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# An Empirical Test of The Financial Ratio Effect on Financial Distress in Indonesia (Study in Garment and Textile Industry)

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## Abstract

This research aims to investigate the impact of the current ratio (CR), debt to asset ratio (DA), and return on assets (ROA) on financial distress. The measure of financial distress level is the Altman Z-score index. The sampling technique in studies is purposive sampling. The sample is 16 textile companies and 80 firm-year observations. The result of data analysis indicates that the current ratio (CR), debt to the asset (DA), and return on assets (ROA) significantly influence financial distress (Z-Score rating). The partially current ratio and return on assets positively affect financial distress (Z-Score Index). The debt to asset ratio has a significant negative effect on financial distress (Z-Score Index). The finding contributes to the company's management considering these three ratios in making business decisions to avoid financial distress. The originality of this study is the analysis of financial distress from the textile and garment industry in the Indonesian capital market.

**Keywords:** Current Ratio, Debt to Asset Ratio, Return on Assets, Financial Distress

## 1. Introduction

Companies can avoid bankruptcy by detecting and overcoming financial difficulties as early as possible (Ramadhani and Lukviarman, 2009). Applying the Altman Z-rating technique is used to degree the financial distress level. According to research conducted by Gahar (2016) on 20 companies, LQ45 and 20 companies affected suspense policy until finally delisting, the Altman Z-score's approach outperformed other methods in predicting the bankruptcy of the company. Gunawan et al. (2019), Sayidah et al., (2019), and Sayidah et al. (2020) also use Altman score to study Indonesia companies' financial distress.

Financial distress is when the company has financial difficulties and is threatened bankruptcy. In other phrases, financial distress is when the corporation has monetary troubles to satisfy its duties. The occurrence of damaging losses or profits is one of the company's marks of experiencing financial distress. If financial distress occurs continuously, it can bring a company to bankruptcy (Fahmi, 2016). Consistent with Ramadhani and Lukviarman,

(2009) financial distress is the preliminary degree before default or liquidity due to the decline in financial conditions. According to Beaver (2011) in Rahmawati (2015), financial distress can also be defined as the enterprise's incapacity to pay the due economic responsibilities.

Altman was known as a pioneer in the financial ruin idea with Z-Score. Z-score is a statistical equation used by Altman to predict the level of bankruptcy. He used a statistical method called linear analysis, which precisely is multiple linear analysis (Altman, 1968). Altman initially collects 22 corporate ratios that may be useful for predicting financial distress. He tests them out of these 22 ratios to choose which ratios to use in creating models. The testing purpose is to analyze significant statistics of ratios, the correlation between ratios, prediction capabilities, and researchers' judgment. Primarily based on the ratio test result, he selected the five ratios to be variable within the version. The chosen ratios are (1) working capital to total assets, (2) retained earnings to total assets, (3) earnings before interest and tax to total assets, (4) the market value of equity to book value of debt, and (5) the sales to total assets.

The value of Z-Score will describe the condition of financial of manufacturing companies. Altman divides the financial condition into several tiers, particularly:

1. The value of Z-Score is smaller or equal to 1.88 ( $Z\text{-Score} = 1.88$ ), which means the company is experiencing financial difficulties and high risk.
2. The company is considered grey when acquiring Z-Score between 1.88 to 2.99 ( $1.88 < Z\text{-Score} > 2.99$ ). The company is experiencing financial problems, which should be addressed with proper management handling. The company may have been bankrupt or not.
3. For Z-Score value greater than 2.99 ( $Z\text{-Score} > 2.99$ ) assesses that the company is in a very healthy state so the possibility of bankruptcy is very slight.

Several researchers have identified factors that influence financial distress. The first factor is the current ratio, which represents liquidity. The liquidity ratio, regularly referred to as the current ratio, is used to degree the company's capability to pay operational cost. In other words, the liquidity ratio is useful for recognizing the employer's potential to finance and satisfy responsibilities/debts when billed or due (Kasmir, 2015). Khaliq (2014) and Wahyu (2018) show that the current ratio positively affects the Financial Distress level (Z-score Index).

The second issue is the debt to asset ratio, representing leverage. The leverage ratio, also known as the solvency ratio, is used to determine the quantity the company resources are financed through debt. Leverage is a load of debt compared to its assets (Kasmir, 2015), which measures its ability to fulfill its long-term duties (Hanafi, 2009). An unsolvable enterprise is a company whose general debt is greater than its total assets. In line with the preceding studies of Sari (2018), the debt to assets ratio has a high-quality and insignificant effect. Conversely, Rohmadini (2018) and Gunawan et al. (2019) find that the debt to asset ratio has a negative effect on financial distress levels (Z-score Index). Sayidah et al. (2019) and Salehi et al., 2017 show no convincing evidence that leverage correlates with financial distress.

The third issue is the return on asset, representing the profitability ratio. Profitability is a ratio for assessing the organization's ability to create profit. This ratio also offers a degree of an organization's control effectiveness. This ratio demonstrates the earnings generated from the income and profits from investments (Kasmir, 2015). Organizations with a very high return on investment will use relatively little debt. Highly profitable companies do not need too much debt financing because high returns allow them to do most of their funding through internally generated funds (Brigham & Houston, 2013). Rezki (2017) researched that asset return positively affects financial distress (Z-score Index). This study analyzes the impact of the current ratio (CR), debt to asset ratio (DA), and return on assets (ROA) on financial distress in the textile and garments business. ‘

## 2. Research Method

### 2.1 Variables

We use the degree of Financial Distress as dependent variable influenced by the Ratio of Current, the Ratio of Debt to Asset, and Return on Asset. The financial distress is measured by Altman Z-Score, which incorporates the five ratios into multiple linear analysis (MDA). The model is:

$$Z = 1,2WC/TA + 1.4 RE/TA + 3.3 EBIT/TA + 0.6 MVE/BVD + 1.0 S/TA$$

WC/TA: working capital to total assets

RE/TA: retained earnings to total assets

EBIT/TA: earnings before interest and tax to total assets

MVE/BVD: market value of equity to book value of debt

S/TA: sales to total assets.

Independent variables include the Ratio of Current (CR), the Ratio of Debt to Asset (DA), and Return on Asset (ROA). Current ratio measures the company's ability to pay for immediate short-term or debt obligations immediately overdue when billed as a whole. The current ratio can also measure the company's level of safety (margin of safety). From the ratio measurement results, if the ratio is low, it can be said that the company has less capital to pay the debt. The measurements of CR is:

$$\text{Current ratio} = ((\text{Current Assets}) / (\text{Current Liabilities}))$$

Debt to Asset Ratio (DA) is a ratio of debt used to evaluate total debt to overall assets. Companies that finance their assets with large debt will have a high debt to asset ratio (DA). Corporations that have a high obligation will undergo significant interest expenses. They will experience obstacles adding more debt if they need funds for expansion, so they experience financial difficulties (Kasmir, 2015). The measurements of DA is:

$$\text{Debt to Asset Ratio} = (\text{Total Liabilities}) / (\text{Total Asset})$$

Return on asset (ROA) demonstrates the company's ability by using all assets owned to create net profit. This ratio is important for control to evaluate organization management's effectiveness and performance in managing all corporation assets. The larger the ROA, show the management use corporation assets efficiently. The same amount of assets can generate a more significant profit and vice versa. The measurements of DA are:

$$\text{Return on Assets} = (\text{Earning After Tax}) / (\text{Total Asset})$$

### 2.2 Samples

This study's population is all textile and garments indexed at the Indonesian capital market. The sampling technique in research is purposive sampling. The pattern choice criteria in this study are:

The textile and garment firms have been listed on the Indonesian capital market from 2014 to 2018.

The firms present the complete annual report from 2014 to 2018 on the IDX website (<http://www.idx.co.id>).

The number of textile and garment companies that meet the criteria in this study amounted to 16 companies in 2014-2018 and 80 firm-year observations

### 2.3 Data

We collect quantitative data in this study. Quantitative data is a sort of facts that can be measured or calculated directly, which is the statistics or clarification expressed by variety or form of numbers (Sugiyono, 2017). The data source used by the researcher is secondary data from Indonesian Stock Exchange. Secondary data is taken and collected by other parties, and researchers obtain the data by duplicating it by downloading or other means (Sugiyono, 2017).

### 2.4 Technique of Analysis

This study uses the data panel's regression as an analysis method. The formula of regression is:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \epsilon_{it}$$

Description:

$Y_{it}$  = Financial Distress level (Z-Score Index)

$\beta_0$  = Constanta

$\beta$  = regression coefficient

$X_1$  = Current Ratio

$X_2$  = Debt to Asset Ratio

$X_3$  = Return on Asset

$\epsilon$  = Error Term

T = time

i = Company

### 3. Results

In this research, the initial observation data is 80 units of analysis from sixteen textile and garment industry corporations listed on the Indonesian capital market in 2014-2018. We find five analysis units are the outlier and do not include in the analysis to produce the best regression model. The final number of observations used in the study was 75 observation data. The categorization of financial distress by way of the usage of the Altman Z-rating method in textile and garment businesses indexed on the Indonesia capital market in 2014-2018 is presented within the table 1:

Table 1: The Categorization of The Degree of Financial Distress

Year	Number of Companies			Total
	Financial Distress	Grey Area	Healthy Financial Condition	
2014	12	2	2	16
2015	11	3	2	16
2016	11	4	1	16
2017	11	2	3	16
2018	11	4	1	16
	Total of Unit of Analysis			80
	Outlier			5
	The Total of Analyzed Units of Analysis			75

Source: Processed data, 2019

Primarily based the categorization of the degree of financial conditions on 16 textile and garment groups indexed in the Indonesian capital market in 2014-2018 is as follows:

- In 2014 12 companies had been experiencing financial difficulties, two corporations were inside the gray region or inclined, and two groups were in a healthful situation.
- In 2015 11 companies were experiencing financial difficulties, three companies were in the gray location or prone, and two companies were in a healthy circumstance.
- In 2016 11 companies were experiencing financial difficulties, four companies were in the gray location or prone, and one company was in healthy circumstance..
- In 2017 11 companies were experiencing financial difficulties, two companies have been in the gray location or prone, and three were in a healthy circumstance..
- In 2018 11 companies were experiencing financial difficulties, four companies have been in the gray location or prone, and one company was in healthy circumstance.

### 3.1 Hypothesis Testing

Researchers used SPSS to test the hypothesis. Based on the regression model test outcomes, the regression significance level in the model is 0.00, as shown in the following table.

Table 2: The Result of F-test

Model	F	Significant
Regression	211.08	0.000

a. Dependent variable: Financial Distress (Dist)

b. Predictors: (Constant), Current Ratio (CR), Debt to Asset (DA), Return to Asset (RA)

Source: Output SPSS (2019)

The test results above show that the variables in this research form a couple linear regression model with the dependent variable Financial Distress. All independent variables, namely Ratio of Current (CR), Ratio of Debt to Assets (DA), Ratio of Return to Assets (RA), significantly affect the Financial Distress variable. Furthermore, the following table 3 shows the effect and significance of each variable partially.

Table 3: The Result of t-test

Variable	Standardized Coefficient Beta	Significance
Current Ratio (CR)	0.300421	0.0098
Debt to Asset (DA)	-3.807749	0.0000
Return to Asset (RA)	3.005070	0.0000

Source: Output SPSS (2019)

Table 3 describes the partial test result (t-test), the value of the current ratio is  $0.0098 < 0.05$ , and the regression coefficient of 0.300421. Based on this value, we can conclude that the current ratio significantly affects the level of financial difficulties (Z-score rating) so hypothesis 1 is accepted. Next, the result (partially test), the debt to asset significance score is  $0.00 < 0.05$ , and the regression coefficient -3.807749. The debt to asset ratio negatively affects the financial difficulties level (Score of Z), so hypothesis 2 is accepted. The effect of the Return on Asset ratio on the financial difficulties (Z-score index) level indicates that the probability grade of the ratio of return to asset is  $0.00 < 0.05$  and regression coefficient 3,00. The return on asset ratio significantly impacts the financial distress level (Z-Score Index), so that hypothesis 3 is accepted.

### 3.2 Coefficient of Determinations ( $R^2$ )

The test results of the determination coefficient show that the score of adjusted  $R^2$  is 0.8949. The value indicates that the ratio of current, the proportion of debt to asset, and the percentage of asset return can explain or provide information to the financial distress level (Z-score index) of 89.5%. While the last 10.5% is described by different factors, which were not analyzed in this study, which can affect the financial distress level (z-score index).

## 4. Discussion

### 4.1 Influence of Ratio of Current (CR), Ratio of Debt to Asset (DA), and Ratio of Return on Asset (RA) to Financial Difficulties level (Z-Score Rating).

The current ratio illustrates the corporation's capability to pay a quick-term duty or debt without delay due. If the corporation has a high current ratio, it will be more liquid to afford a short-term obligation smoothly. In other words, the company will be more spared from the threat of bankruptcy or financial difficulties because it has sufficient current assets to fulfill its current liabilities and, therefore, affect the Z-score index's increasing value. The larger the book Z-score Index, the more the financial distress level will decline or even be freed from the financial distress.

The debt to asset ratio (DA) measures how much debt a company uses to finance its investments/total assets. The percentage of DA is one of the ratios of leverage that explains its ability to fulfill the long-term debt. The greater this ratio indicates company's financial condition is not healthy. The company will have difficulty in obtaining additional loans Kasmir (2015). Companies that have a high level of debt to assets are companies that have a higher debt burden. These companies tend to experience financial distress because they bear high-interest expenses and have a decrease in the value of the Z-score index. The company pays large amounts of interest, reducing its ability to finance its operations and expand. This condition affect the decrease in the Z-score index value. The smaller the book Z-score Index the financial distress level will increase.

Return on asset demonstrates the company's capacity by using every assets owned to create profit after tax. If a company can be well-efficient, it is increasingly away from bankruptcy because it can maximize the revenue from the management of assets owned. Companies that have high returns on assets show that the income received by the company is enough to invest and pay a duty. The company does not lack funding or will reduce the risk of financial difficulties, affecting the rise of the Z-score index. The larger the book Z-score Index, the financial distress level will decline or even be freed from financial distress. So concurrently, the current ratio, debt to asset, and Return on asset affect the Financial Distress level (Z-Score Index).

#### *4.2 The Impact of Current Ratio (CR) on Financial Distress*

A current ratio (CR) is the company's capability to fulfill financial debt in the short term that will mature in less than one year. The high CR indicates that the corporation is liquid and able to smoothly and efficiently afford a short-term commitment smoothly and timely. Companies with a high current ratio indicate that the corporation has the current assets (cash, account receivable, inventory) to pay account payable and other short-term debts. The corporation can pay off short-term debts on time. Conversely, the company is experiencing financial problems if this ratio is low. The corporation no longer has sufficient th current asset belongings to meet short-term obligations. In textile and garment companies composition of current liabilities or short-term obligations dominates the total liability as a whole. Be aware that the debt Trust receipts and operating debt costs are substantial.

In contrast, although the company has considerable inventories, such inventories cannot be quickly sold or used as cash. The absorption of the products in the market isn't always so proper that the corporation no longer has sufficient coins to meet a short-term debt, so late and fail to pay debt occurs. These research findings are consistent with (Khaliq et al., 2014) and (Wahyu, 2018) stating that the current ratio positively affects financial distress.

#### *4.3. The Impact of Ratio of Debt to Asset (DA) on the Financial Distress*

The debt to asset ratio (DA) measures how much debt a company uses to finance its investments or total assets. A high debt ratio indicates that most of the company's funding comes from bank loans or bonds. Companies that pay debt and interest in large amounts will face a higher risk of financial difficulties. In addition, this condition makes it difficult for companies to obtain additional loans. Profit and assets are not sufficient to cover the loan.

Companies generally use debt to buy advanced technology machines in the textile and garment industry. Additional debt will increase operating costs and reduce company profits. On the other hand, companies that use advanced technology machines can make production costs more efficient. Therefore, the company must calculate the exact comparison according to the trade-off theory. If the decrease in efficiency does not balance the additional interest expense, then the higher the debt, the higher the bankruptcy. The greater the debt, the greater the company's likelihood of not paying a fixed interest.

Brigham and Houston, 2010 in (Salalahi, 2018) explained that creditors were more interested in lower debt ratios. The more excellent protection for creditors against a loss resulted in investors reluctant to invest because the company was judged at risk. When the company has a high debt to asset ratio, it will bring companies closer or even put them in financial distress. It is reflected in the decrease in the value of the Z-score index. The results

were in line with (Khaliq, 2014), (Rohmadini, 2018), and (Sayidah & Assagaf, 2020) stated that DA was negatively and significantly influential.

#### 4.4 The Impact of Return on Asset (ROA) on the Financial Distress

Return on asset demonstrates the company's capability by using all resources owned to create net profit. If a company can be well-efficient, it is increasingly away from bankruptcy because it can maximize the revenue from the management of resources owned. The findings of this analysis are consistent with Septiana, (2019), which shows that return on assets positively affects financial difficulties. Companies with high ROA describe better financial performance (Strouhal et al., 2018). The company can generate high profits by using its assets.

In the export-based textile and garment industry, companies must produce high-quality products. Standard costs become expensive, and additional indirect costs include import and rental costs. Unfortunately, this cost increase is not proportional to revenue. Meanwhile, domestic market-oriented companies earning small profits are likely to be negative or lose money due to increasingly fierce market share competition. Suppose the domestic market-oriented company cannot compete and eventually go bankrupt because minimal sales. When the company loses money, the company does not have the cash to pay obligations and distribute dividends, so the company experiences financial difficulties and fails to pay debts.

Companies with a high return on assets will earn sufficient income to invest and pay obligations. The company does not experience a lack of funds and has a small risk of financial difficulties. In addition, the ability to generate high returns is considered by investors to invest. Investors believe that companies that maintain a high return on assets are more profitable. The more investors are interested in the company's shares, it will increase the company's value. Companies can get funding from the stock exchange and bank loans more quickly. Companies can avoid the occurrence of financial difficulties. The greater the Z-score index value, the more financial distress will decrease or be free from financial distress.

#### 4. Conclusion

This research analyzes the effect of financial ratios, including the current ratio (CR), debt to asset ratio (DA), and return on assets (ROA) on financial distress. The originality of this research is a unique sample of 80 firm-year observation data from 16 garment and textile companies in the Indonesian capital market. The results of data analysis using the data panel's regression analysis methods provide evidence that the current ratio and return on assets positively affect financial difficulties as measured by the Z-score rating. On the other side, the ratio of debt to asset has negative impact. This finding contributes to the company's management, investors, and creditors. Management must seriously pay attention to financial ratios to avoid financial difficulties in making operational, investment, and funding decisions. The results of this direct study investors collect data regarding the company's financial condition to decide to buy or sell shares in the capital market.

Further research should add more populations, samples, and variables to represent different types of corporate sectors. To explain the financial condition distress more broadly and comprehensively, the researcher can increase the research population to focus on the manufacturing industry and other industries such as finance, mining, and agriculture, which are also in the performance degradation phase. It is expected to add external variables such as rates and interest rates and an internal variable, for example, enterprise risk management, which thoroughly addresses the risk handling the company faced.

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