



# The Accuracy of The Springate and Zmijewski in Predicting Financial Distress in Cosmetic and Household Subsector Companies

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## ABSTRACT

Bankruptcy begins with a condition of financial distress. The purpose of this study was to test and analyze the accuracy of financial distress predictions in Cosmetic and Household Subsector Companies listing on the Indonesia Stock Exchange use two models: the Springate (*S-Score model*) and *Zmijewski model*. The population in this study are companies in the Cosmetic and Household Subsector Companies listing on the Indonesia Stock Exchange which publishes audited financial statements for fiscal year 2010-2017, which amounted to 5 companies: Martina, MRAT, TCID, UNLV, and ADES. Data analysis technique used is descriptive qualitative analysis using Springate score and Zmijewski score. Model Springate with valuation criteria  $S > 0.862$  classified as healthy company, while Zmijewski sets the criteria, if the firm's score is less than 0 ( $X < 0$ ), then the company goes into nonfinancial distress (healthy). From the analysis of financial distress used the S-Score Springate model on Cosmetic and Household Subsector Companies in 2010-2017, companies experiencing distress condition of 21.57%. From the second model used a Zmijweski model, the entire enterprise in good condition. Thus, the accurate prediction method for Cosmetic and Household Subsector Companies registered in Indonesia is the Zmijweski models. The issue of effectiveness in carrying out the company's operational activities must be payed attention both from sales activities, purchases and other activities, so that reduce the decline in corporate profits. However, based on the overall average value the five companies showed healthy conditions.

**Keywords:** Financial Statement, Springate, Zmijewski, Financial Distress, Bangkrupt.

## INTRODUCTION

High market demand causes competition in the cosmetics sector is also increasingly high. Merkusiwati & Putri (2014: 49) argue that the large number of markets causes the Indonesian cosmetics market to be not only attractive to the local cosmetics industry, but also to the import industry.

Every company is founded in the hope that it will make a profit so that it is able to survive and develop in the long term and not experience liquidation (Fahmi, 2014). In fact, this assumption

does not always happen well and as expected. Often companies that have been operating for a certain period of time are forced to disband because of financial distress that leads to bankruptcy (Almilia and Kristijadi, 2003).

According to Dewi. K (2014, p. 19), "Bankruptcy (bankruptcy) is a condition where a company is no longer able to pay off its obligations".

The importance of company management predicting the potential for bankruptcy in a company. Therefore, to predict the potential for bankruptcy of the company there are various methods. Each method has a different analysis.

According to Patricius (2018), "There are several prediction methods that are often used by companies or research. These methods are the Altman method, the Grover method, the Springate method, the Olshon method, the Wang and Chambel method, and the Zmijewski method. "However, in this study, the writer uses Analysis using the Springate and Zmijewski methods by using a comparison of financial ratios to identify the final results from bankruptcy predictions.

Research on bankruptcy was first carried out by Beaver (1966), then continued by Altman (1968), Springate (1978), Ohlson (1980) and Gilbert, et al. (1990).

Bankruptcy analysis can be seen using company financial statements. Financial statements are basically the results of an accounting process that can be used as a tool to communicate financial data or company activities to interested parties (Hery, 2013: 7).

## **LITERATURE REVIEW**

Bankruptcy is an important thing that every company needs to avoid. If the company goes bankrupt it means the company has failed in its business. Companies that have decreased performance are a concern for management as a consideration for making decisions in the continuation of business in the company. Mulyanto (2018) that, "Business failure is the inability of a business or company to generate profits or generate sufficient income to cover its expenses, or the inability to generate sufficient cash flow to meet expenses that could cause the company to stop operating or be closed." (P. 5). According to Hery (2017) explains that, "Bankruptcy can be caused by internal factors as well as external factors. These factors are as follows:

1. Internal Factors

This means that factors that usually arise from companies that are micro. Internal factors, namely:

- 1) The credit given to the customer is too large. The company's policy which is intended to increase sales volume is by selling credit, both through distribution channels and directly to customers with easy requirements.
- 2) Weak human resource qualifications in terms of skills, expertise, experience, responsiveness and initiative.
- 3) Lack of working capital. Inadequate sales results or which cannot cover the cost of goods sold and operating expenses.
- 4) Abuse of authority and fraud from perpetrators in the company due to lack of supervision.

#### 1. External Factors

This means that factors that arise from outside the company are usually macro. External factors, namely:

- 1) Tight business competition
- 2) Reduced demand for products or services produced
- 3) Continuous decline in selling prices
- 4) Accidents or natural disasters that befall and harm the company so that it affects the course of company activities. "(P. 35)

Kasmir (2009) explains that, "The types of financial ratios that can be used to assess management performance vary. The use of each ratio depends on the needs of the company, meaning that sometimes not all ratios are used. In practice there are several types of financial ratios, namely:

1. Liquidity Ratio
2. Solvability Ratio
3. Activity Ratio
4. Profitability Ratio
5. Growth Ratio
6. Rating Ratio. "(P. 112)

Financial distress (financial difficulties) is a matter that must be watched by the company because of poor financial conditions and if the management does not handle it will lead to bankruptcy.

Plat and Plat (2006: 169) provide a definition of financial distress, namely, "The definition of financial distress is less precise than the legal actions that define definitions such as bankruptcy or liquidation". Meanwhile according to Fahmi (2013: 158) Financial distress starts from the

inability of the company to fulfill its obligations, especially short-term obligations including liquidity, and also includes obligations in the solvency category.

For further details Fahmi (2014) explain, "If a company experiences problems in liquidity, it is very possible for the company to start entering a period of financial distress, and if the conditions of such difficulties are not quickly resolved this period could result in bankruptcy." (157)

Bankruptcy prediction is needed to provide guidance for the management of the financial statements whether the company will experience financial difficulties in the future.

Springate Method. Management measures to see the company's financial difficulties can use the Springate method. According to Sadgrove (2005) explains that, "This model was developed in 1978 at S.F.U. by Gordon L.V. Springate, following procedures developed by Altman in the U.S. Springate used step-wise multiple discriminate analysis to select four out of 19 popular financial ratios that best distinguished between sound business and those that actually failed. This model achieved an accuracy rate of 92.5% using the 40 companies tested by Springate. Where S-Score is less than 0.862, the firm is classified as bankrupt." The Springate model takes the following form: (p. 67)

$$\text{S-Score} = 1.03X1 + 3.07X2 + 0.66X3 + 0.4X4$$

Where:

Working Capital Ratio = Working Capital / Total Assets (X1)

EPTA = Profit Before Interest And Tax / Total Assets (X2)

EBTL = Profit Before Tax / Current Liabilities (X3)

Total Asset Turnover = Total Sales / Total Assets (X4).

According to Yuliana (2015) that, "The following is an explanation of the ratios used in the Springate method or model, namely:

1. Working Capital against Total Assets

The ratio is the same ratio used by the model and this ratio to measure liquidity by comparing the value of current assets with total assets to find out how much working capital can fund all of the company's operational activities through total assets owned by the company. The greater this ratio shows the company's ability to meet both short-term and long-term obligations.

$$X1 = \frac{\text{Modal Kerja}}{\text{Total Aktiva}}$$

## 2. Income Before Interest and Tax on Total Assets

The next ratio is the ratio used to measure the ability of the company how much profit is earned in operational activities before it is included in the tax value and interest from the use of company assets and can be said to calculate and see the company's productivity

$$X2 = \frac{\text{Profit Before Interest and Tax}}{\text{Total Asset}}$$

## 3. Income Before Tax of Current Liabilities

This ratio is included in the solvency ratio because of current use and is used to measure the ability of the company to get the maximum profit from the obligations received by the company through creditors or other parties. The higher the value obtained or far from 0, it can be said that the profit obtained before tax is effective from the obligations of the company and the greater the company can pay its obligations

$$X3 = \frac{\text{Profit before tax}}{\text{Current Liabilites}}$$

## 4. Total Sales to Total Assets

This ratio is also used to measure the company's ability to achieve or generate optimal sales with assets owned. In general, the higher the asset turnover, the more effective the use of the asset. And that can be seen if the value of the ratio is above 0. "(p. 38)

$$X4 = \frac{\text{Total Sales}}{\text{Total Asset}}$$

Zmijewski Method. Another measurement tool for management to see the company's financial difficulties can use the Zmijewski method.

According to Anandarajan & Simmers (2004) "Zmijewski (1984) used financial ratios that measured firm performance, leverage, and liquidity to develop his model. Where X-Score is more than 0.5, the firm is classified as non-bankrupt. "The Zmijewski model takes the following form: (pg. 79)

With explanation:

Return on Assets = Profit After Tax / Total Assets (X1)

Debt Ratio = Total Liabilities / Total Assets (X2)

Current Ratio = Current Assets / Current Liabilities (X3).

According to Yuliana (2015) that, "The following is an explanation of the ratios used in the Zmijewski method or model, namely:

1. 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. If the company is not able to generate profits or experience continuous loss, the company is threatened with bankruptcy because the company can generate capital to continue the company's activities.

$$X1 = \frac{\text{Profit After Tax}}{\text{Total Asset}}$$

2. Total Liabilities to Total Assets

Is a ratio that measures how much the total assets belonging to the company financed by the company's creditors. The higher this ratio shows the higher the risk faced by the company because more assets are funded by debt. The high ratio is feared that the company will not be able to cover its debts with its assets.

$$X2 = \frac{\text{Total Liabilities}}{\text{Total Asset}}$$

3. Current Assets to Current Liabilities

Is a measurement of liquidity by comparing short-term assets with short-term liabilities. This ratio measures the company's ability to meet short-term obligations or debt that is due soon. The greater the ratio of current assets to current debt, the higher the company's ability to cover all the company's current debts. "(P. 39)

$$X3 = \frac{\text{Current Asset}}{\text{Current Liabilites}}$$

Research conducted by Anggi Meiliawati in 2016 entitled "Comparative analysis of the Springate and Altman Z-score models of the potential for Financial Distress (Case study in cosmetics sector companies listed on the Indonesia Stock Exchange" with the results of the study that the Springate model is the most accurate model in predicting the financial distress potential of cosmetics sector companies listed on the Indonesia Stock Exchange.

While research conducted by Setiawati M.H. in 2017 entitled: "Analysis of the Altman Z-score, Springate, and Zmijewski method to predict Financial Distress in food and beverage companies listed on the Indonesia Stock Exchange (BEI) for the period 2011-2015" with research results that use the Springate method and the Zmijewski method have the highest level of accuracy that is 100% compared to the Altman Z-score method with an accuracy rate of 50%.

Subsequent research was conducted by Lili Syafitri and Triniadi (2016) entitled "Comparative analysis in predicting bankruptcy at PT Indofood Sukses Makmur", in the study it was found that the two models being compared namely molde Altman and Springate there were differences in predicting bankruptcy with accuracy for the Altman Z Score model is 0% while the springate model is 80%.

## METHODS

In this study the authors used a population of 5 cosmetics and household utilities listed on the Indonesia Stock Exchange.

Table 1. List of Cosmetics Companies and Household Needs

Name of Company	Year
PT. Akasha Wira International, Tbk	2010-2017
PT. Martina Berto, Tbk	2010-2017
PT. Mustika Ratu, Tbk	2010-2017
PT. Mandom Indonesia, Tbk	2010-2017
PT. Unilever Indonesia, Tbk	2010-2017

The sample taken in this study is data on working capital, total assets, profit after interest and taxes, profit before tax, current liabilities, total sales, total liabilities, current assets, and current liabilities. In the period 2010-2017, particularly companies in the cosmetics and household use sectors listed on the Indonesia Stock Exchange, with the following criteria:

1. Cosmetics and Household Utilities Sector Companies were listed on the Indonesia Stock Exchange in 2010-2017.
2. The company issued audited financial statements in 2010-2017 on the Indonesia Stock Exchange.
3. All cosmetic sector companies on the Stock Exchange have complete data, that is, the data contains all components of measurement variables including current assets, current liabilities, total assets.

In this data collection procedure the author will take from historical manufacturing companies listed on the Indonesia Stock Exchange by analyzing the company's financial statements using Microsoft Excel which includes income statements for the period 2010-2017 relating to the problem being studied.

To understand the level of a company's ability to go bankrupt or not, there is a standard or cut-off point in determining which zone the company is in, and in the 2 sections of classification to find out whether the company is sound and bankrupt, as follows:

1. The Springate or S-score method

If the studied score can be below 0.862 ( $S\text{-score} > 0.862$ ), the company is classified as in a healthy state or not bankrupt.

If the studied score can be above 0.862 ( $S\text{-score} < 0.862$ ), the company is classified as bankrupt.

2. Zmijewski method or X-Score

If the studied score can be above 0.5 ( $X\text{-score} > 0.5$ ) then the company is classified as being in a state of bankruptcy or financial distress.

If the score under study and can be below 0.5 ( $X\text{-score} < 0.5$ ) then the company is classified in a healthy state or not bankrupt.

## RESULTS

Bankruptcy Risk Condition Analysis using the Springate Method of Cosmetics and Household Purposes. Springate method analysis uses formulas

$$S\text{-score} = 1.03X1 + 3.07X2 + 0.66X3 + 0.4X4,$$

X1: the ability of the company's working capital,

X2: the company's ability to generate profits

X3: basic ability to generate profits

X4: the company's ability to manage assets

Table 2. **Springate Analysis PT. Martina Berto, Tbk in 2010-2017**

Year	X1	X2	X3	X4	S-Score
2010	97.802.608 .713 /	51.750.410 .630 /	48.619.570 .431 /	566.186.41 6.236 /	{(1.03*0,2 936) + (3.07*0,15 5) + (0.66*0,2928) + (0.4*1,6996)} = 1,6524
2011	0,6408	0,0869	0,4829	1,1970	1,7245
2012	0,6115	0,0887	0,4331	1,1777	1,6591
2013	0,5559	0,0352	0,2024	1,0483	1,2335
2014	0,5327	0,0128	0,0510	1,0840	1,0553
2015	0,4904	-0,0177	-0,1129	1,0707	<b>0,8047</b>



2016	0,4472	0,0347	0,0759	0,9655	1,0034
2017	0,3435	-0,0218	-0,1255	0,3435	<b>0,5789</b>

Table 3. Springate Analysis PT. Mustika Ratu, Tbk in 2010-2017

Tahun	X1	X2	X3	X4	S-score
2010	252.570.867. 742 / 386.352.442. 915 = 0,6537	37.033.624.6 25	32.964.138. 917	369.366.074. 883	{(1.03*0,6537) + (3.07*0,0959) + (0.66*0,8631) + (0.4*1,6996)} = 1,9197
2011	0,6495	0,0983	52.063.463. 484	0,9617/	1,8208
2012	0,6460	386.352.442. 915	38.190.598. 441	386.352.442. 915	1,8270
2013	0,5957	- 0,0959	- 0,8631	- 0,9560	<b>0,7411</b>
2014	0,5447	0,0983	0,7053	0,9617	1,0430
2015	0,5594	0,0913	0,7256	1,0060	0,9675
2016	0,5773	-0,0230	-0,1933	0,8147	<b>0,8511</b>
2017	0,5578	0,0232	0,0952	0,8693	0,8659

Table 4. Springate Analysis PT. Mandom Indonesia, Tbk in 2010-2017

Tahun	X1	X2	X3	X4	S-score
2010	553.623.44 7.758 / 1.047.238.4 40.003 = 0,5287	173.865.62 6.016 / 1.047.238.4 40.003 = 0,1660	173.525.4 26.744 / 57.165.98 9.460 = 3,0355	1.466.938.7 11.851 / 1.047.238.4 40.003 = 1,4008	{(1.03*0,5287) + (3.07*0,1660) + (0.66*3,0355) + (0.4*1,4008)} = 3,6179
2011	0,5435	0,1707	3,3232	1,4632	3,8626
2012	0,5304	0,1665	2,0433	1,4673	2,9931
2013	0,3570	0,1541	1,0737	1,3833	2,1026
2014	0,2082	0,1376	0,4967	1,2385	1,4602
2015	0,4273	0,1050	2,6157	1,1118	2,9337
2016	0,4365	0,0900	1,0041	1,1564	1,8513
2017	0,4305	0,0954	0,9356	1,1459	1,8121

Table 5. Springate Analysis PT. Unilever Indonesia, Tbk in 2010-2017

Tahun	X1	X2	X3	X4	S Score
2010	-654.810 / 8.701.262 = -0,0753	4.542.625 / 8.701.262 = 0,5221	4.545.767 / 4.402.940 = 1,0324	19.690.239 / 8.701.262 = 2,2629	{(1.03*-0,0753) + (3.07*0,5221) + (0.66*1,0324) + (.4*2,2629)} = 3,1118
2011	-0,1961	0,5312	0,8574	2,2389	2,8903
2012	-0,2086	0,5422	0,8581	2,2781	2,9272
2013	-0,2012	0,5640	0,9208	2,4212	3,1003
2014	-0,1770	0,5436	0,8660	1,6434	2,7153
2015	-0,2228	0,5047	0,7731	1,7357	2,5246
2016	-0,2562	0,5200	0,7880	1,8367	2,5873
2017	-0,2428	0,5023	0,7478	2,1794	2,6571

Table 6. Springate Analysis PT. Akasha Wira International, Tbk in 2010-2017

Tahun	X1	X2	X3	X4	S-score
2010	0,1375	0,0873	0,3844	0,6741	{(1.03*0,1375) + (3.07*0,0873) + (0.66*0,3844) + (0.4*0,6741)} = 0,9330
2011	0,1691	0,0833	0,3930	0,9474	1,0681
2012	0,2387	0,2221	0,7770	1,2250	1,9304
2013	0,1996	0,1216	0,5444	1,1393	1,3940
2014	0,1633	0,0957	0,2650	1,1507	1,0972
2015	0,1178	0,0859	0,2216	1,0253	0,9414
2016	0,1618	0,1021	0,3153	1,1566	1,1507
2017	0,0587	0,0881	0,2086	0,9694	<b>0,8565</b>

Overall, all the 5 Subsector Cosmetic and Household Company have a healthy potential with an S-score > 0.862, even though some of the years company experienced an S-score below the Springate standard of 0.862, which is the potential for bankruptcy. The value is influenced by the value of earnings before interest and taxes and the value of earnings before taxes owned by the company also has a negative value. Therefore, companies are advised to increase their performance in each year through maximizing sales and minimizing the company's operating expenses.

Bankruptcy Risk Condition Analysis with Zmijewski Method . Analysis of the Zmijewski method uses the formula X-score =  $-4.3 - 4.5X1 + 5.7X2 + 0.004X3$ , with the elements analyzed by the formula in terms of: the company's ability to generate profits (X1), the company's ability to finance the company's creditors (X2), the ability companies in fulfilling short-term liabilities that are due soon (X3). Zmijewski's analysis was carried out on 5 companies of cosmetics and household needs.

Table 7. Zmijewski Analysis PT.Martina Berto, Tbk Year 2010-2017

Tahun	X1	X2	X3	X-score
				{-4.3-
2010	0,1104	0,6490	1,5889	(4.5*0,1104)+ (5.7*0,6490)+ (0,004*1,5889)} = -1,0908
2011	0,0788	0,2605	4,0810	-3,1530
2012	0,0747	0,2870	3,7102	-2,9853
2013	0,0264	0,2623	3,9914	-2,9080
2014	0,0047	0,2674	3,9542	-2,7812
2015	-0,0217	0,3308	3,1350	-2,3042
2016	0,0124	0,3789	3,0445	-2,1837
2017	-0,0316	0,4713	2,0630	-1,4630

Table 8. Zmijewski Analysis PT.Mustika Ratu, Tbk Year 2010-2017

Tahun	X1	X2	X3	X-score
				{-4.3-
2010	0,0632	0,1264	7,6134	(4.5*0,0632)+ (5.7*0,1264)+ (0,004*7,6134)} = -3,8336
2011	0,0660	0,1516	6,2707	-3,7074
2012	0,0675	0,1528	6,0171	-3,7089
2013	-	0,1406	6,0541	-3,4059
2014	0,0152	0,2423	3,6128	-2,9679
2015	0,0141	0,2415	3,7026	-2,9179
2016	0,0021	0,2359	3,9706	-2,8878
2017	-	0,2626	3,5975	-2,7770
	0,0115			
	0,0026			

Table 9. Zmijewski Analysis PT.Mandom Indonesia, Tbk Year 2010-2017

Tahun	X1	X2	X3	X-score
				{-4.3-(4.5*0,1255)+
2010	0,1255	0,0943	10,6845	(5.7*0,0943)+ (0,004*10,6845)} = -4,2846
2011	0,1238	0,0977	11,7428	-4,2536
2012	0,1192	0,1306	7,7265	-4,0611
2013	0,1092	0,1930	3,5732	-3,6771
2014	0,0943	0,3281	1,7982	-2,8471
2015	0,2615	0,1764	4,9911	-4,4515
2016	0,0696	0,1839	5,3245	-3,5434
2017	0,0758	0,2132	4,9132	-3,4065

Table 10. Zmijewski Analysis PT.Unilever Indonesia,Tbk Year 2010-2017

Tahun	X1	X2	X3	X-score
				$\{-4.3-(4.5*0,3890)+$ $(5.7*0,5347)+$ $(0,004*0,8513)\}$ $= -2,9993$
2010	0,3890	0,5347	0,8513	
2011	0,3973	0,6488	0,6839	-2,3866
2012	0,4038	0,6689	0,6683	-2,3016
2013	0,4214	0,6651	0,6712	-2,4025
2014	0,4018	0,7092	0,7149	-2,0631
2015	0,3720	0,6931	0,6540	-2,0207
2016	0,3816	0,7191	0,6056	-1,9162
2017	0,3705	0,7264	0,6337	-1,8244

Table 11. Zmijewski Analysis PT.Akasha Wira Internaational, Year 2010-2017

Tahun	X1	X2	X3	X-score
				$\{-4.3-(4.5*0,0976) +$ $(5.7*0,6922) +$ $(0,004*1,5114)\}$ $= -0,7874$
2010	0,0976	0,6922	1,5114	
2011	0,0818	0,6021	1,7088	-1,2293
2012	0,2143	0,4625	1,9416	-2,6200
2013	0,1262	0,3997	1,8096	-2,5824
2014	0,0618	0,4192	1,5234	-2,1825
2015	0,0503	0,4973	1,3860	-1,6860
2016	0,0729	0,4992	1,6351	-1,7763
2017	0,0455	0,4966	1,2015	-1,6696

Comparative Analysis of Bankruptcy Predictions with the Springate and Zmijewski Method in Cosmetics and Household Utilities Companies 2010-2017

Metode	KODE	2010	2011	2012	2013	2014	2015	2016	2017	Rata-Rata	Analisa
Springate	Martina	1,6524	1,7245	1,6591	1,2335	1,0553	0,8047	1,0034	0,5789	1,2140	Sehat
	MRAT	1,9197	1,8208	1,8270	0,7411	1,0430	0,9675	0,8511	0,8659	1,2545	Sehat
	TCID	3,6179	3,8626	2,9931	2,1026	1,4602	2,9337	1,8513	1,8121	2,5792	Sehat
	UNLV	3,1118	2,8903	2,9273	3,1003	2,7153	2,5246	2,5873	2,6571	2,8142	Sehat
	ADES	0,9330	1,0681	1,9304	1,3940	1,0972	0,9414	1,1507	0,8565	0,9361	Sehat
Zmijewski	Martina	-	-	-	-	-	-	-	-	-	Sehat
	MRAT	1,0908	3,1530	2,9853	2,9080	2,7812	2,3042	2,1837	1,4630	2,3586	Sehat
	TCID	3,8336	3,7074	3,7089	3,4059	2,9679	2,9179	2,8878	2,7770	3,2758	Sehat
	UNLV	4,2846	4,2536	4,0611	3,6771	2,8471	4,4515	3,5434	3,4065	3,8156	Sehat
	ADES	2,9993	2,3866	2,3016	2,4025	2,0631	2,0207	1,9162	1,8244	2,2393	Sehat
		0,7874	1,2293	2,6200	2,5824	2,1825	1,6860	1,7763	1,6696	1,8167	Sehat

Figure 1 .Comparative Analysis of Bankruptcy Predictions with the Springate and Zmijewski Method in Cosmetics and Household Utilities Companies 2010-2017

The Springate method has a standardization value of 0.086 which means that if the company gets a value of less than 0.086 then the company experiences financial distress and if the company does not handle it well then the company will experience potential bankruptcy, vice versa. Based on gambar 4.3, the overall value of the company is more than 0.086 out of the total for 8 years. This shows that the Springate method predicts that the five companies namely Martina, MRAT, TCID, UNLV, and ADES will not experience financial distress even to the point of experiencing bankruptcy.

Zmijewski method has a standardization value of 0 which means that if a company has a value of more than 0 then the company experiences financial distress and if the company does not handle it well then the company will experience potential bankruptcy, vice versa. Based on Figure 4.3 the overall value of the company is less than 0 of the total for 8 years. This shows that the Zmijewski method predicts the five companies namely Martina, MRAT, TCID, UNLV, and ADES will not experience financial distress even to the point of experiencing bankruptcy.

If seen Figure 1.1 shows that the results of calculations using the Zmijewski method every year the cosmetics companies and household needs do not experience financial distress or experience good growth. Based on this method shows that the company that experienced the lowest growth was PT. Akasha Wira International, Tbk or ADES, while the highest growth was PT. Random Indonesia, Tbk or TCID.

Furthermore, with the use of the Springate method every year the cosmetics company and household needs as a whole did not experience financial distress or experienced good growth but, in the company PT. Mustika Ratu, Tbk or MRAT in 2013 and 2016 experienced financial distress so that the company almost towards potential bankruptcy. Because company management improves performance in increasing growth in total sales, total assets, earnings before interest and taxes, profit before tax, and current assets. So that the company PT Mustika Ratu, Tbk in 2017 can experience good growth again. It can be said that PT. Mustika Ratu, Tbk in 2017 did not experience financial distress which could have an impact to the potential for bankruptcy.

## **DISCUSSION**

A company's financial difficulties are caused by several possibilities. Darsono (2008: 101-102) explains that in general the causes of bankruptcy can be divided into two namely internal

factors and external factors. Internal factors are factors that originate from the internal parts of the company's management. While external factors can come from external factors directly related to company operations or macroeconomic factors. Inability to read signals in a business difficulty will result in a loss in the investment made. Investors who will invest should choose the company who have good financial performance to reduce the level of risk available by calculating financial distress predictions using the Springate and Zmijewski models. According to Fachrudin (2008: 8) states that financial difficulties can be seen from the composition of the balance sheet - the amount of assets and liabilities, from the income statement - if the company continues to lose, and from the cash flow statement - if the cash flow in is smaller than the cash outflow. Financial distress is calculated using a formula or model called financial distress model. According to Subramanyam (2010: 288), the financial difficulty model, which is generally called the bankruptcy prediction model, provides trends and behaviors of certain ratios. The characteristics of these ratios are used to identify possible future financial difficulties. For management to immediately detect early indications of financial distress so that it will not no impact on bankruptcy and can take actions certain so that companies avoid deletion of shares from the stock exchange by calculating the prediction of financial distress using the Springate and Zmijewski models.

### **Conclusion**

The author discusses the main issues and issues based on data from cosmetics companies and household needs consisting of 5 companies: PT. Martina Berto, Tbk, PT. Mustika Ratu, Tbk, PT. Random Indonesia, PT. Unilever Indonesia, Tbk and PT. Akasha Wira International, Tbk, which was listed on the Indonesia Stock Exchange, for a period of eight years, from 2010-2017. Based on the results of research and discussion, the following conclusions can be drawn:

1. The results show that cosmetics companies and household needs are in a healthy condition as seen from an average value above 0.862 based on financial distress analysis in the Springate method. Even so there were companies that were below the 0.862 standard with a value of 0.7411 in 2013 and 0.8511 in 2016 at the company PT. Mustika Ratu, Tbk. As for other companies that have an average healthy condition and found that the company that has the highest S-score is at PT. Unilever Indonesia, Tbk, with a value of 2.8142.
2. The results show that cosmetics companies and household needs are in a healthy condition as seen from an average value below 0 (zero) based on financial distress analysis in the Zmijewski method. Even so there are companies that have approached

below the standard 0 (zero) with a value of -0.7874 in 2010 at the company PT. Akasha Wira International, Tbk. As for other companies that have an average healthy condition and found that the company that has the highest X-score is at PT. Mandom Indonesia, Tbk, with a value of -3.8156.

3. There are no differences in results between the Springate and Zmijewski models in predicting bankruptcy in companies that were delisted from the Indonesia Stock Exchange in the period 2010-2017, this is supported by the results of the analysis of financial distress analysis and the level of accuracy.

The results showed that overall there was no difference from the interpretation of financial distress in cosmetics companies and household needs from the Springate analysis with a value of 1.2140 at PT.Martina Berto, Tbk; 1,2545 at PT. Mustika Ratu, Tbk; 2,5792 at PT.Mandom Indonesia; 2,8142 at PT. Unilever Indonesia, Tbk; 0.9361 at PT. Akasha Wira International, Tbk while from Zmijewski's analysis with a value of -2.3586 at PT. Martina Berto, Tbk; -3,2758 at PT. Mustika Ratu, Tbk; -3,8156 at PT.Mandom Indonesia; -2,2393 at PT. Unilever Indonesia, Tbk; -1,8167 at PT. Akasha Wira International, Tbk. This shows that the five companies did not experience financial distress and were far from the possibility of potential bankruptcy.

## REFERENCES

- Almilia, K. (2003). Analysis of Financial Ratios to Predict Financial Conditions Distress Manufacturing Companies listed on the JSX. *Accounting journal and Indonesian Auditing*. Vol 7. No. 2
- Anandarajan, M., & Simmers, C.A. (2005). *Developing human capital through personal web use in the workplace: Mapping employee perceptions*. *Communications of the Association for Information Systems*, 15 (41), 776-791
- Anggi Meiliawati & Isharijadi. Comparative Analysis of the Springate and Altman Models score of Financial Distress Potential (Case Study of the CompanyCosmetic Sector, which is listed on the Indonesia Stock Exchange). *Accounting Journal and Education*, Volume 5, Nomor 1, April 2016
- Altman, E. 1968. Financial Ratio, Discriminant Analysis, and the Prediction of Corporate Bankruptcy. *The Journal of Finance*, September, Vol. 23, page. 589-609.
- Dewi, Karina Mutiara. (2013). *Analisis Faktor – Faktor Yang Mempengaruhi Ketepatan Waktu Dan Audit Delay Penyampaian Laporan Keuangan*. Skripsi. Fakultas Ekonomi Dan Bisnis Universitas Diponegoro. Semarang

Fahmi, I. (2014). *Financial Statement Analysis*. Bandung: Alfabeta

Fahmi I. (2013). *Financial Statement Analysis*. Bandung: Alfabeta

Hery. (2017). *Financial Statement Analysis: Integrated and Comprehensive*. Edition. Cetakan ke2. Jakarta: PT. Grasindo

Kasmir. (2009). *Introduction to Financial Management*. Jakarta: Kencana

Merkusiwati, & Putri. (2014). The Effect of Corporate Governance Mechanisms, Liquidity, Leverage, and Company Size in Financial Distress. *E-Jurnal Akuntansi*. Vol. 1, No. 7, Halaman 93–106

Platt, H dan M. Platt. (2002). Predicting Corporate Financial Distress: Reflections on Choice Based Sample Bias. *Journal of Economics and Finance*, Vol. 26, No. 2, h. 184 – 197.

Setiawati, Mey Handayani, (2017), Analysis of the Altman Z-Score, Springate, and Zmijewski to Predict Financial Distress in Food and Food Companies Beverage Listed on the Indonesia Stock Exchange (IDX) Periode 2011-2015, Skripsi, Universitas Lampung

Yuliana. A dan Ita T. (2015). "Effect of Auditors and Financial Ratios on Profit management". *Journal of Business and Accounting*. ISSN 1410-9875. Vol 17 No 1, Juni (2015): 33-45.