

## TO RECOGNIZE INDICATION OF FINANCIAL DISTRESS AND OR BANKRUPTCY OF FIVE TEXTILE COMPANY FOR FIVE YEARS PERIOD USING FIVE FINANCIAL DISTRESS MODELS

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### ABSTRACT

**Background:** In a business, risk of profit and loss is an inevitability. Every company have their own ways to mitigate those risk, prepare a proper treatment, and other efforts get the predetermined purpose, that is profit. Serious risk and its consequences can bring company into financial distress, and in the next step can become bankrupt. The Indications of it can be seen from the financial performance of the companies.

**Aim:** To find out whether a company engaged in the textile and textile products sector is in serious financial difficulty which could have implications for bankruptcy, several theories have been developed. This study is to analyze indication of financial distress and its possibility to become bankrupt. The study is using financial data of five textile and textile product companies listed on the Indonesia Stock Exchange for five years of 2017 – 2021, using five models of Analysis of Financial Distress, that are Zmijewski Model, Fulmer Model, Grover Model, Altman Z-Score Model, and Springate Model.

**Method:** This study uses secondary data on the textile companies listed on the Indonesia Stock Exchange. The sample used in this study were five companies. The sample selection uses purposive sampling. This type of research used in this research is quantitative descriptive, namely research on problems in the form of the current facts of a population. Testing research data using data analysis of model financial distress.

**Findings:** This study uses secondary data on the textile companies listed on the Indonesia Stock Exchange. The sample used in this study were five companies. The sample selection uses purposive sampling. This type of research used in this research is quantitative descriptive, namely research on problems in the form of the current facts of a population. Testing research data using data analysis of model financial distress.

### KEYWORDS

Financial Distress; Bankruptcy; Textile and Textile Product; Financial Performance

## INTRODUCTION

Textile and textile product (garment, clothing, apparel) are important commodity with its significant role for country's economy, and also in social life. In particular, the textile business and textile products have an effect on employment, gross domestic product, balance of trade, and others (Satya et al. 2018).

Nevertheless, it has become a reality that the textile and textile product industry is growing rapidly and has a strategic role in the economic development, being a significant part of domestic products and absorbing a large enough workforce (Saragih 2018). Textile and textile product business players invest a lot of money in the development of this industry.

But textile and textile product are relatively unstable business, so that careful calculations are needed in anticipating market fluctuations and prices of textiles and textile products. In fact, many companies engaged in textiles and textile products are experiencing difficult conditions, with poor performance (Agus Arman 2022).

Some determinants related to risk of textile industries in Indonesia are raw material mostly should be imported, banking finance support is not conducive and also the rate of loan, exchange rate, capital and workers intensive and so on (Sidabutar 2014). These factors will

affect the textile industrial development, even this industry actually is very challenging and perspective, because of the huge needs of textile and product textiles.

As is well known, several textile and textile product companies experienced a surge in cases of bankruptcy, which was marked by the number of companies experiencing losses, including textile companies that had gone public and were listed on the capital market. It is interesting to observe the dynamics of the textile and textile product industry, especially related to the facts and indication of financial difficulties or financial distress faced by textile and textile product companies. If the condition of financial difficulties is not handled properly, it is feared that the company will go into bankruptcy.

Some theories have been developed to recognize the financial distress or financial difficulties, even this in only describe the indication. Appropriate, structured and effective steps are needed to overcome financial difficulties so that they do not get worse which can lead to bankruptcy (Sidabutar 2014).

To find out whether a company engaged in the textile and textile products sector is in serious financial difficulty which could have implications for bankruptcy, several theories have been developed. So far, 5 analytical models have been developed to measure whether a company is in a state of difficulty or not. The analytical model that has been developed are Zmijewski Model, Fulmer Model, Grover Model, Altman Z-Score Model, and Springate Model. These models actually figure indication of financial distress or bankruptcy, and not a fix signal of financial distress or bankruptcy. When the management knows the indication, then they must take a proper action for next periods in order to overcome the financial performance (Kholifah, Djumali, and Hartono 2020).

This study selected 5 companies in textile and product textile listed in IDX with its audited financial statement for the year 2017-2021. What we hope is to know if any differences result between the theories.

Table 1. shows the textile and product textile companies listed in Indonesian Stock Exchange.

This article is focused on using audited financial statements of selected companies using purposive sampling. The analysis will be descriptive. The period is five years and will be analyzed using five models.

**Table 1** Textile and Textile Product Companies listed in Indonesian Stock Exchange

No.	Code	Name
1	ADMG	PT Polychem Indonesia Tbk
2	ARGO	PT Argo Pantes Tbk
3	CNTX	PT Century Textile Industri Tbk
4	ERTX	PT Eratex Djaya Tbk
5	ESTI	PT Ever Shine Textile Industri Tbk
6	INDR	PT Indo-Rama Synthetics Tbk
7	MYTX	PT Apac Citra Centertex Tbk
8	PBRX	PT Pan Brothers Tbk
9	STAR	PT Star Petrochem Tbk
10	KARW	PT Karwell Indonesia Tbk
11	POLY	PT Asia Fasific Fibers Tbk
12	RICY	PT Ricky Putra Globalindo Tbk
13	SRIL	PT Sri Rejeki Isman
14	SSTM	PT Sunson Textile Manufacturer Tbk
15	TRIS	PT Trisula International Tbk
16	UNIT	PT Nusantara Inti Corpora Tbk
17	TFCO	PT Tifico Fiber Indonesia Tbk
18	UNTX	PT Unitex Tbk

## Financial Distress

(Hayes 2021) defines financial distress as a condition in which a company or individual cannot generate sufficient revenues or income, making it unable to meet or pay its financial obligations. This is generally due to high fixed costs, a large degree of illiquid assets, or revenues sensitive to economic downturns. For individuals, financial distress can arise from poor budgeting, overspending, too high of a debt load, lawsuit, or loss of employment.

By recognizing the signs of financial distress based on up-to-date data, companies can take the necessary set of actions before they become acute and can no longer be handled with simple steps. By recognizing these signs, companies can take proper actions to avoid devastation or the occurrence of bankruptcy.

Bankruptcy is a legal proceeding initiated when a person or business is unable to repay outstanding debts or obligations. The bankruptcy process begins with a petition filed by the debtor, which is most common, or on behalf of creditors, which is less common. All of the debtor's assets are measured and evaluated, and the assets may be used to repay a portion of the outstanding debt (Hayes 2021).

There are some indication or warning signs to express if a company in a financial distress. Usually, it can be seen from financial statement that show financial performance, i.e., profit and loss statement. When a company is in this situation, there are some causes and need some strategic action to overcome it. But clearly the bankers or other creditors will see this as a sign not to lend the company. From financial statement, bankers and creditors can see the prospect of business, the future of the company. When talking about financial, it means not just statement of profit and loss, but also balance sheet, and even cash flow statement.

Profitability, liquidity, and operating capacity negatively affect financial distress, while leverage and sales growth does not affect financial distress (Sutra and Mais 2019).

Bad financial performance may come from bad management, both in bad creating sales or income and bad in controlling efficiency. This situation will cause low profit or even high loss. If the situation goes for a long period, it could make the company in very serious bad situation, that come into a hole of bankruptcy. Bad sales or income may come from bad quality of products and or service, or high price, as a part of rapid competition. Usually this makes consumers decide to buy from the competitors. Financial distress also can be seen when a company cannot pay their debts or other obligations when it is in due date.

Financial distress can be seen in various ways, such as declining financial performance, the company's inability to pay its obligations, the termination of dividend payments, cash flow problems faced by the company, liquidity difficulties, layoffs of workers, and other conditions that indicate financial distress. faced by the company. Based on the research background, the dependent variables studied are profitability, liquidity, leverage, operating leverage and sales growth (Sutra and Mais 2019).

Firms with low profitability, low liquidity, large size, low growth in operating profit and high solvency will face a higher level of financial distress. Thus, this can be served as indicators for managers to monitor their financial position in their corporations. Corporate managers must realize the importance of early detections to avoid facing distressed and total lost in corporate values of their firms (Thim, Choong, and Nee 2011).

When a company for a period of time having grey zone, and the management were not able to cope up with those issues, then the company will be in distress zone (Soni 2019). The sickness indications of the sample garment factories are not the same over the period under review (Munawar, Firli, and Iradiant 2018). The identified causes of sickness are inefficiency in working capital management, inefficient operations of current assets, underutilization of available resources, the presence of idle capacity, below satisfactory of activity level in terms of productions etc. The remedial measures suggest to providing sufficient working capital, utilize resources properly, reduce idle capacity, ensure acceptable return on equity, reinvest

retained earnings, improve operating profit by reducing operating expenses, improve satisfaction level of productions and sales operations etc (Sina et al. 2020).

## **METHOD**

### **Financial distress analysis method**

There are five financial distress analysis methods used in this article.

**Grover G-Score.** (Husein and Pambekti 2015) Grover's model categorizes companies in bankruptcy with score less than or equal to -0,02 ( $Z \leq -0,02$ ). Meanwhile, the value for companies categorized as non-bankrupt is more or equal to 0,01 ( $Z \geq 0,01$ ). The model developed by Grover is in the following equation.

$$G = 1,650 X1 + 3,404 X3 - 0,016 ROA + 0,057. \quad (1)$$

Where:

X1 = Total Assets / Working Capital

X2 = Total Assets / Income before Interest and Taxes

ROA = Total Assets / Net Profit

**Altman Z-Score.** (Safitra 2013) Altman's model criteria of company's bankruptcy are those with a Z-Score less than 1,81 ( $Z < 1,81$ ). Z-Score between 1,81 and 2,99 ( $1,81 < Z < 2,99$ ) are in the grey area, and Z-Score above 2,99 ( $Z > 2,99$ ) are healthy companies. The model is formulated as follows for public manufacturing company.

$$Z = 1,2 X1 + 1,4 X2 + 3,3 X3 + 0,6 X4 + 0,999 X5. \quad (2)$$

Where:

X1 = Total Assets / Working Capital

X2 = Total Assets / Retained Earnings

X3 = Total Assets / Income before Interest and Taxes

X4 = Book Value of Debt / Market Value of Equity

X5 = Total Assets / Total Sales

**Fulmer H-Factor.** (Lukman and Ahmar 2016) Fulmer model assess criteria in which if  $H < 0$  then the company is in a state of bankruptcy, while  $H > 0$  means the company is in a healthy condition. The model is formulated as follows.

$$H = 5,528(V1) + 0,212(V2) + 0,073(V3) + 1,270(V4) - 0,120(V5) + 2,335(V6) + 0,575(V7) + 1,083(V8) + 0,894(V9) - 6,075. \quad (3)$$

Where:

V1 = Retained Earnings / Total Assets

V2 = Sales / Total Assets

V3 = Income before Tax / Total Equity

V4 = Cash Flow / Total Liabilities

V5 = Total Liabilities / Total Assets

V6 = Total Current Liabilities / Total Assets

V7 = Log Total Tangible Assets

V8 = Working Capital / Total Liabilities

V9 = Log Earnings before Interest and Taxes / Interest Expense

**Springate Score.** Springate model classifies condition of company as healthy if the score is more than 0,862 ( $S > 0,862$ ) while the company that score less than 0,862 ( $S < 0,862$ ) classified as experiencing financial distress. The following is formula for Springate score.

$$S = 1,03 X_1 + 3,07 X_2 + 0,66 X_3 + 0,4 X_4. \quad (4)$$

Where:

- X1 = Ratio of Working Capital / Total Assets
- X2 = Earnings before Deducted Interest and Taxes / Total Assets
- X3 = Ratio of Net Profit before Deducted Taxes / Current Liabilities
- X4 = Sales Ratio / Total Assets

**Zmijewski Score. (Pertiwi 2017)** Zmijewski model assess criteria of company's condition with scores that if the value is negative means the company is in good health, otherwise if the value is positive means the company is going bankrupt. This model is formulated as follows .

$$X = - 4,336 - 4,513 X_1 + 5,679 X_2 + 0,004 X_3. \quad (5)$$

Where:

- X<sub>1</sub> = Net Profit / Total Assets
- X<sub>2</sub> = Total Liabilities / Total Assets
- X<sub>3</sub> = Current Assets / Current Liabilities

## RESULTS AND DISCUSSION

Based on the financial statement data that has been audited by the Public Accounting Firm and has been publicly announced in the media, the results of the calculation of the condition of the companies sampled for the selected period are obtained and presented according to 5 predetermined methods.

The statistics calculated are the mean, standard deviation, and variance of 5 companies over a 5-year period in each model used, to see how the data is distributed, the average health of the companies for 5 years, and the record of the company's business volatility.

Table 2. shows the score of each method is used over 5-year period, with this score we can figure the categories of financial condition of the selected companies as shown in Table 3.

**Table 2** Calculation result of financial distress model of five companies over 5-year period.

Company	Methods	2021	2020	2019	2018	2017
INDR	Grover	0.599	0.154	0.180	0.282	0.257
	Altman Z-Score	2.157	1.505	1.789	1.795	1.679
	Fulmer H Factor	11.964	8.267	8.761	9.394	7.663
	Springate	1.048	0.400	0.622	0.767	0.592
	Zmijewski	(1.983)	(1.488)	(1.701)	(1.461)	(0.682)
TRIS	Grover	0.592	0.403	0.706	0.833	0.910
	Altman Z-Score	1.437	1.415	1.967	1.988	1.611
	Fulmer H Factor	11.561	10.335	12.401	12.342	11.776
	Springate	0.729	0.585	1.056	1.122	0.994
	Zmijewski	(1.503)	(1.148)	(1.494)	(1.977)	(2.022)
POLY	Grover	(0.458)	(0.461)	(0.526)	(0.532)	(0.568)
	Altman Z-Score	0.030	(0.020)	0.152	0.253	0.116
	Fulmer H Factor	(4.317)	(2.093)	(0.893)	(0.386)	0.619
	Springate	(0.179)	(0.245)	(0.319)	(0.219)	(0.377)
	Zmijewski	1.735	1.618	1.202	1.153	(0.799)
ARGO	Grover	(0.014)	(0.067)	(0.077)	(0.088)	(1.811)
	Altman Z-Score	0.062	0.050	0.228	0.351	(5.094)
	Fulmer H Factor	(14.624)	(13.249)	(12.605)	(11.469)	(8.724)

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	Springate	0.062	0.050	0.228	0.351	(1.228)
	Zmijewski	0.076	0.067	0.096	0.122	6.215
SRIL	Grover	(4.189)	1.053	1.211	1.040	1.091
	Altman Z-Score	(2.673)	1.733	1.911	1.753	1.560
	Fulmer H Factor	11.764	9.636	8.505	8.533	8.321
	Springate	(3.694)	1.158	1.503	1.317	1.280
	Zmijewski	7.134	(0.915)	(1.050)	(1.073)	(1.005)

**Table 3** Financial conditions of five companies over 5-year period.

Company	Methods	2021	2020	2019	2018	2017
INDR	Grover	H	H	H	H	H
	Altman Z-Score	GREY	FD	FD	FD	FD
	Fulmer H Factor	H	H	H	H	H
	Springate	H	FD	FD	FD	FD
	Zmijewski	H	H	H	H	H
TRIS	Grover	H	H	H	H	H
	Altman Z-Score	FD	FD	GREY	GREY	FD
	Fulmer H Factor	H	H	H	H	H
	Springate	FD	FD	H	H	H
	Zmijewski	H	H	H	H	H
POLY	Grover	FD	FD	FD	FD	FD
	Altman Z-Score	FD	FD	FD	FD	FD
	Fulmer H Factor	FD	FD	FD	FD	H
	Springate	FD	FD	FD	FD	FD
	Zmijewski	FD	FD	FD	FD	H
ARGO	Grover	FD	FD	FD	FD	FD
	Altman Z-Score	FD	FD	FD	FD	FD
	Fulmer H Factor	FD	FD	FD	FD	FD
	Springate	FD	FD	FD	FD	FD
	Zmijewski	FD	FD	FD	FD	FD
SRIL	Grover	FD	H	H	H	H
	Altman Z-Score	FD	FD	GREY	FD	FD
	Fulmer H Factor	H	H	H	H	H
	Springate	FD	H	H	H	H
	Zmijewski	FD	H	H	H	H

Mean and standard deviation of each model over 5-year periods are shown in Table 4 and Table 5.

**Table 4** Mean calculation of each method over 5-year periods.

Company	Grover	Altman Z	Fulmer	Springate	Zmijewski
INDR	0.295	1.785	9.210	0.686	(1.463)
TRIS	0.689	1.684	11.683	0.897	(1.629)
POLY	(0.509)	0.106	(1.414)	(0.268)	0.982
ARGO	(0.411)	(0.881)	(12.134)	(0.107)	1.315
SRIL	0.041	0.857	9.352	0.313	0.618
	POLY	ARGO	ARGO	POLY	ARGO
Least Healthy	(0.509)	(0.881)	(12.134)	(0.268)	1.315
Most Healthy	0.689	1.785	11.683	0.897	(1.629)
	TRIS	INDR	TRIS	TRIS	TRIS

*Table 5 Standard deviation calculation of each method over 5-year periods.*

Company	Grover	Altman Z	Fulmer	Springate	Zmijewski
INDR	0.159	0.214	1.490	0.216	0.433
TRIS	0.179	0.249	0.747	0.205	0.329
POLY	0.043	0.095	1.694	0.071	0.919
ARGO	0.700	2.110	1.987	0.571	2.450
SRIL	2.116	1.768	1.292	2.006	3.258
	POLY	POLY	TRIS	POLY	TRIS
Least Volatile	0.043	0.095	0.747	0.071	0.329
Most Volatile	2.116	2.110	1.987	2.006	3.258
	SRIL	ARGO	ARGO	SRIL	SRIL

The calculation result above show difference conclusion between models. The differences can be described as follows.

### **1. PT Indorama Synthetic Tbk**

Year 2021. According to Grover, Fulmer, Springate, and Zmijewski model, the company is in healthy condition (H), while according to Altman model, the company is in grey area.

Year 2020. According to Grover, Fulmer, and Zmijewski model, the company is in healthy condition (H), while according to Altman-Z Score and Springate model, the company is in financial distress (FD).

Year 2019. According to Grover, Fulmer and Zmijewski model, the company is in healthy condition (H), while according to Altman-Z Score and Springate model, the company is in financial distress (FD).

Year 2018. According to Grover, Fulmer and Zmijewski model, the company is in healthy condition (H), while according to Altman-Z Score and Springate model, the company is in financial distress (FD).

Year 2017. According to Grover, Fulmer and Zmijewski model, the company is in healthy condition (H), while according to Altman-Z Score and Springate model, the company is in financial distress (FD).

### **2. PT Trisula Textile Industries Tbk**

Year 2021. According to Grover, Fulmer, and Zmijewski model, the company is in healthy condition (H), while according to Altman-Z Score and Springate model, the company is in financial distress (FD).

Year 2020. According to Grover, Fulmer, and Zmijewski model, the company is in healthy condition (H), while according to Altman-Z Score and Springate model, the company is in financial distress (FD).

Year 2019. According to Grover, Fulmer, Springate and Zmijewski model, the company is in healthy condition (H), while according to Altman-Z Score model, the company is in grey area.

Year 2018. According to Grover, Fulmer, Springate and Zmijewski model, the company is in healthy condition (H), while according to Altman-Z Score model, the company is in grey area.

Year 2017. According to Grover, Fulmer, Springate and Zmijewski model, the company is in healthy condition (H), while according to Altman-Z Score model, the company is in financial distress (FD).

### **3. PT Asia Pacific Investamana Tbk**

Year 2021. According to Grover model, Zmijewski model, Altman-Z Score, Springate and Fulmer, the company is in financial distress (FD).

Year 2020. According to Grover model, Zmijewski model, Altman-Z Score, Springate and Fulmer, the company is in financial distress (FD).

Year 2019. According to Grover model, Zmijewski model, Altman-Z Score, Springate and Fulmer, the company is in financial distress (FD).

Year 2018. According to Grover model, Zmijewski model, Altman-Z Score, Springate and Fulmer, the company is in financial distress (FD).

Year 2017. According to Grover model, Altman-Z Score, and Springate model, the company is in financial distress (FD), while according to Fulmer and Zmijewski model, the company is in healthy condition(H).

### **4. PT Argo Pantes Tbk**

Year 2021. According to Grover model, Zmijewski model, Altman-Z Score, Springate and Fulmer, the company is in financial distress (FD).

Year 2020. According to Grover model, Zmijewski model, Altman-Z Score, Springate and Fulmer, the company is in financial distress (FD).

Year 2019. According to Grover model, Zmijewski model, Altman-Z Score, Springate and Fulmer, the company is in financial distress (FD).

Year 2018. According to Grover model, Zmijewski model, Altman-Z Score, Springate and Fulmer, the company is in financial distress (FD).

### **5. PT Sri Rejeki Isman Tbk**

Year 2021. According to Fulmer, the company is in Healthy condition, while according to four other models, Grover and Zmijewski, Altman-Z Score, and Springate the company is in financial distress (FD).

Year 2020. According to Altman-Z Score the company is in financial distress (FD), while according to Grover model, Zmijewski model, Springate and Fulmer, the company is in healthy condition (H).

Year 2019. According to Altman-Z Score the company is in grey area, while according to Grover model, Zmijewski model, Springate and Fulmer, the company is in healthy condition (H).

Year 2018. According to Altman-Z Score the company is in financial distress (FD), while according to Grover model, Zmijewski model, Springate and Fulmer, the company is in healthy condition (H).

Year 2017. According to Altman-Z Score the company is in financial distress (FD), while according to Grover model, Zmijewski model, Springate and Fulmer, the company is in healthy condition (H).

## **CONCLUSION**

As explained that the purpose of this study is to recognize signs of financial difficulties or bankruptcy of a company by using a benchmark formula developed from 5 models related to financial condition of 5 textile and textile product listed in the Indonesia Stock Exchange (IDX) for five-year period 2017 – 2021. Based on data and result calculation we can state that difference models in some instance will produce difference conclusion. But as a whole, there is similar categories. Basically, it can be said that the entire model can be used to identify signs of financial distress or bankruptcy.



There are two companies that have the same results for year 2017 - 2021 using 5 models (FD), that are PT Asia Pacific Investama Tbk. and PT Argo Pantes Tbk., except year 2017 where Zmijewski model gives Healthy condition for PT Asia Pacific Investama Tbk

In the case of Indorama, for year 2021, from the five models, it is known that there is 1 different model, that is Fulmer where the results are Healthy (H) conditions, while the other 4 models have results Financial Distress (FD). For year 2018-2020, 4 model have result Healthy and 1 model have result grey area. For 2017, Grover, Fulmer and Zmijewski have same results (Healthy), while result for Altman-Z Score is Grey, and result for Springate is FD.

From the computed mean data, the average company health is obtained for a period of 5 years, (a) If using the Grover model, then the company that is experiencing financial distress is the POLY company, while the company that has the best performance is TRIS, (b) If using the Altman Z Score model, the company that is experiencing financial distress is the ARGO company, while the company that has the best performance is INDR, (c) If using the Fulmer model, then the company that is experiencing financial distress is the ARGO company, while the company that has the best performance is TRIS. (d) If using the Springate model, then the company that is experiencing financial distress is the POLY company, while the company that has the best performance is TRIS. (e) If using the Zmijewski model, then the company that is experiencing financial distress is the ARGO company, while the company that has the best performance is TRIS. (f) From the five models used, three models show that the company that experiences the most financial distress is ARGO, and the other two models are POLY. Four models show that the company that has the best performance is TRIS, while one model is INDR.

The standard deviation data obtained shows how volatile the business of the company is in a 5-year period.(a) If using the Grover model, the most volatile companies are SRIL companies, while the companies with the lowest volatility are POLY. (b) If using the Altman Z Score model, the most volatile company is ARGO company, while the company with the lowest volatility is POLY. (c) If using the Fulmer model, the most volatile company is the ARGO company, while the company with the lowest volatility is TRIS. (d) If using the Springate model, the most volatile company is the SRIL company, while the company with the lowest volatility is POLY. (e) If using the Grover model, the most volatile companies are SRIL companies, while the companies that have the lowest volatility are TRIS.

From the five models used, three models show that the most volatile company is SRIL, and the other two models are ARGO. Three models show that the company with the lowest volatility is POLY, while two models are TRIS.

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