

FINANCIAL HEALTH ANALYSIS OF PT ALFARIA TRIJAYA TBK. BASED ON ALTMAN Z-SCORE, SPRINGATE, AND ZMIJEWSKI METHOD IN THE PERIOD BEFORE AND DURING COVID-19 PANDEMIC (2016 - 2020)

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ABSTRACT

The increasing population has led to an increase in the growth of the retail industry in Indonesia in recent years. However, several leading retailers ended up bankrupt due to different causes. Therefore, companies should be able to monitor their financial health to maintain the sustainability of the company. For this reason, this research was conducted to analyze the financial health of the company using Altman Z-Score, Springate, and Zmijewski method model. This study was done on PT Sumber Alfaria Trijaya Tbk using its financial report from 2016 to 2020. The analysis results using financial ratio analysis methods such as Altman Z-Score and Springate show that the company had good financial condition throughout the years, while the result using Zmijewski method shows that in 2017 the company faced financial distress, which could potentially lead to bankruptcy. The limitations of the study are the study only focused on the retail industry and the data used was only based on PT Alfaria Trijaya Tbk's financial report. The finding would be useful for the following researchers and the company itself.

Keywords: Financial Health, Bankruptcy, Altman Z-Score, Springate, Zmijewski

INTRODUCTION

The growth of the retail industry in Indonesia has been increasing from year to year (CEIC DATA, 2021). The retail sector in Indonesia remains one of the most promising markets among countries, on the back of its large population and the growing middle class with higher household purchasing power and increasingly modern spending habits. Retail itself is the last channel in the distribution process of goods before the goods are received by customers, which plays an essential role. The retail industry is defined as an industry that sells products and services that have been added value to meet the needs of individuals, families, groups, or end-users. An example of a leading retail company in Indonesia that has continued to grow until now is PT Sumber Alfaria Trijaya. According to Kurniawan, H. (2020), PT Sumber Alfaria Trijaya Tbk. Sales increased by 4.17%, while the net income decreased by 1.82% in the third quarter of 2020 during the covid-19 pandemic. Nevertheless, Bisnis.com. (2021) stated that Alfamart increased stores from 14,430 in 2019 to 15,434 in 2020 during covid-19.

Even though in Indonesia, the retail industry has been contributing significantly to the Gross Domestic Product (GDP) and also absorbing a large number of workers (Soliha, 2008), several big retail in Indonesia ended up bankrupt. According to Investopedia, Bankruptcy is a legal process in which a person or company is unable to repay their outstanding debts. It can release a person or company from most debts, provide relief and allow them to make a fresh start. In Indonesia, there are some retailers that went bankrupt in the past few years. For example, in 2017, 7-Eleven declared that the company ended up bankrupt. The financial performance had been inferior since the first quarter of 2017. Another example is Lotus and Debenhams that also experienced bankruptcy (Warta Ekonomi, 2017).

There are several factors that cause this problem to occur. A number of competitors, the emergence of start-ups, and online shops that have sprung up are factors that cause retail stores to experience a decline in consumers. Consumers prefer to consume goods and services by buying them online or through e-commerce instead of visiting departments (Achmada, 2019). Another factor is the sudden COVID-19 pandemic that has pushed the market into lockdowns, resulting in a drop in the revenues of the physical distribution channels. The last factor that plays a major role is not measuring the financial health condition of the company properly or there is misanalysis of the company's financial statement and annual report, which can lead to poor projection and forecast of future financial condition and ended up taking the wrong action for the company.

Based on the problem and the root causes of the problem that are faced by companies that experienced bankruptcy, there should be a solution for retail companies to avoid the problem happening in the future. The solution that the authors suggest is conducting an analysis of financial health conditions based on the Altman Z-Score, Springate, and Zmijewski method. Therefore, in this research, authors conducted the analysis and measurement of the financial performance of PT Sumber Alfaria Trijaya, one of the leading retail companies in Indonesia, from 2016 to 2020 in order to understand the financial condition of the company and determine the possibility of the company going bankrupt throughout the years.

LITERATURE REVIEW

1. Retail Business

According to Sorescu, A., Frambach, R. T., Singh, J., Rangaswamy, A., & Bridges, C. (2011), retail business is how retailers create value for their customers and seize value from the markets. The retail business model has two unique characteristics: a retail business that primarily sells products manufactured by others and a retail business that engages in direct interaction with end customers. BIXLConsulting (2021) explained that, in Indonesia, the government would collect Value Added Tax (VAT) from retail businesses. The government will collect VAT 10% of the sales from the retail business if the company's sales are higher or equal to 4.8 billion rupiah. While below 4.8 billion rupiah, the government will only collect a final income tax of 0.5% from the revenue.

Farfan (2020) stated that there are several types of retailers. First is a department store that sells a variant of merchandise. Second is grocery stores and supermarkets that mainly sell a type of F&B products and other products. The third is warehouse retailers that sell various products in large quantities and are sold at lower prices. Fourth is Outlet Retailers that sell in a specific category and brand-name product. Fifth is a discount retailer that sells a wide of products that are privately labeled at low prices. The last is the internet retailer, they sell products lower than other types of the retail price and ship the product directly to the customer. Based on the type above, PT Sumber Alfaria Trijaya is included in the second type, which is a grocery store.

2. Financial Statements and Annual Reports

Anthony, Hawkins, and Merchant (2011) explained that Financial Statement is a set of reports from the end product of the financial accounting process. Based on Generally Accepted Accounting Principle (GAAP), the reports consist of a Balance Sheet, Income Statement, and Cash Flow Statement. Balance Sheet is to report resources and obligations of a company in a period of time, Income Statement and Cash Flow Statement to report activities of a company in a period of time. The company needs an annual report in order to fulfill Accounting Period from the 11 basic accounting concepts. Hayes (2020) mentioned that the company needs to provide an annual report annually to shareholders. This report will describe the company's financial and operating conditions.

According to Mesak, D. (2019), Financial statements describe the general information related to the financial condition of a company that can be processed as the company's financial performance. Meanwhile, the financial ratio is an activity that comes from a financial statement that is related to dividing the number by another. Daryanto, W. M., Iffah, M., & Mahardhika, R. (2021) mentioned that financial statement analysis is needed in order to obtain the final data to see the company's financial health. Also, the company can make comparisons by using the analysis from the financial reports each year to compare the differences and performance. Making the comparison needed for the company to evaluate the strategy and policy that they make to further increase the company's financial performance.

3. Bankruptcy

Onakoya (2017) justified that Bankruptcy originates from the Latin word that the mixture of *bancus* means "bench or table" and *ruptus* means "broken". This is from the incapability of bankers that do business on workbench to meet their contractual obligation. In addition, the meaning bankruptcy is when the company is unable to generate enough revenue in order to cover its cost. To solve the bankruptcy problem, the company need to divide the asset among all the creditors.

According to Supriyanto, J., & Darmawan, A. (2018), in order to detect early potential bankruptcy, it could be analyzed by using a financial ratio from a financial statement. The Prediction is very important to the shareholder and management to make strategic plans from the prediction in order to have the best solution for the company and its stakeholder.

4. Altman Z-Score Method

According to Altman (1968), Z-Score method is the analysis that uses multiple discriminant analysis or MDA by utilizing a comprehensive list of financial ratios from a financial statement in order to predict the possibility of bankruptcy. Husein, M., & Pambekti, G. (2015) stated that the Altman Z-score method experienced improvement and revision that make this method become more flexible to use in several types of companies.

The formula for Altman Z-Score is:

$$Z = 1.2 X_1 + 1.4 X_2 + 3.3 X_3 + 0.6 X_4 + 1.0 X_5$$

Whereas:

X_1 = Working Capital to Total Assets

X_2 = Retained Earnings to Total Assets

X_3 = Earnings Before Interest and Tax to Total Assets

X_4 = Market Value of Equity to Total Liabilities

X_5 = Sales to Total Assets

Z = Overall Index

If Z value is greater than 2.99 the company is classified as a healthy company, If Z is below 1.81 the company will bankrupt. While the Z is between 1.81 and 2.99 the company will be defined as a “zone of ignorance” or “gray area”. Fadrul, F., & Ridawati, R. (2020) explained that The Altman Z-Score method has an accuracy rate of 28.6%. The result comes from the calculation test on 7 companies that have financial healthy. The result from the Altman Z-Score method is 5 out of 7 companies have the potency of bankruptcy.

5. Springate Method

Primasari (2018) stated that this method was created by Gorgon L.V Springate in 1978. Springate method uses multiple discriminate analysis or MDA to pick 4 out of 19 popular financial ratios in literature, that have the capabilities to differentiate the company that bankrupt or healthy. Husein, M., & Pambekti, G. (2015) explained that the Springate method is a revolution of the Altman model developed by MDA.

The formula of Springate is:

$$S = 1.03 Y_1 + 3.07 Y_2 + 0.66 Y_3 + 0.4 Y_4$$

Whereas:

Y_1 = Working Capital to Total Asset

Y_2 = Earnings Before Interest and Tax to Total Assets

Y_3 = Earning Before Tax to Current Liabilities

Y_4 = Sales to Total Asset

S = Overall Index

If S is less than 0.862 the company will have the potency to be a healthy company, while S is more than 0.862 then the company will have the potency to bankrupt. According to Fadrul, F., & Ridawati, R. (2020) The Springate method has an accuracy rate of 14.3%. The result comes from the calculation test on 7 companies that are healthy financially. The result from the Springate method is 6 out of 7 companies have the potency of bankruptcy.

6. Zmijewski Method

According to Zmijewski, ME, (1984), this method uses financial ratio analysis in order to calculate the performance of debt or leverage and liquidity of a company. He analyses the data from 40 bankrupt companies and 800 companies that still operating using 3 financial ratios which are ROA, Leverage (Debt Ratio), and Liquidity (Current Ratio) to develop this method.

The formula of Zmijewski is:

$$X = -4.3 - 4.5 Z_1 + 5.7 Z_2 + 0.004 Z_3$$

Whereas:

Z_1 = Net Income (Earning after Tax) to Total Assets

Z_2 = Total Liabilities to Total Assets

Z_3 = Current Assets to Current Liabilities

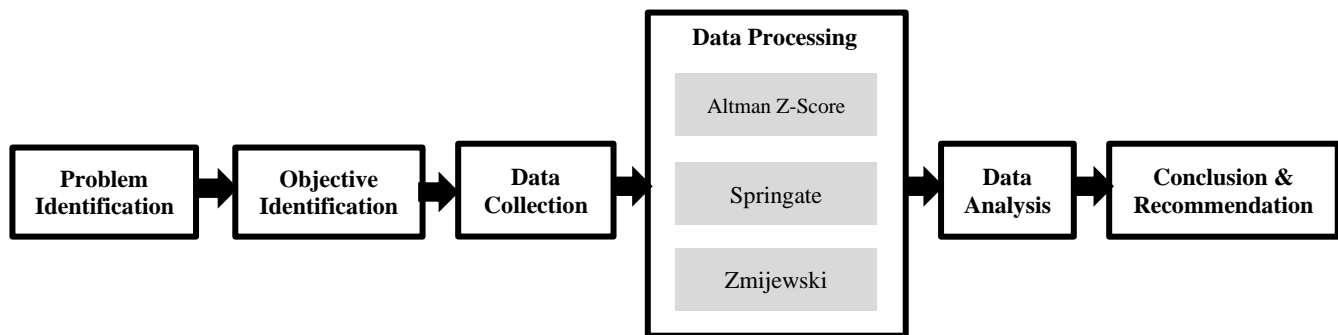
X = Overall Index

If X is less than 0 then the company is predicted to have the potency to be bankrupt, else the company is predicted to not have any potencies to go bankrupt. Fadrul, F., & Ridawati, R. (2020) calculate the Zmijewski method in 7 companies that did not experience financial distress. Zmijewski shows that all 7 companies do not have any potential to go bankrupt, which shows the accuracy Zimjewski method is 100%.

METHODOLOGY

This research used a quantitative approach using numerical data from financial reports of PT Sumber Alfaria Trijaya Tbk. from the year 2016 up until the year 2020. For the calculation, the authors used three methods as Altman Z-Score Method, Springate Method, and Zmijewski Method. Those three methods are used to understand the probability of a company going bankrupt. Therefore, this research is conducted to see and predict if PT Sumber Alfaria Trijaya Tbk is having financial distress. In terms of the steps of the study, it will be described in diagram 1.

Diagram 1. Research Framework



From the diagram, it can be seen that the flow starts with problem identification. In this first stage, the authors determined the problems that need to be solved. The following step is objective identification. This stage is where the authors determined the objectives of the study that will be connected with the last stage which is conclusion and recommendation. After that, data collection is conducted that involved quantitative data based on the financial report of PT Sumber Alfaria Trijaya Tbk. Next, the data will be processed using the three methods that are special for the company’s bankruptcy assessment such as Altman Z-Score, Springate, and Zmijewski. After the data processing stage, the authors analyze the data. In this stage, the authors analyze the result of the data processing. Finally, the authors provide a conclusion and recommendations based on the data analyzed.

RESULT AND DISCUSSION

1. Z-Score Analysis

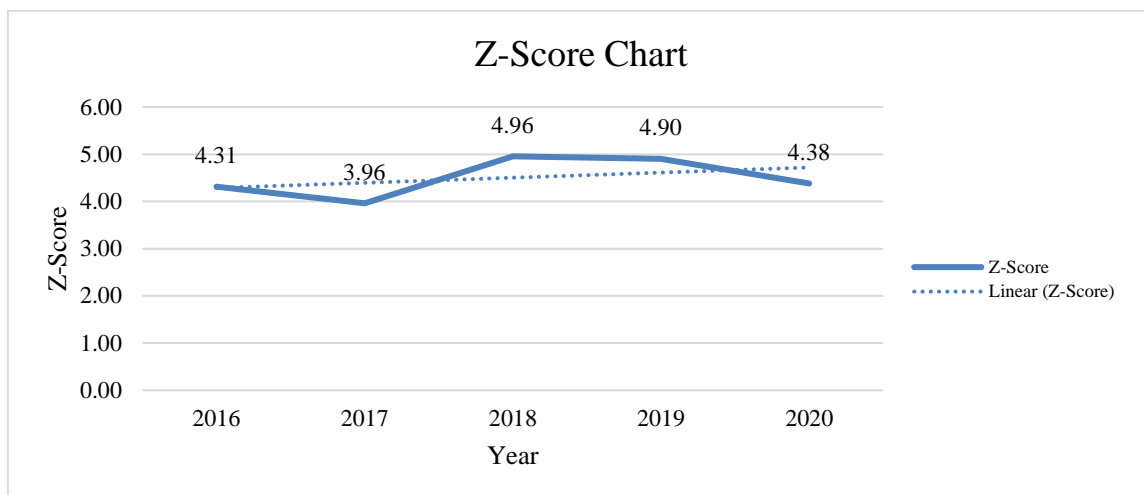
To know the Z-Score of the company from 2016 to 2020, authors should find each value of X₁ or the working capital to total assets, X₂ or the retained earnings to total assets, X₃ or the earnings before interest and text (EBIT) to total assets, X₄ or the market value of equity to total liabilities, and X₅ or the sales to total assets. After that, the X values can be input into the Z-Score Formula given. The X and Z-Score Values of PT Sumber Alfaria Trijaya Tbk. can be seen in detail in Table 1.

Table 1. The Z-Score Value of PT Sumber Alfaria Trijaya Tbk.

Year	X ₁	X ₂	X ₃	X ₄	X ₅	Z	Indication
2016	-0.06	0.14	0.07	1.83	2.88	4.31	Safe
2017	-0.07	0.13	0.05	1.51	2.81	3.96	Safe
2018	0.08	0.14	0.06	2.40	3.01	4.96	Safe
2019	0.07	0.17	0.08	2.14	3.04	4.90	Safe
2020	-0.07	0.17	0.07	1.81	2.92	4.38	Safe

Source: Processed Data, 2021

Chart 1. The Z-Score Chart



Source: Processed Data, 2021

From table 1, it can be seen that the value of X_1 fluctuated from 2016 to 2020, and in 2016, 2017, and 2020 the value shows negative. There is a fall from 2016 to 2017 from -0.06 to -0.07, followed by a significant increase as much as 214% in 2018. Unfortunately, in 2019 the value decreased slightly and continued to fall significantly to -0.07 in 2020. The negative values indicate that the company could not cover the short-term liability, which is not good, and the positive values are still under 15%, which is still not satisfying (Maverick, 2021).

In terms of the X_2 value, the trend increases quite steadily, but there is a slight fall in 2017. The ratio in 2016 was 0.14, and it decreased slightly to 0.13 in 2017. However, the ratio increased to 0.17 in 2019 and remained steady in 2020. The trend indicates that PT Sumber Alfaria Trijaya Tbk generated retained earnings steadily.

Regarding the X_3 value, the trend quite fluctuated from 2016 to 2020. There is a slight decline from 2016 to 2017 from 0.07 to 0.05. However, the value rises steadily as much as 1% from 2017 to 2019 and it decreases to 0.07 in 2020. This indicates that the company used effectively the assets to generate profit.

For the X_4 value, the trend also fluctuated. There is a slight fall in 2017 but a significant increase in 2018. However, after that, the value falls up to 25% from 2018 to 2021. This indicates that the growth of the company's total liabilities is bigger than the growth the market value of equity which is not good.

X_5 value from 2016 to 2020 fluctuated. There is a slight fall in 2017 and followed by a steady increase from 2.81 to 2.92. however, the value fell to 2.92 in 2020. This indicates that the company is able to generate sales on the total assets, but the growth decreases in 2017 and 2020.

From chart 1, it can be seen the Z-Score throughout the past five years from 2016 to 2020. The trend quite fluctuated from year to year, where the lowest value occurred in 2017. However, all the scores show a positive indication which is the company has a low probability of going bankrupt. It is supported by what is stated by Altman, E. I. (1968) that if Z score is greater than 2.99 the company is classified as a healthy company.

2. Springate Analysis

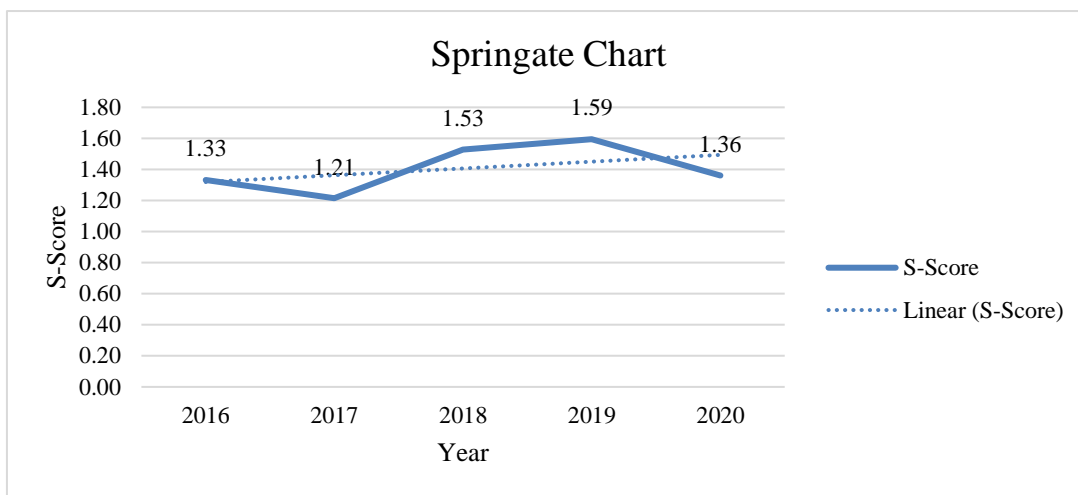
In order to measure the Springate method authors need to find the value of Y_1 working capital to total asset, Y_2 earnings before interest and tax (EBIT) to total assets, Y_3 earning before tax (EBT) to current liabilities, and Y_4 Sales to Total Asset from the financial report of the company during 2016 to 2020. Based on the Y values then authors can calculate the value of S-Score. From Table 2 we can see the values of Y and S-Score.

Table 2. The Springate Value of PT Sumber Alfaria Trijaya Tbk.

Year	Y ₁	Y ₂	Y ₃	Y ₄	S-Score	Indication
2016	-0.06	0.07	0.07	2.88	1.33	Safe
2017	-0.07	0.05	0.03	2.81	1.21	Safe
2018	0.08	0.06	0.08	3.01	1.53	Safe
2019	0.07	0.08	0.11	3.04	1.59	Safe
2020	-0.07	0.07	0.09	2.92	1.36	Safe

Source: Processed Data, 2021

Chart 2. The Springate Chart



Source: Processed Data, 2021

The value of Y₁, Y₂, Y₄ from Table 2 is the same as explained in the value of X₁, X₃, X₅ from Table 1 as they show the same ratio respectively. The Y₃ values trend fluctuated from 2016 to 2020. The value fell by more than 50% from 0.07 to 0.03 from 2016 to 2017. However, in 2018, it increased significantly to 0.08 and kept rising to 0.11 in 2019. The value, in 2020, declined to 0.09. The S-Score values shown in chart 2 illustrate fluctuated throughout the years where the lowest and the second-lowest value occurred in 2017 and 2020 respectively. However, all the values are over 0.862 which means that the business is not potentially bankrupt.

3. Zmijewski Analysis

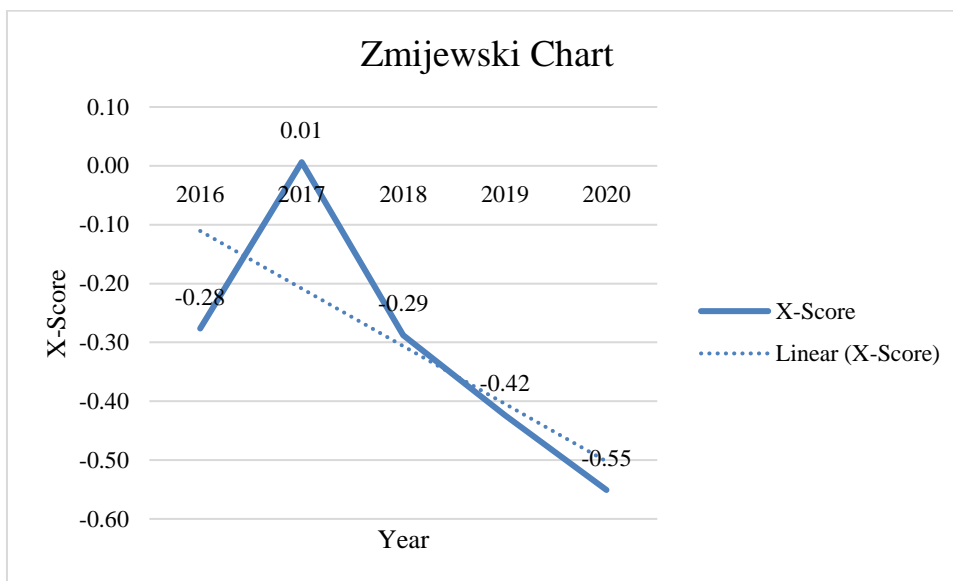
In order to measure the Zmijewski method authors need to find the value of Z₁ net income or earnings after tax to total asset, Z₂ total liabilities to total assets, and Z₃ current assets to current liabilities from the financial report of the company during 2016 to 2020. We can also determine values of Z is the same as Financial Ratio. For example, Z₁ is Return on Asset (ROA), Z₂ is Debt Ratio and Z₃ is Current Ratio. Based on the Z values then authors can calculate the value of X-Score. From Table 3 we can see the values of Z and X-Score.

Table 3. The Zmijewski Value of PT Sumber Alfaria Trijaya Tbk.

Year	Z ₁	Z ₂	Z ₃	X-Score	Indication
2016	0.03	0.73	0.90	-0.28	Safe
2017	0.01	0.76	0.88	0.01	Potentially Bankrupt
2018	0.03	0.73	1.15	-0.29	Safe
2019	0.04	0.71	1.12	-0.42	Safe
2020	0.06	0.71	0.88	-0.55	Safe

Source: Processed Data, 2021

Chart 2. The Springgate Chart



Source: Processed Data, 2021

The Zmijewski method analysis in the value of Z_1 from Table 3 has a relatively stable trend. From 2016 to 2017 the value plummet 66.7%, followed by rose significantly in 2018 by 200%. From 2018 to 2020 the value of Z_1 has increased steadily with an increase 33.3% and 50% respectively. The Z_1 value can see as the higher the value the better the companies financially healthy. According to Hargrave, M. (2021) the value can be considered good if Z_1 is more than 0.05 and excellent if Z_1 is more than 0.2. Considering value Z_1 less than 0.05 from 2016 to 2019 there is low potency to the company to be insolvent. Meanwhile, in 2020 the value Z_1 is more than 0.05 so the company is solvency.

The Zmijewski method analysis in the value of Z_2 from Table 3 has stable trends. The changes only occurred from 2016 to 2019. From 2017 to 2018 the company have slight growth for the amount of 4.1 % and in the next year decreased slightly by 4%. Also, through 2018 to 2019 the value decreases slightly by 2.7%. During 2019 to 2020 there are no changes in terms of the value of Z_2 . Ross, S. (2021) states that the company will attract more investors if Z_2 is between 0.3 and 0.6. Also, the company with Z_2 less than 0.4 will be considered healthy while Z_2 more than 0.6 the company will be difficult to borrow money. Based on Table 2 all of the values of Z_2 are less than 0.6 which means the company is overleveraged.

According to Table 3 values of Z_3 of The Zmijewski method have fluctuated especially during 2017 and 2018 the value increases significantly by 30.7%. Also, through 2019 to 2020 the value decreases significantly by 21.4%. Nevertheless, Z_3 values in 2016 to 2017 and 2018 to 2019 only decrease slightly by 2.2% and 2.6% respectively. Fernando, J. (2021) explained that when values of Z_3 are more than 1.0 that means the company is illiquid, while the company can be considered liquidity and healthy when Z_3 is less than 1.5. Anything between will be considered liquidity. We can see from Table 3 that the company is illiquid in 2016, 2017, and 2020, and liquidity in 2018 and 2019.

Based on the data in Table 3, values of X-Score fluctuate based on the trend especially through 2016 to 2017 we can see significant changes by 103.6%. The company has a potency to be bankrupt when values X-Score less than 0. From Table 3 only in 2017 that the company has a potency of bankruptcy.

CONCLUSION AND RECOMMENDATION

This research is conducted to analyze the financial health and the possibility of PT Sumber Alfaria Trijaya Tbk going bankrupt, and here is the conclusion:

- From the Z-Score and Springgate analysis, throughout the past five years (before and during covid 19), the company did not face significant financial difficulties so that it is not potentially bankrupt. However, both results indicate that there was a decline in its financial performance in 2017 and 2020. The declines in those years were caused by the significant increase in liabilities and slower growth in generating profit. Compared to the scores in 2019, the Z-Score and S-Score in 2020 (during covid-19) have experienced a decrease of as much as 10,6% and 14,5% respectively.
- From the Zmijewski analysis, during the past five years, the company only had the potential of bankruptcy in 2017 while the other years did not have the potential. Some of the potency of bankruptcy in 2017 can be seen from the company's financial condition, which is insolvency, overleveraged, and illiquid. Also, the company had the lowest net income in that year. During covid-19 in 2020, the company has the best Zmijewski X score. The value decreases 31% from 2019 to 2020.

- Based on the analysis we can conclude that the company has the lowest score in 2017 that led to a potential of bankruptcy and a decline in 2020 (during covid-19). The declines in that year were caused by the significant increase in liabilities and the company had the lowest net income in that year.

This finding hopefully can encourage the company to improve its financial performance by reducing the liabilities and improving profitability. Based on the analysis of Z-Score and Springate methods, the most effecting values are X4 and Z4 that relate to the sales. The company needs to maintain and increase the growth of sales so that the company has good financial performance. Nevertheless, the most important thing that company needs to consider is to check financial health before making decisions about increasing liabilities. Because the most critical values from all methods are related to the liabilities. In addition, the authors suggest that the financial performance of PT. Sumber Alfaria Trijaya Tbk can be studied deeper on how the financial performance of the company compared to the industry's and how covid 19 affects its financial condition. This paper hopefully can be an early warning for the PT. Sumber Alfaria Trijaya Tbk in order for them to make the decision regarding the financial strategy of the company. This research is conducted to analyze the financial health and the possibility of PT Sumber Alfaria Trijaya Tbk going bankrupt, and here is the conclusion:

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