

## ANALYSIS OF METHODS USED TO PREDICT FINANCIAL DISTRESS POTENTIAL

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### ABSTRACT

This study aims to analyze the condition of the company using the Altman Z-score and Zmijewski method in predicting bankruptcy potential in the 10 Hotels, Restaurants and Tourism subsectors listed on the Indonesia Stock Exchange. Sampling using a purposive sampling technique with 10 samples of companies subsector Hotels, Restaurants and Tourism. This type of research is descriptive with a quantitative approach. The results showed that: (1) The results of using the Altman method, in 2011–2018 in the ten companies of the Hotel, Restaurant and Tourism subsector were in the healthy, and unhealthy category, the Z-Score fluctuated  $\geq 2.99$  and the Z-score  $\leq 1.81$  where the Company will go bankrupt, as happened with the PANR and PGLI companies, but at the end of the average year, the company the company was categorized as healthy or no distress condition. (2) The results of the study use the Zmijewski X-score method that all of the Hotel, Restaurant and Tourism Subsector companies are very possible for the company's unhealthiness to be seen from its financial performance. The results of this study are expected to be a hotel, restaurant and tourism sub-sector company that can maintain its liquidity in fulfilling all of its obligations so as to attract investors and creditors. The company is expected to be able to manage assets to increase sales and generate profits.

Keywords: Financial Statements; Bankruptcy; Zmijewski X-score; S-score Altman

### ABSTRAK

*Penelitian ini bertujuan untuk menganalisis kondisi perusahaan menggunakan metode Altman Z-score dan Zmijewski dalam memprediksi potensi kebangkrutan pada 10 perusahaan subsektor Hotel, Restoran dan Pariwisata yang terdaftar di Bursa Efek Indonesia. Pengambilan sampel menggunakan Teknik purposive sampling dengan 10 sampel perusahaan subsektor Hotel, Restoran dan Pariwisata. Jenis penelitian deskriptif dengan pendekatan kuantitatif. Hasil penelitian menunjukkan bahwa : (1) Hasil penggunaan metode Altman, pada tahun 2011– 2018 pada kesepuluh perusahaan subsektor Hotel, Restoran dan Pariwisata berada dalam kategori sehat, dan tidak sehat, nilai Z-Score berfluktuasi  $\geq 2,99$  dan Z-score  $\leq 1,81$  dimana Perusahaan akan bangkrut, seperti yang terjadi pada perusahaan PANR dan PGLI, namun pada akhir penjumlahan rata-rata tahun, perusahaan dinyatakan sehat. (2) Hasil penelitian menggunakan metode X-score Zmijewski bahwa seluruh perusahaan Subsektor Hotel, Restoran dan Pariwisata ini sangat memungkinkan ketidak sehat perusahaan terlihat dari dalam kinerja keuangannya. Hasil dari penelitian ini diharapkan perusahaan subsektor Hotel, Restoran dan Pariwisata dapat menjaga likuiditasnya dalam memenuhi semua kewajibannya sehingga menarik minat para investor dan kreditor. Perusahaan diharapkan dapat mengelola aktiva untuk meningkatkan penjualan dan menghasilkan laba.*

*Kata kunci: Laporan Keuangan, Kebangkrutan, X-score Zmijewski, S-score Altman.*

## INTRODUCTION

On the Indonesia Stock Exchange (BEI), shares of Tourism issuers are incorporated into the Restaurant, Hotel and Tourism sub-sector which is part of the Trade, Services and Investment sectors.

According to the Decree of the Minister of Parpostel no KM 94 / HK103 / MPPT 1987, the understanding of hotels is one type of accommodation for accommodation services, food and beverage providers and other services for the general public which are managed commercially. According to RI Law No. 34 of 2000, a restaurant is a place to eat food and drinks provided with a fee, not including catering or catering. Whereas tourism according to RI Law No. 10 of 2009 is a variety of tourism activities and is supported by various facilities and services provided by the community, entrepreneurs and government. And according to Law No. 37 of 2004, bankruptcy is a condition where an institution is declared by a court decision if the debtor has two or more creditors and does not pay at least one debt that is due and collectible.

In this study the object to be examined is the hotel, restaurant and tourism sub-sector companies listed on the IDX, because according to the Secretariat of the Republic of Indonesia Cabinet Secretariat (2017) tourism is a national priority in the 2015-2019 RP JM. With the tourism sector becoming a priority, surely other sectors such as the hotel and restaurant sectors which are directly related to tourism will also experience a significant impact

But in recent years, the development of the performance of the shares of the Tourism group tends not to be too good. BPS head Suhariyanto in Suara.com said that the number of tourist arrivals to Indonesia coming through the air entrances in May 2019 experienced a decrease of 11.37 percent compared to the number of visits in the same period last year.

The ups and downs of the company are common. Conditions that make investors and creditors feel worried if the company experiences financial distress that can lead to bankruptcy. Signs of bankruptcy in this case can be seen by using accounting data. One of the main indicators used as the basis for valuation is the company's financial statements.

A company can be categorized as experiencing financial distress or financial difficulties if the company shows a negative number on operating income, net income and book value of equity and the company is merging (Brahmin, 2007), the company tends to experience liquidity problems (Hanifah, 2013). This has happened to PT. Distribution Indonesia Jaya, reported by Deliana (2018), said that PT Distribution Indonesia Jaya was in debt of 261.29 billion to its creditors. So the company stopped operating November, 2017.

Before the company goes bankrupt, it will start with financial distress (Budhijama and Nelmidia, 2018). Bankruptcy prediction analysis results can be used to minimize the occurrence of

losses for internal parties or external parties due to bankruptcy experienced by the company, as well as predicting the continuation of the life of the company concerned (Anita, 2017).

Various analytical methods were developed to predict the beginning of a company's bankruptcy. The author analyzes with two methods in financial distress namely the Altman Z-score method and the Zmijewski method.

One mathematical formula for predicting bankruptcy with a fairly accurate certainty of 95% and the most popular and often used by many researchers in conducting research, namely the Altman Z-score that has been developed by a business professor from New York University US Edward I. Altman, in 1968. From the calculation results will be obtained the value of Z (Z-Score) which can describe the company's financial position is in a healthy condition, vulnerable or in a bankrupt condition.

Husein & Galuh (2014) in their research said that the Altman and Zmijewski model more precisely shows bankruptcy than Springate and Grover. Edi & May, T., (2018) emphasized in his research that each model in this study had a significant effect, which means that the Altman, Springate, and Grover models could be used in predicting financial distress.

Based on the background description and research gap above, the authors are interested in conducting research on the analysis of the methods used to predict potential financial difficulties in the Hotel, Restaurant and Tourism sub-sectors, which are listed on the IDX.

Based on the background of the problem outlined above, the authors identify the problem as what is the condition of the company in financial distress in the Hotel, Restaurant and Tourism sub-sector and how is the potential for Financial Distress to occur in the Hotel, Restaurant and Tourism sub-sector companies?

## LITERATURE REVIEW & HYPOTHESES DEVELOPMENT

### 1. Financial Report

Kasmir (2014: 07) states financial statements are reports that show the company's financial condition at this time or in a certain period. And the usefulness of financial statements is to see the condition of a company, both current conditions and used as a predictor for future conditions (Fahmi, 2011: 5). Financial analysis has 2 main tools that can be used, namely: ratio analysis (ratio analysis) and cash flow analysis (cash flow analysis). (Palepu and Healy, 2008: 5-1).

### 2. Financial Distress

Financial distress or often referred to as financial difficulties, occurs before a company actually goes bankrupt (Ramadhani and Lukviarman, 2009). Financial distress can

occur in various companies and can be a signal of bankruptcy or liquidation that the company may experience.

Companies that experience financial distress according to (Plat and Platt, 2006) can be seen or determined by various factors

- a. The existence of dismissal of workers or not making dividend payments.
- b. Cash flow that is smaller than current long-term debt.
- c. Net operating income is negative.
- d. Changes in equity prices.
- e. Company has ceased operations on the authority of the government and the company is required to carry out restructuring planning.
- f. The company experienced a technical violation in debt and it is predicted that the company will go bankrupt in the coming period.
- g. Having negative Earnings per Share (EPS).
- h. Use interest coverage ratio that experience financial distress, solutions that companies can do, namely

Companies that experience financial distress, solutions that companies can do, namely:

- a) Debt restructuring that is trying to ask for an extension of time from creditors to pay off debt until the company has enough cash to pay off debt.
- b) Changes in management. This is to avoid the run of potential investors of the company. (Pustylnick, 2012),

### 3. Bankruptcy

Bankruptcy is usually interpreted as a failure of a company in carrying out company operations to generate profits (Supardi and Mastuti in Dwi, Martini, et al., 2012: 505). Toto (2011: 332) also asserted that bankruptcy is a condition in which a company is no longer able to pay off its obligations.

And in broad outline the causes of bankruptcy can be divided into two namely internal factors and external factors. Internal factors are factors that originate from the internal management of the company. While external factors can come from external factors directly related to company operations or macro economic factors (Darsono and Ashari, 2005: 104).

### 4. Financial Distress Prediction Model

Until now, research on financial distress prediction has been widely developed both internationally and in Indonesia. Of the many existing models, researchers will describe

some of the most popular models used as predictive analysis tools, namely the Altman prediction model (Zscore), and the Zmijewski prediction model (X-Score).

a. Altman prediction model (Z-Score)

Altman's z-score or altman bankruptcy prediction z-score model is a model that provides a formula for assessing when a company will go bankrupt, and is used to predict the possibility of a company that will go bankrupt in the next 2 years. By using the formula that is filled (interpretation) with the financial ratios it will be known certain numbers that exist become material to predict when the possibility of a company going bankrupt

b. Zmijewski prediction model (X-Score).

Other management tools such as creditors or investors to see the company's financial difficulties can use the Zmijewski method. According to Anandarajan (2004) explains that, "Zmijewski (1984) used financial ratios that measured firm performance, leverage, and liquidity to develop his model. Where X-score is more than 0. The firm is classified as bankrupt. " The Zmijewski model takes the following form (pg 79).

## RESEARCH METHODS

According to Creswell, Quantitative research methods require the formulation of narrow questions, numerical data collection, and the use of statistical analysis to determine the relationship between variables in an unbiased way (Zulkarnaen, et all., 2020)

The population in this study were all of the Hotel, Restaurant and Tourism Subsector companies listed on the Indonesia Stock Exchange from 2014-2018, amounting to 25. And the sample was 10 companies, because it did not include 10 companies that had incomplete financial statements with 5 companies not audited during the 2014-2018 period. The list of companies that are used as sample companies, presented in Table 1.

The data source in this study is secondary data taken from the annual financial statements in the Hotel, Restaurant and Tourism Subsector in the Indonesia Stock Exchange in the 2014-2018 period.

Analysis of the data in this study uses the Altman Z-score method and the Zmijewski method to see the health status of the company, listed on the Indonesia Stock Exchange for the period 2014-2018, which is published on the IDX's official website, [www.idx.co.id](http://www.idx.co.id).

### 1. Model Z-score Altman

This model was first created by Altman in 1968 with the MDA (Multi Discriminant Analysis) method to determine the coefficient of each variable in the Z-Score model. The Z-Score formula obtained is

$$Z = 1,2 (X1) + 1,4 (X2) + 3,3 (X3) + 0,6 (X4)$$

Information :

X1 = working capital / total assets

It is a ratio for liquid prediction using all assets (total assets) of the company.

X2 = retained earnings / total assets

This measurement is to see all owned capital (retained earnings) able to compete in looking at assets.

X3 = EBIT / total assets

This measurement aims at how much the company generates profitability with the overall assets regardless of the debt used.

X4 = stock market value / total debt

This measurement aims to measure the level of debt (leverage) by looking at that large debt threatens the sustainability of the company.

## 2. Model Zmijewski

$$X = -4,3 - 4,5X1 + 5,7X2 - 0,004X3$$

X1= ROA (*Return on Asset*)

### Profit After Tax of Total Assets (Return on Assets)

It is a ratio that shows a company's ability to generate net income derived from the total assets used.

$$1 = \text{Profit after tax} / \text{Total Asset}$$

X2 = *Leverage (Debt Ratio)*

Total Liabilities to Total Assets

It is a ratio that measures how much the total assets of the company funded by the company's creditors. The higher the ratio shows the higher the risk faced by the company.

$$2 = \text{Total Liability} / \text{Total Asset}$$

X3 = *Likuiditas (Current Ratio)*

Current Assets to Current Liabilities

Is a measurement of liquidity by comparing short-term assets with short-term liabilities.

$$X3: \text{Current Asset} / \text{Current Liability}$$

With a cut off if the score obtained exceeds 0, the company is predicted to potentially experience bankruptcy, presented as Table 2. Conversely, if a company has a score of less than 0, the company is predicted to have no potential to go bankrupt (Wulandary and Nur, 2014).

Altman	Zmijewski
<ul style="list-style-type: none"> <li>▪ <math>Z &gt; 2.99</math> Companies are free from the risk of bankruptcy.</li> <li>♣ <math>Z &lt; 1.81</math> Companies will go bankrupt</li> <li>♣ <math>1.81 &lt; Z &lt; 2.99</math> Companies in the gray position (doubtful about going bankrupt or not bankrupt).</li> </ul>	<ul style="list-style-type: none"> <li>▪ <math>X &lt; 0</math> Companies that have no potential to go bankrupt.</li> <li>♣ <math>X &gt; 0</math> is classified as an unhealthy company and has the potential to go bankrupt.</li> </ul>

## RESULT AND DISCUSSION

### 1) Bankruptcy Risk Conditions Analysis in the Hotel, Restaurant and Tourism Sub Sectors with the Altman Z-Score Method

#### Altman Method of Financial Distress Analysis

The table that shows the altman method of financial distress, it can be shown as Table 3.

Altman
$Z > 2,99$ Companies are free from the risk of bankruptcy. $Z < 1,81$ Companies will go bankrupt $1,81 < Z < 2,99$ Company in the gray position (doubtful about going bankrupt or not bankrupt).

It can be seen in the corporate restaurant and tourism sub-sector looks healthy in the company's position, with the Altman method in a cut-off above 2.99. There are fluctuations in each year such as the PANR and PGLI companies, but although there are differences in the conditions of each company, each period does not cover the company's healthy condition.

### 2) Zmijewski Financial Distress Analysis

This Financial Distress Analysis aims to determine the condition of the company's position on financial performance whether the potential is unhealthy, unhealthy or gray. Zmijewski Financial Distress Analysis uses financial ratios that measure the company's performance, financial performance and liquidity to develop its model. The analysis process is presented in Table 4.

It can be seen from the results in a comprehensive sub sector of hotels, restaurants and tourism with unhealthy prediction conditions. There are fluctuations in each year that give different results, there are healthy and unhealthy conditions. In this case the company maintains financial conditions so that every year is healthy.



The cut off value that applies in this model is 0. This means that companies with a value of  $X$  greater than or equal to 0 are predicted to experience bankruptcy in the future. Conversely, companies that have a value of less than 0 are predicted not to experience bankruptcy. Zmijewski has measured the accuracy of his model with an accuracy value  $>0$ .

Zmijewski
$X < 0$ Companies that have no potential to go bankrupt.
$X > 0$ Classified as an unhealthy company and has the potential to go bankrupt.

### CONCLUSION

Based on the results of research and discussion, the authors conclude that:

1. The results of the research show that hotel and tourism hotel sub-sector companies are seen in the Altman Z-score analysis that this industry experiences healthy and unhealthy fluctuations in each year in each company such as PANR, PGLI, but it remains visible after adding each year that the sector declared healthy and not potentially bankrupt in the company's position.
2. Generally, companies that are experiencing financial difficulties, working capital will fall faster and have a negative value to total assets which causes this ratio to decrease so that it can reduce the value of the Z-Score. The ratio of working capital to total assets is a ratio that can be used to predict the occurrence of financial difficulties. The results showed in the Zmijewski X-score analysis that the Hotel, Restaurant and Tourism Sector throughout the company is very possible for unhealthy companies, seen from their financial performance.

### Suggestion

1. For business people the Z-Score analysis is useful as an early warning of bankruptcy. After knowing the potential bankruptcy of the company, the management immediately conducts evaluations and corrections appropriately so as to minimize the risk of bankruptcy, by improving performance and implementing appropriate turnaround strategies, will be much more able to control the condition.
2. All companies in Zmijewski's analysis show that their current liabilities have risen, which will result in high current assets.
3. Under current ratio, management needs to increase its current assets to finance operational activities and short-term liabilities. And companies with results above 1 while maintaining the current ratio in order to be able to meet short-term obligations.
4. The management should pay attention to the debt that must be maintained, and the use of debt.



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**Table 1 Company Sample Data**

Company name	Year
Bayu Buana Tbk	2014-2018
Buva Bukit Uluwatu Villa Tbk	2014-2018
Fast Food Indonesia Tbk	2014-2018
Island Concepts Indonesia Tbk	2014-2018
Jakarta International Hotel & Development Tbk	2014-2018
Panorama Sentrawisata Tbk	2014-2018
Pembangunan Graha Lestari Indah Tbk	2014-2018
Pembangunan Jaya Ancol Tbk	2014-2018
Pudjiadi And Sons Tbk	2014-2018
Pusako Tarinka Tbk	2014-2018

**Table 2 Cut Off Points in the Altman Z-score and Zmijewski Method.**

Altman	Zmijewski
<ul style="list-style-type: none"> <li>▪ <math>Z &gt; 2.99</math> Companies are free from the risk of bankruptcy.</li> <li>♣ <math>Z &lt; 1.81</math> Companies will go bankrupt</li> <li>♣ <math>1.81 &lt; Z &lt; 2.99</math> Companies in the gray position (doubtful about going bankrupt or not bankrupt).</li> </ul>	<ul style="list-style-type: none"> <li>▪ <math>X &lt; 0</math> Companies that have no potential to go bankrupt.</li> <li>♣ <math>X &gt; 0</math> is classified as an unhealthy company and has the potential to go bankrupt.</li> </ul>

**Tabel 3 Altman Financial Distress Analysis**

BAYU	X1	X2	X3	X4	Z-SCORE	A-SCORE	ANALYZE
2014	0,2829256	0,0002449	0,27494	1,149223	1,2	1,70733	bankrupt

2015	0,2839599	0,0001120	0,16714	0,838799	1,4	1,29001	bankrupt
2016	0,3382394	0,0001104	0,17128	0,797384	3,3	1,30701	bankrupt
2017	0,3625827	0,0000950	0,18464	0,687165	0,6	1,23448	bankrupt
2018	0,4008772	0,0001612	0,21012	0,761098		1,37226	bankrupt
						6,91111 992	Non distress condition
<b>BUVA</b>	<b>X1</b>	<b>X2</b>	<b>X3</b>	<b>X4</b>	<b>Z- SCORE</b>	<b>A- SCORE</b>	<b>ANALYZE</b>
2014	0,0942419	0,0115758	0,134394	0,672651	1,2	0,9128	bankrupt
2015	(0,06247862 5)	0,0040962	0,050722	0,726610 94	1,4	0,71895	bankrupt
2016	0,0290692	0,0035319	0,007167	0,812874	3,3	0,85264	bankrupt
2017	(0,2053349)	0,0036232	0,038852	0,651239	0,6	0,48838	bankrupt
2018	0,2062424	0,0028976	0,017691	0,778593		1,00542	bankrupt
						3,97826	Non distress condition
<b>FAST</b>	<b>X1</b>	<b>X2</b>	<b>X3</b>	<b>X4</b>	<b>Z- SCORE</b>	<b>A- SCORE</b>	<b>ANALYZE</b>
2014	0,2444497	0,0076918	0,322593	0,738442	1,2	1,31317	bankrupt
2015	0,1074465	0,0076601	0,190605	0,559501	1,4	0,86521	bankrupt
2016	0,2493292	0,0071510	0,289782	0,541799	3,3	1,08806	bankrupt
2017	0,5318449	0,0071442	0,197719	0,533119	0,6	1,26982	bankrupt
2018	0,5311790	0,006961	0,3080	0,63779		1,4839	bankrupt
						6,02027	Non distress

							condition
<b>ICON</b>	<b>X1</b>	<b>X2</b>	<b>X3</b>	<b>X4</b>	<b>Z- SCORE</b>	<b>A- SCORE</b>	<b>ANALYZE</b>
2014	0,4018693	0,00365683	0,082019	0,570230	1,2	1,05777	bankrupt
2015	0,4771899	0,01008665	0,116257	0,350512	1,4	0,95404	bankrupt
2016	0,3861969	0,00671712	0,048592	0,307584	3,3	0,74909	bankrupt
2017	1,0642755	0,02397931	0,140781	0,457568	0,6	1,68660	bankrupt
2018	1,0469169	0,09751306	0,295240	0,643021		2,08269	bankrupt
						6,53021	Non distress condition
<b>JSPT</b>	<b>X1</b>	<b>X2</b>	<b>X3</b>	<b>X4</b>	<b>Z- SCORE</b>	<b>A- SCORE</b>	<b>ANALYZE</b>
2014	0,2870361	0,0000022	0,361776	1,091962	1,2	1,74077	bankrupt
2015	0,3197021	0,0025167	0,223616	1,234047	1,4	1,77988	bankrupt
2016	0,2207941	0,0027351	0,173220	1,28365	3,3	1,68040	bankrupt
2017	0,2954346	0,0029223	0,006548	1,251713	0,6	1,55661	bankrupt
2018	0,3113462	0,0026621	0,007390	1,071920		1,39331	bankrupt
						8,15100	Non distress condition
<b>PANR</b>	<b>X1</b>	<b>X2</b>	<b>X3</b>	<b>X3</b>	<b>Z- SCORE</b>	<b>A- SCORE</b>	<b>ANALYZE</b>
2014	0,0885696	1,2018485	1,598119	0,212688	1,2	3,10122	Non distress condition
2015	(0,013663)	0,1430317	0,127023	0,186045	1,4	0,44243	bankrupt
2016	0,0825942	0,0972322	0,028305	0,296781	3,3	0,50491	bankrupt
2017	0,1988634	0,0849294	0,075865	0,502695	0,6	0,86235	bankrupt

2018	0,0690654	0,1907413	0,034237	0,508736		0,80278	bankrupt
						5,71370	Non distress condition
<b>PGLI</b>	<b>X1</b>	<b>X2</b>	<b>X3</b>	<b>X4</b>	<b>Z-SCORE</b>	<b>A-SCORE</b>	<b>ANALYZE</b>
2014	0,1244641	0,0267224	0,060290	22,76773	1,2	2,9792	Non distress condition
2015	0,1651149	0,0286826	0,024422	12,14236	1,4	12,5851	Non distress condition
2016	0,1436325	0,1472119	0,041369	3,324543	3,3	3 3,65675	Non distress condition
2017	(0,028947)	0,1350271	0,1024267	0,600000	0,6	0,80850	bankrupt
2018	0,1015334	0,2025937	0,3021120	1,744519		2,35075	Non distress condition
						22,1558	Non distress condition
<b>PJAA</b>	<b>X1</b>	<b>X2</b>	<b>X3</b>	<b>X4</b>	<b>Z-SCORE</b>	<b>A-SCORE</b>	<b>ANALYZE</b>
2014	0,05546725	0,01327758	0,3220801	0,727025	1,2	1,11785	bankrupt
2015	0,03580545	0,01339925	0,3991401	0,799859	1,4	1,24820	bankrupt
2016	(0,0359988)	0,01221001	0,2159957	0,565267	3,3	0,75747	bankrupt
2017	0,00913069	0,01276472	0,2966520	0,679395	0,6	0,99794	bankrupt
2018	(0,0664820)	0,01167715	0,2608301	0,570444		0,77646	bankrupt
						4,89794	Non distress condition
<b>PNSE</b>	<b>X1</b>	<b>X2</b>	<b>X3</b>	<b>X4</b>	<b>Z-SCORE</b>	<b>A-SCORE</b>	<b>ANALYZE</b>
2014	0,2771630	0,0051196	0,299313	1,003616	1,2	1,58521	bankrupt
2015	0,1055597	0,0055078	0,180013	1,132908	1,4	1,42398	bankrupt

2016	0,1076412	0,0050275	0,0180363	0,725789	3,3	0,85649	bankrupt
2017	0,1098046	0,0049619	0,1891912	0,795665	0,6	1,09962	bankrupt
2018	0,0027678	0,0058144	0,0531025	0,968228		1,02991	bankrupt
<b>PTSP</b>	<b>X1</b>	<b>X2</b>	<b>X3</b>	<b>X4</b>	<b>Z-SCORE</b>	<b>A-SCORE</b>	<b>ANALYZE</b>
2014	0,13606286	0,00036124	0,97862023	0,6347229	1,2	1,74976	bankrupt
2015	0,00016633	0,00036914	0,01659017	0,5239859	1,4	0,54111	bankrupt
2016	(0,02960997)	0,00036676	0,10170126	0,526773	3,3	0,59923	bankrupt
2017	(0,04809481)	0,00034747	0,15804999	0,5576268	0,6	0,66792	bankrupt
2018	0,02562314	0,00034522	0,30426580	0,6878821		1,01811	bankrupt
						4,57615	Non distress condition

Tabel 4 Zmijewski Financial Distress Analysis

<b>BAYU</b>	<b>X1</b>	<b>X2</b>	<b>X3</b>	<b>X-SCORE</b>	<b>Z-SCORE</b>	<b>ANALYZE</b>
2014	4,56998159	6,1652844	1,5247941	4,3	12,26006018	bankrupt
2015	4,50405533	6,1170143	1,5972681	-4,5	12,2183378	bankrupt
2016	4,54159968	6,1293737	1,6925947	-5,7	12,3635681	bankrupt
2017	4,54337744	6,1661407	1,7091483	0,004	12,4186664	bankrupt
2018	4,54950422	6,1408204	1,8281879		12,5185125	bankrupt
					61,7791452	bankrupt
<b>BUVA</b>	<b>X1</b>	<b>X2</b>	<b>X3</b>	<b>X-SCORE</b>	<b>A-SCORE</b>	<b>ANALISA</b>
2014	4,535374	6,7000000	1,2514112	4,3	12,4867860	bankrupt
2015	4,5154676	6,1522803	0,6438098	4,5	11,3115577	bankrupt
2016	4,5042662	6,1246663	1,1439128	5,7	11,7728454	bankrupt

2017	4,5049409	6,1795245	0,4783740	0,004	11,1628395	bankrupt
2018	4,5580197	6,1352261	0,3508500		11,0440958	bankrupt
					57,7781246	bankrupt
<b>FAST</b>	<b>X1</b>	<b>X2</b>	<b>X3</b>	<b>X-SCORE</b>	<b>A-SCORE</b>	<b>ANALYZE</b>
2014	4,5703059	6,1482821	1,8785508	4,3	12,5971389	bankrupt
2015	4,5080855	6,2174638	1,2579224	4,5	11,983471	bankrupt
2016	4,5094689	6,2254861	1,7891981	5,7	12,5241532	bankrupt
2017	4,5170073	6,2295117	33,324638	0,004	44,0711571	bankrupt
2018	4,5283608	6,1847318	36,105808		46,8189015	bankrupt
					127,994822	bankrupt
<b>ICON</b>	<b>X1</b>	<b>X2</b>	<b>X3</b>	<b>X-SCORE</b>	<b>A-SCORE</b>	<b>ANALYZE</b>
2014	4,3175966	6,2127195	1,7189961	4,3	12,2493123	bankrupt
2015	4,3127928	6,5766187	1,4653172	4,5	12,3547289	bankrupt
2016	4,3002268	6,3610952	1,5525744	5,7	12,2138964	bankrupt
2017	4,3011057	6,2673388	0,9960000	0,004	11,5644446	bankrupt
2018	4,3012582	6,1826946	49,752701		60,2366546	bankrupt
					108,619037	bankrupt
<b>JSPT</b>	<b>X1</b>	<b>X2</b>	<b>X3</b>	<b>X-SCORE</b>	<b>A-SCORE</b>	<b>ANALYZE</b>
2014	4,5886336	6,0546177	2,3765070	4,3	13,0197584	bankrupt
2015	4,5574706	6,0271452	2,8114036	4,5	13,3960195	bankrupt
2016	4,5435527	6,0185300	2,1691207	5,7	12,7312034	bankrupt



2017	4,5016101	6,0240241	16,27572	0,004	26,8013585	bankrupt
2018	4,5018486	6,0588687	17,178610		27,7393282	bankrupt
					93,6876682	bankrupt
<b>PANR</b>	<b>X1</b>	<b>X2</b>	<b>X3</b>	<b>X-SCORE</b>	<b>A-SCORE</b>	<b>ANALYZE</b>
2014	4,8557075	13,082904	1,0129615	4,3	18,9515740	bankrupt
2015	4,5016565	6,4633144	0,9648936	4,5	11,9298646	bankrupt
2016	4,5855666	6,3690590	1,2164381	5,7	12,1710638	bankrupt
2017	4,5000246	6,2441214	1,5384460	0,004	12,2825922	bankrupt
2018	4,5015950	6,2411563	1,2233964		11,9661478	bankrupt
					67,3012425	bankrupt
<b>PGLI</b>	<b>X1</b>	<b>X2</b>	<b>X3</b>	<b>X-SCORE</b>	<b>A-SCORE</b>	<b>ANALYZE</b>
2014	4,517518	5,8781611	2,3805730	4,3	12,7762530	bankrupt
2015	4,507223	5,8210809	3,7385581	4,5	14,0668624	bankrupt
2016	4,509115	5,8528840	2,8543599	5,7	13,2163591	bankrupt
2017	4,518247	5,9793635	0,8538117	0,004	11,3514226	bankrupt
2018	4,550968	5,9559159	2,4397006		12,9465850	bankrupt
					53,0060597	bankrupt
<b>PJAA</b>	<b>X1</b>	<b>X2</b>	<b>X3</b>	<b>X-SCORE</b>	<b>A-SCORE</b>	<b>ANALYZE</b>
2014	4,580782	6,152138	1,2366517	4,3	11,9695730	bankrupt
2015	4,592457	6,128614	1,1757111	4,5	11,8967830	Bankrupt
2016	4,539797	6,214903	0,8861041	5,7	11,6408051	Bankrupt

2017	4,559802	6,168971	1,0392712	0,004	11,7680449	Bankrupt
2018	4,550980	6,212625	0,7996608		11,5632674	Bankrupt
					58,8384736	Not healthy
<b>PNSE</b>	<b>X1</b>	<b>X2</b>	<b>X3</b>	<b>X-SCORE</b>	<b>A-SCORE</b>	<b>ANALYZE</b>
2014	4,552304	6,074154	2,8474792	4,3	13,4739383	Bankrupt
2015	4,538162	6,046238	1,6733206	-4,5	12,2577223	Bankrupt
2016	4,507316	6,152560	1,7466536	5,7	12,4065303	Bankrupt
2017	4,544887	6,129902	1,6983464	0,004	12,3731361	Bankrupt
2018	4,5053482	6,0825972	1,01079952		11,5987450	Bankrupt
<b>PTSP</b>	<b>X1</b>	<b>X2</b>	<b>X3</b>	<b>X-SCORE</b>	<b>A-SCORE</b>	<b>ANALYZE</b>
2014	4,517303	6,185938	1,4850479	4,3	12,1882906	bankrupt
2015	4,554016	6,233814	0,9964573	4,5	11,7842885	bankrupt
2016	4,507623	6,232493	0,9246262	5,7	11,6647438	bankrupt
2017	4,536880	6,218301	0,8864584	0,004	11,6416411	bankrupt
2018	4,557464	6,165881	1,06427081		11,7876160	bankrupt
					59,0665801	bankrupt