CR = \frac{Current\ Asset}{Current\ liability}$$

(8)

Solvency Ratio

Solvency is used to measure the percentage of a company’s debt in a company’s capital structure (Wardhani et al., 2019). Solvency ratios are used to measure a company’s debt management (Brigham & Houston, 2018). Researchers used DAR to analyze the effect of liquidity on financial distress. Here is the DAR formula (Brigham & Houston, 2018):

$$DAR = \frac{Liability\ total}{Asset\ total}$$

(9)

Effect of Profitability on Financial Distress

Profitability is an indicator of the company’s ability to make a profit. High profitability indicates that the company is able to finance all operational activities without difficulty (Soekotjo & Hariansyah, 2019). High profitability indicates the performance of a well-performing company and is less likely to
occur financial distress. Financial distress occurs because the company cannot pay the company’s operations due to losses (Schwartz, 2005). Low or negative profitability indicates that the company has difficulty in financing operations and must use retained profit so that the company has a great chance of (Schwartz, 2005) financial distress (Ardi et al., 2020). Profitability indicators become auxiliary indicators in evaluating the condition of the company’s financial difficulties.

Previous research has shown that profitability has a negative and significant influence on financial distress (Audia et al., 2020; Hanifah, 2020; Mahfud & Amanah, 2019; Rudiyanto & Nuranisa, 2021; Soekotjo & Hariansyah, 2019). There is a research gap that explains profitability has a significant positive effect on financial distress (Ali et al., 2020; Atika et al., 2020; Yusbardini & Rashid, 2019). Companies with low profitability will get a low Z-score value so that it is indicated by financial distress (Ali et al., 2020; Atika et al., 2020; Yusbardini & Rashid, 2019). Based on the description above, the hypothesis can be drawn as follows:

\[ H_1 : \text{Profitability has a significant effect on financial distress.} \]

**Effect of Liquidity on Financial Distress**

Liquidity is an indicator of how liquid a company is. Liquidity is used to measure the company’s ability to pay off current liabilities with the company’s current assets. Companies that have a high liquidity ratio will have a small chance of problems regarding short-term liability payments (Soekotjo & Hariansyah, 2019). This indicates that the company has a small chance of financial distress. Companies will be vulnerable to financial distress if the company’s liquidity ratio is low (Balasubramanian et al., 2019). Low liquidity will be prone to problems regarding short-term liability payments (Ardi et al., 2020). The difficulty of paying short-term obligations is an indication of the company experiencing financial distress (Ardi et al., 2020; Balasubramanian et al., 2019; Schwartz, 2005).

Previous research has stated that liquidity has a negative and significant effect on financial distress (Ardi et al., 2020; Shidiq & Khairunnisa, 2019; Zhafirah & Majidah, 2019). There is a research gap that explains that the liquidity ratio has a positive and significant effect on financial distress (Atika et al., 2020; Hendriani et al., 2021; Yusbardini & Rashid, 2019). This is because the lower the liquidity ratio, the lower the Z-score will be of low value as well. The lower the Z-score, the company indicates financial distress. Based on the description above, the hypothesis can be drawn as follows:

\[ H_2 : \text{Liquidity has a significant effect on financial distress.} \]

**The Effect of Solvency on Financial Distress**

Solvency is an indicator used to evaluate the debt management of a company. Solvency is used to measure the percentage of a company’s debt against the company’s total capital. A high solvency ratio indicates that the company has high debt. High debt causes the risk of default to be higher (Finishtya, 2019; Moch et al., 2019). This causes the company to experience financial distress. Companies that have a high solvency ratio will have a high chance of experiencing financial distress (Schwartz, 2005; Shidiq & Khairunnisa, 2019).

Previous research has stated that solvency has a positive and significant effect on financial distress (Hanifah, 2020; Rudiyanto...
There is a research gap that states that solvency ratio has a negative and significant effect on financial distress (Ali et al., 2020; Atika et al., 2020; Yusbardini & Rashid, 2019). This is because the higher the solvency ratio, the Z-score will have a low value. A low Z-score indicates the company is experiencing financial distress.

H₃: Solvency has a significant effect on financial distress.

**RESEARCH METHODS**

This study uses a quantitative approach. The population in this study is a textile and garment sub-sector manufacturing company listed on the Indonesia Stock Exchange for the period 2015-2020. Retrieval techniques use purposive sampling. The type of data used is quantitative data. The source of this research data is secondary data, namely the financial statements for the period 2015-2020, textile and garment sub-sector companies. The measurement scale used in this study is a ratio scale. Independent variables and dependent variables use ratio scales. Profitability indicators use ROA, liquidity uses CR, and solvency uses DAR. Financial Distress indicator using the Altman Z-score approach. This research data uses pooling data due to the combination of cross section and time series. Descriptive statistics in this study used maximum, minimum, mean, and standard deviation. The classical assumption test tools in this study used normality tests, multicollinearity tests, and heteroskedasticity tests. The test tool used in this study was pooled least square. This study uses the F test tool. Hypothesis test in this study uses the t test and determination coefficient.

**Data Analysis Methods**

The test tool used in this study is pooled least square regression analysis because the study uses time series and cross section data (Nandita et al., 2019). The following estimates of the PLS regression equation in this study are:

\[ Y_{it} = a + b_1X_{1it} + b_2X_{2it} + b_3X_{3it} \]

\[ FD_{it} = a + b_1 ROA_{it} + b_2 CR_{it} + b_3 DAR_{it} \]

**RESULTS AND DISCUSSION**

**Descriptive Statistics**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Sample</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profitability (ROA)</td>
<td>90</td>
<td>-0.39</td>
<td>0.01</td>
<td>-0.03</td>
<td>0.08</td>
</tr>
<tr>
<td>Liquidity (CR)</td>
<td>90</td>
<td>0.06</td>
<td>6.51</td>
<td>1.65</td>
<td>1.56</td>
</tr>
<tr>
<td>Solvency (DAR)</td>
<td>90</td>
<td>0.08</td>
<td>5.17</td>
<td>1</td>
<td>1.15</td>
</tr>
<tr>
<td>Financial Distress (Altman Z-score)</td>
<td>90</td>
<td>-18.12</td>
<td>8.17</td>
<td>-0.31</td>
<td>5.42</td>
</tr>
</tbody>
</table>

Source: Data processed by researchers, 2022

Table 1 shows profitability has a minimum value of -0.39, a maximum value of 0.01, a mean value of -0.03, and a standard deviation value of 0.08. Liquidity has a minimum value of 0.06, a maximum value of 6.51, a
mean value of 1.65, and a standard deviation value of 1.56. Solvency has a minimum of 0.08, maximum value 5.17, Mean value 1, and standard deviation value 1.15. Financial Distress has a minimum value of -18.12, maximum value of 8.17, the minimum value is -0.31, and the standard deviation value is 5.42.

**Calculation of Financial Distress with Altman Z-Score Approach**

The classification of companies experiencing financial distress or not is with a cut off of 2.675. Companies with a Z-score above 2.675 are declared healthy and have little chance of experiencing financial distress. Companies with a Z-score below 2.675 are declared in a state of financial difficulty.

Companies that experience financial distress with low and negative Z-scores are ARGO, CNTX, ESTI, HDTX, and POLY. Companies experiencing financial distress have low profitability ratios, low liquidity ratios, and high solvency ratios. Table 1 descriptive statistics shows that the minimum value of ROA is the ratio of the HDTX company, the minimum value of CR is the ratio of the ARGO company, and the minimum value of DAR is the ratio of the POLY company.

Appendix 1 shows that there are 76 samples that experienced textile and garment sub-sector companies experiencing financial distress with a cut off classification of 2,675. Based on Table 1 descriptive statistics shows the mean value of -0.306. This indicates that the textile and garment sub-sector companies are experiencing financial distress. Companies that have never experienced financial distress are TFCO companies.

**Normality Test**

<table>
<thead>
<tr>
<th>Table 2 Normality Test Result</th>
<th>Unstandardized Residual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount of data</td>
<td>90</td>
</tr>
<tr>
<td>Monte Carlo Sig. (2-tailed)</td>
<td>0.165</td>
</tr>
</tbody>
</table>

Source: Data processed by researchers, 2022

Table 2 shows the monte carlo approach normality test of 0.165 > 0.05 so that it passes the normality test (Ghozali, 2018; Mehta & Patel, 2013).

**Multicollinearity Test**

<table>
<thead>
<tr>
<th>Table 1 Multicollinearity Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
</tr>
<tr>
<td>Profitability (ROA)</td>
</tr>
<tr>
<td>Liquidity (CR)</td>
</tr>
<tr>
<td>Solvency (DAR)</td>
</tr>
</tbody>
</table>

Source: Data processed by researchers, 2022.

Table 3 shows all independent variables have Tolerance values > 0.1 and VIF < 10 so that it pass the multicollinearity test (Ghozali, 2018).

**Heteroscedasticity Test**

<table>
<thead>
<tr>
<th>Table 2 Heteroscedasticity Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
</tr>
<tr>
<td>Profitability (ROA)</td>
</tr>
<tr>
<td>Liquidity (CR)</td>
</tr>
<tr>
<td>Solvency (DAR)</td>
</tr>
</tbody>
</table>

Source: Data processed by researchers, 2022.

The heteroscedasticity test in this study used the Spearman Rho test (Purnomo, 2017).
Table 4 shows that all independent variables have a significance value of > 0.05 so that it pass the heteroscedasticity test (Purnomo, 2017).

**The F-Test Statistical**

<table>
<thead>
<tr>
<th>F Information</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>F Count</td>
<td>428.756</td>
</tr>
<tr>
<td>Significance</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Source: Data processed by researchers, 2022.

The F table in this study is 2.71. Table 5 shows F table < F count of 428.756 and significance of 0.00 < 0.05 indicating passing the model feasibility test (Ghozali, 2018).

**Pooled Least Square**

<table>
<thead>
<tr>
<th>B Information</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>3.078</td>
</tr>
<tr>
<td>Profitability (ROA)</td>
<td>9.879</td>
</tr>
<tr>
<td>Liquidity (CR)</td>
<td>0.537</td>
</tr>
<tr>
<td>Solvency (DAR)</td>
<td>-4</td>
</tr>
</tbody>
</table>

Source: Data processed by researchers, 2022.

Here are the least square pooled equations in this study:

\[ FD_{it} = 3.078 + 9.879 \text{ROA}_{it} + 0.537 CR_{it} - 4 DAR_{it} \]

Based on table 6 constant values of 3.078. This indicates that if the variables of profitability, liquidity, and solvency are worth 0, financial distress is worth 3.078. The coefficients of profitability and liquidity regression are 9.879 and 0.537. This indicates that profitability and liquidity have a positive influence on financial distress. The value of the solvency regression coefficient is -4 so that the solvency variable has a negative influence on financial distress.

**The t-Test Results**

<table>
<thead>
<tr>
<th>Variable (ROA)</th>
<th>t count</th>
<th>Sig.</th>
<th>Positive and Significant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profitability</td>
<td>4.886</td>
<td>0.000</td>
<td>Positive and Significant</td>
</tr>
<tr>
<td>Liquidity (CR)</td>
<td>4.773</td>
<td>0.000</td>
<td>Positive and Significant</td>
</tr>
<tr>
<td>Solvency (DAR)</td>
<td>-28.007</td>
<td>0.000</td>
<td>Negative and Significant</td>
</tr>
</tbody>
</table>

Source: Data processed by researchers, 2022.

Table 7 shows profitability has a significance of 0.00 < 0.05 and t calculates 4.886 > t table 1.988. This indicates that profitability has a positive and significant influence on financial distress. Based on the statistical test t explains that the lower the profitability, the lower the Z-score. This indicates that companies with low profitability have a great opportunity to experience financial distress so that it is in accordance with the Early Bankruptcy theory. Early Bankruptcy theory explains that companies with low profitability will have difficulty in meeting operational costs so that financial distress is indicated. Profitability indicators use the ROA ratio. ROA is the ratio of net profit divided by total assets. ROA is used to measure the performance of a company's asset utilization in generating profit. A company with a low ROA indicates that the company cannot utilize assets effectively and efficiently. Companies with low or negative ROA will have difficulty paying for operational activities and the company's retained
earnings will be reduced so that the company is indicated by financial distress. The results of this study are in accordance with previous research (Ali et al., 2020; Atika et al., 2020; Yusbardini & Rashid, 2019). The results of this study contradict previous studies (Audia et al., 2020; Hanifah, 2020; Mahfud & Amanah, 2019; Rudiyanto & Nuranisa, 2021; Soekotjo & Hariansyah, 2019).

Table 7 shows liquidity has a significance of 0.00 < 0.05 and t calculates 4.773 > t table 1.988. This indicates that liquidity has a positive and significant influence on financial distress. Based on the statistical test t explains that the lower the liquidity ratio, the lower the Z-score value. This indicates that companies with low liquidity have a high chance to experience financial distress. Companies with low liquidity will have difficulty in meeting current liability maturities (Dirman, 2020). Early Bankruptcy theory explains that companies with low liquidity will find it difficult to pay current liabilities so that the company is indicated by (Dirman, 2020) financial distress. The liquidity indicator uses the CR ratio. CR is the ratio of current assets divided by current liabilities. CR is used to measure a company's ability to repay current debt. A company with a low CR indicates that the company does not have the adequacy of current assets to be converted into cash, resulting in difficulty in paying debts. Companies that default indicate financial distress. The results of this study are in accordance with previous distress studies (Atika et al., 2020; Hendriani et al., 2021; Yusbardini & Rashid, 2019). The results of this study contradict previous studies (Ardi et al., 2020; Shidiq & Khairunnisa, 2019; Zhafirah & Majidah, 2019).

Table 7 shows solvency has a significance of 0.00 < 0.05 and t calculates 28.007 > t table 1.988. This indicates that solvency has a significant influence with the negative direction because it does count negative values. Based on the statistical test t explains that the higher the solvency, the lower the Z-score. This indicates that companies with high solvency have a great opportunity to experience financial distress. Companies with high liabilities have a great risk of default (Finishtya, 2019; Moch et al., 2019). Early Bankruptcy theory describes companies that have defaulted indicated financial distress conditions. Solvency indicators use the DAR ratio. DAR is the ratio of total debt divided by total assets. DAR is used to evaluate the percentage of debt to the company's capital. DAR is used to see if the assets owned by the company can pay off the debt owned by the company. A company with high DAR indicates that the company has high debt. Companies with high debt have the potential to default. High debt creates a high interest expense. Companies that default will be indicated by financial distress. The results of this study are in accordance with previous distress studies (Ali et al., 2020; Atika et al., 2020; Yusbardini & Rashid, 2019). The results of this study contradict previous studies (Hanifah, 2020; Rudiyanto & Nuranisa, 2021).

CONCLUSION

The conclusion in this study is that profitability has a positive and significant effect on financial distress, liquidity has a positive and significant effect on financial distress, and solvency has a negative and significant effect on financial distress. Further research is advised to use other sectors besides the textile and garment sectors because the downward trend in Indonesia's manufacturing GDP indicates that there are sectors that have decreased performance so that there is potential for financial distress. Further research is suggested using financial distress calculations with other approaches in order to
compare the results of the Altman Z-score approach with other approaches. For the government, the government can provide import tax incentives for textile and garment raw materials so that it can reduce the cost of goods sold by textile and garment sub-sector companies.

**REFERENCES**


