

Analysis of the Method of Altman Z-Score to Predict the Potential of Bankruptcy in Advertising, Printing and Media Companies Listed on the IDX

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Keywords: Altman Z'-Score, Bankruptcy, Financial Reports

Abstract: Purpose - The purpose of this study is to find out the Altman Z method "-Score can predict bankruptcy in advertising, printing and media companies listed on the Indonesia Stock Exchange. Design / methodology / approach - First, the researcher determines the sample of the company that is as many as 9 samples of Advertising, Printing and Media companies listed on the IDX. Second, researchers calculate working capital to total assets, retained earnings to total assets, earnings before interest and taxes to total assets, and book value of equity to book value of debt. Third, researchers analyzed the Altman Z method "-Score.

Findings - The results obtained show that of 9 companies that in 2012 there was 1 company that was predicted to go bankrupt, 2 companies in gray areas and 6 companies were not bankrupt. In 2013 3 companies were predicted to go bankrupt and 6 companies did not go bankrupt. In 2014 there was 1 company predicted to go bankrupt, 1 company in a gray area and 7 companies not going bankrupt. In 2015 there were 3 companies that were predicted to go bankrupt, 1 company in the gray area and 5 companies did not go bankrupt. Originality / value - The main contribution helps the management of the company in assessing the company's financial condition and management decision making in preventing the risks that will occur associated with the company's bankruptcy.

1 INTRODUCTION

Financial report analysis aims to determine the current condition and position of the company, by analyzing the weaknesses and strengths of the company (Kasmir: 2010). The results of the analysis of the company's financial statements are to know the condition and financial development of the company, as done by a professor at New York University, Edward Altman. He conducts research on the financial performance of companies that experience bankruptcy with healthy financial performance. Altman uses Multiple Discriminant Analysis (MDA) which is one of the statistical techniques that produces an index where later it allows the classification of observation into one of several a priori groupings. The research results are formulated in a mathematical formula called the Altman Z-Score formula. (Tristantyo: 2012)

Altman (1968) uses five financial ratios which are considered to be the most contributing to the

bankruptcy prediction model by using an equation model. The Z-Score model is a model that can be used to predict financial difficulties. The Z-Score value is used to classify whether a company is bankrupt or not. Prihadi (2010) Altman does not only use one method in his analysis, but he also develops the Z-Score method that can be used for several companies, there are three methods, namely Z-Score for manufacturing companies, companies going public. Z'-Score method (modification / model A) for private companies only and Altman Z''-Score method (Modification / model B) for service companies, private and going public.

Bankruptcy according to Altman (1973) is a company that is legally bankrupt. Whereas according to law no. 4 of 1998 is 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 to be billed. (Damayanti: 2014).

The bankruptcy prediction serves to provide guidance for interested parties about the company's financial performance whether to experience difficulties or not in the future. (Butet Agrina Kurniawati, 2012) examined the analysis of the use of Altman Z-Score to predict the potential bankruptcy of food and beverage companies listed on the Stock Exchange in the period 2007 - 2011. The results of this study concluded that the average Working Capital To Total Assets ratio was 0.253, Retained Earnings to Total Assets are 0.170, Earning Before Interest and Taxes To Total Assets are 0.100, Market Value of Equity To Book Value of Debt is 1.759 and the average ratio of Sales to Total Assets is 1.206. In Z-Score analysis there are three companies in the healthy category, one company in the gray area, and one company in the bankrupt category. Syari'ah Insurance Company Based on the Altman Z'-Score Method for the period 2009-2013. The method used to predict bankruptcy is using the Altman Z-Score modification method that can be applied to all companies such as manufacturing, non-manufacturing and bond issuing companies. The results of this study indicate that from the results of the analysis of bankruptcy prediction in 2009 - 2013 there was one company predicted to experience bankruptcy, namely PT. Allianz Life insurance with a Z score = 1.1205, $Z < 1.23$ in 2011.

Media advertising printing companies are information services companies. The company continues to grow along with the development of technology, information and communication. The competitive conditions of Advertising, Printing and Media companies are increasingly tight. Online technology - this phenomenon came to be known as online buying and selling - each individual can act as an advertising agent, can be the owner of an online buying and selling media, or can be a seller as the corporation does. An individual can sell and get the items he wants by using fast access services, such as tokobagus.com, berniaga.com, jualbeli.com, or kaskus.com. (Supriadi: 2013)

Therefore the importance of a financial statement analysis and analysis of financial performance to predict bankruptcy. This study aims to determine the financial condition of the company and can provide input and consideration for external companies, especially for investors about the possibility of bankruptcy in order to take steps in making decisions on their investment in the company. Advertising, printing and media companies are a growing service company, with high levels of competition and developments in information technology. It is necessary to assess the company's

financial condition. The researchers examined "Analysis" Altman Z'-Score To Predict Bankruptcy in Media Advertising Printing Companies Registered at IDX Period 2012-2015"

2 LITERATURE REVIEW

2.1 Definition of Financial Statement Analysis

According to Wild, Subramanyam and Halsey (2008: 3) states that:

Financial statement analysis (financial statement analysis) is the application of analytical tools and techniques for general purpose financial statements and related data to produce estimates and conclusions that are useful in business analysis.

According to Harahap (2011: 190) as follows: Decipher financial statement posts into smaller information units and see their relationships that are significant or that have meaning with each other both between quantitative and nonquantitative data with the aim of knowing deeper financial conditions that are very important in the process of producing decisions that right.

2.2 Technical Analysis of Financial Statements

According to Munawir (2010: 36), the types of financial statement analysis techniques that can be done are as follows:

- 1) Comparative Analysis between Financial Reports, is an analysis technique by comparing financial statements for two or more periods.
- 2) Trend Analysis or the tendency of the company's financial position and progress expressed in percentages.
- 3) Reports with percentages per component are an analysis method to determine the percentage of investment in each asset against total assets, also to determine the capital structure and composition of the accumulation that occurs associated with the number of sales.
- 4) Analysis of Sources and Use of Working Capital, is an analysis to find out the sources and use of working capital or to find out the causes of changes in working capital in a certain period.
- 5) Analysis of Sources and Use of Cash, is an analysis to find out the causes of changes in the

amount of cash or to find out the sources and use of cash for a certain period.

- 6) Analysis of the ratio, is a method of analysis to determine the relationship of certain items in the balance sheet or income statement individually or a combination of the two reports.
- 7) Analysis of Gross Profit Change is an analysis to find out the causes of changes in the gross profit of a company from another period to period or changes in gross profit for a period with profit that is budgeted for that period.
- 8) Break-Even Analysis, is an analysis to determine the level of sales that must be achieved by a company so that the company does not suffer losses, but also has not made a profit.

Definition of Networking Capital to Total Assets

According to Wardhani (2007) in Tristantyo (2012: 15) working capital to total assets is used to measure the liquidity of a company's assets relative to its total capitalization or to measure the company's ability to meet short-term liabilities

Definition of Retained Earnings to Total Assets

According to Wardhani (2007) in Tristantyo (2012: 15) retained earnings against total assets are used to measure cumulative profitability. This ratio measures the accumulation of profits as long as the company operates.

Definition EBIT (Earnings Before Interest and Tax) to Total Assets

According to Wardhani (2007) in Tristantyo (2012: 16) income before tax and interest on total assets is used to measure the actual productivity of the company's assets. The ratio measures a company's ability to generate profits from assets used.

Definition of Market Value of Equity to Book Value of Total Liabilities

According to Wardhani (2007) in Tristantyo (2012: 16) Equity market value of book value of debt is used to measure how much a company's assets can decrease in value before the amount of debt is greater than its assets and the company becomes bankrupt.

Definition of Sales to Total Assets

According to Wardhani (2007) in Tristantyo (2012: 17) sales of total assets are used to measure management's ability to deal with competitive conditions. This ratio measures the management's ability to use assets to generate sales.

Altman Z-Score Analysis

In Prihadi (2010) Altman does not only use one method in his analysis, but he also develops the Z-

Score method that can be used for several companies, namely:

Original Z-Score

Z = 1,2 X	Working capital / Total asset
+ 1,4 X	Retained earnings / Total asset
+ 3,3 X	EBIT / Total asset
+ 0,6 X	Market value of equity / Book value of debt
+ 1,0 X	Sales / Total asset
Score	Condition
>2,99	Not Bankrupt
1,81 – 2,99	Grey Area
<1,81	Bankrupt

Z'-Score (Model A Z-Score) for private company

Z' = 0,717 X	Working capital / Total asset
+ 0,847 X	Retained earnings / Total asset
+ 3,107 X	EBIT / Total asset
+ 0,420 X	Book value of equity / Book value of debt
+ 0,998 X	Sales / Total asset
Score	Condition
>2,90	Not Bankrupt
1,23 – 2,90	Grey Area
<1,23	Bankrupt

Z''-Score (Model B Z-score)

Z'' = 6,56 X	Working capital / Total asset
+ 3,26 X	Retained earnings / Total asset
+ 6,72 X	EBIT / total asset
+ 1,05 X	Book value of equity / Book value of debt
Score	Condition
>2,60	Not Bankrupt
1,1 – 2,60	Grey Area
<1,1	Bankrupt

Bankruptcy

According to Prihadi (2010: 332) states that: Bankruptcy is a condition where the company is no longer able to pay off its obligations.

The Bankruptcy Law explained that Bankruptcy refers to:

Article 1 paragraph (1):

Bankruptcy is a general seizure of all the wealth of a Bankrupt Debtor whose management and settlement is carried out by the curator under the supervision of the Supervisory Judge as stipulated in this Law.

Bankruptcy according to Altman (1973) is a company that is legally bankrupt. Whereas according to law no. 4 of 1998 is 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 can be billed (Damayanti: 2014).

3 RESEARCH METHODS

The population of this study was all Advertising, Printing and Media companies listed on the Indonesia Stock Exchange in 2012-2015, which numbered 15 companies. And the samples used in this study are Advertising, Printing and Media companies that are part of the population.

The data source of this study will use secondary data in the form of: Annual financial reports of Advertising, Printing and Media companies listed on the IDX for the period 2012-2015. The data collection technique used is documentation. From the documentation obtained data in the form of Annual Financial Statements 10 Advertising, Printing and Media subsector companies which are located in the Indonesia Stock Exchange in the period 2012-2015.

The analysis techniques used in this study are as follows:

1. Collection of data taken from the balance sheet, income statement and changes in the equity of the sample of this study,
2. Data or results of financial ratio calculations are then analyzed using the formula found by Altman Z-Score, namely:

$$Z = 6.56 X1 + 3.26 X2 + 6.72 X3 + 1.05 X4$$

Notes:

- Z : Bankruptcy index
 X1 : Working capital to total assets
 X2 : Retained earnings to total assets
 X3 : Earnings before interest and taxes to total assets
 X4 : Book value of equity to book value of debt

3. Classifying healthy and bankrupt companies based on the original Altman Z-Score Model value (Prihadi, 2010), namely:
 - a. If $Z > 2.60$ is classified as a healthy company
 - b. If $Z < 1.1$ is classified as a potential company going bankrupt
 - c. If Z between 1.1 and 2.60 is classified as a company in the gray area.
4. From the results of the analysis, the numbers or Z values will be obtained which are then compared with the cut off value, so that it can be

predicted which company can be predicted to go bankrupt, gray area or healthy

4 RESEARCH RESULTS AND DISCUSSION

Calculating Working Capital to Total Assets (X1)

This ratio formula is as follows:

$$WTCA = \text{working capital} / \text{Total assets}$$

Table 2.1: WCTA Advertising, Printing and Media Company for the 2012-2015 Period

Code Company	Year			
	2012	2013	2014	2015
ABBA	-0,0913	-0,0325	0,1196	0,1037
EMTK	0,4582	0,4280	0,5894	0,5197
FORU	0,4015	0,4095	0,4287	0,3997
JTPE	0,1551	0,1423	0,1444	0,0836
KBLV	0,0719	-0,0730	0,0008	-0,1397
MNCN	0,6156	0,5414	0,5715	0,4620
MSKY	0,0395	0,0273	-0,0414	-0,6313
TMPO	0,3742	0,3444	0,2617	0,1856
VIVA	0,3252	0,4032	0,3250	0,0983

Source: secondary data processed

Calculates Retained Earnings to Total Assets (X2)

This ratio formula is as follows:

$$RETTA = \text{retained earnings} / \text{total assets}$$

Table 2.2: RETTA Advertising, Printing and Media Company for the period 2012-2015

Code Company	Year			
	2012	2013	2014	2015
ABBA	-0,0523	-0,0190	-0,0008	-0,0809
EMTK	0,1030	0,1229	0,1107	0,0762
FORU	0,2786	0,2996	0,2918	0,2820
JTPE	0,3622	0,3316	0,3544	0,3140
KBLV	-0,0564	-0,0644	0,5712	0,4942
MNCN	0,3922	0,4253	0,3941	0,3924
MSKY	0,0819	-0,0187	-0,0445	-0,1580
TMPO	0,1044	0,1165	0,1556	0,1639
VIVA	-0,1110	-0,0432	-0,0111	-0,0934

Source: secondary data processed

Calculating Earning Before Interest and Tax to Total Assets (X3)

This ratio formula is as follows:

$$EBITTA = \text{EBIT} / \text{Total assets}$$

Table 2.3: EBITTA Advertising, Printing and Media Company for the 2012-2015 Period

Code Company	Year			
	2012	2013	2014	2015
ABBA	0,0129	0,0	0,0254	-0,1230
EMTK	0,1379	0,1473	0,0995	0,1368
FORU	0,0662	0,0524	0,0240	0,0160
JTPE	0,1263	0,0950	0,1029	0,1006
KBLV	0.0042	0,0148	0,6294	-0,1417
MNCN	0,2523	0,2489	0,1868	0,1161
MSKY	0,0246	-0,0994	-0,0324	-0,1254
TMPO	0,1649	0,0412	0,0560	0,0128
VIVA	0,0615	0,0458	0,0609	-0,0557

Source: secondary data processed

Calculating Book Value of Equity to Book Value of Debt (X4)

This ratio formula is as follows:

$BVOE \text{ to BVD} = \text{book value of equity} / \text{book value of debt}$

Table 2.4: BVOE to BVOD Advertising, Printing and Media Company for the 2012-2015 Period

Code Company	Year			
	2012	2013	2014	2015
ABBA	0,4389	0,5877	0,6397	0,4905
EMTK	3,4028	2,7049	4,5731	7,2895
FORU	0,9548	1,0186	0,9930	0,8963
JTPE	0,8584	0,7265	0,7722	0,6544
KBLV	1,2786	0,8685	2,6112	1,6130
MNCN	4,3859	4,1372	2,2330	1,9491
MSKY	0,8440	0,4166	0,3724	0,2681
TMPO	1,2206	0,9960	0,8136	0,7759
VIVA	1,2766	0,6488	0,7511	0,5327

Source: secondary data processed

Altman Z-Score Model Assessment

The results of the Altman Z-Score calculation on advertising, printing and media companies that go public on the IDX can be seen in the following table 2.5:

Table 2.5: Altman Z-Score in Advertising, Printing and Media Companies for the 2012 - 2015 Period.

Code Company	Year			
	2012	2013	2014	2015
ABBA	* -0,22210	* 0,80435	** 1,62421	*0,10429
EMTK	*** 4,72894	*** 7,03814	*** 9,69729	*** 12,23111
FORU	*** 4,98951	*** 5,08505	*** 4,96715	*** 4,59051
JTPE	*** 3,94871	*** 3,41579	*** 3,60537	*** 2,93538
KBLV	** 1,65907	* 0,32285	*** 8,83877	** 1,43615
MNCN	*** 11,61745	*** 10,95469	*** 8,63344	*** 7,13661
MSKY	** 1,57743	* -0,11229	* -0,24341	* -5,21769
TMPO	*** 5,18488	*** 3,96177	*** 3,45410	*** 2,65253
VIVA	*** 3,52518	*** 3,49528	*** 3,29366	*0,52506

Description: * bankrupt, ** grey area, healthy *** (not bankrupt or healthy)

Altman Z-Score Model Assessment Analysis

From table 2.5 above, it can be seen that the value of Z-Score in Advertising, Printing and Media companies listed on the Stock Exchange during 2012 - 2015 shows the criteria of the Altman Z-Score model that falls into the healthy, gray area and bankrupt category, which means the company has the potential for bankruptcy, but some companies that in certain years have gone bankrupt and some companies are even very able to anticipate and make improvements, both in their management and in their financial structure.

The Working Capital to Total Assets value from 2012-2015 experienced an increase, namely the Mahaka Media Tbk company, although in 2015 it decreased slightly. Whereas the MNC Sky Vision Tbk continued to decline in 2012-2015, so it was in the category of bankruptcy. This condition is because the Working Capital to Total Assets value is negative. A negative sign on the value means that the company has negative net working capital (current debt value greater than current assets). So it can be interpreted that the company lacks current assets to pay the current debt due to the total assets of the company.

Another thing that causes a negative Z-Score is because that year is due to the value of current liabilities that are greater than the value of the current asset. The value of current liabilities is greater than the current asset value, which makes the company illiquid and tends to experience a crisis because it cannot fulfill its short-term obligations resulting in bankruptcy.

From the table above it can also be seen that several companies from 2012-2015 Z-Score values experienced an increase and were able to anticipate and make improvements, both in their management and in their financial structure, including PT. Elang Mahkota Teknologi Tbk, PT. Fortune Indonesia Tbk, PT. Jasuindo Tiga Perkasa Tbk, PT. Media Nusantara Citra Tbk, and PT. Tempo Inti Media Tbk.

This causes an increase in the value of Z-Score every year is a Book Value of Equity to Book Value of Liabilities that has increased even though some companies have decreased but not in large numbers and are still in the healthy category, so that it can be interpreted that the company's ability to meet obligations - the obligation derived from the value of the capital market itself every year trying to anticipate a decline.

There are 1 (one) companies in 2012 - 2014 in the healthy category and in 2015 were in the bankrupt category namely Visi Media Asia Tbk. This happened because current liabilities continued to increase from 2012 - 2015, the book value of debt continued to increase and there was a decline in working capital in 2015. In addition, 1 (one) company fluctuating from 2012 - 2015, namely PT. First Media Tbk, which is 2012 was in the gray area category, in 2013 was in the category of bankruptcy, in 2014 it was in the healthy category and in 2015 it was in the gray area category. This is due to an increase in the value of current liabilities and a large book value of debt (book value of debt) in 2015, as well as a significant decline in the value of capital (working capital) so that it is negative.

5 CONCLUSIONS AND SUGGESTIONS

5.1 Conclusion

The results of the analysis of the Altman Z-Score model can show the potential for bankruptcy in the Advertising, Printing and Media companies listed on the Stock Exchange in 2012 - 2015. The Z-Score \rightarrow has increased and decreased. Besides being caused by the fluctuating value of Working Capital to Total

Assets each year, the value of the Book of Value of Equity to Book Value of Debt also fluctuates every year.

Companies that are in the healthy category from 2012 - 2015, namely PT. Elang Mahkota Teknologi Tbk, PT. Fortune Indonesia Tbk, PT. Jasuindo Tiga Perkasa Tbk, PT. Media Nusantara Citra Tbk, PT. Tempo Inti Media Tbk. While companies that are in the category of bankruptcy and gray areas from 2012 - 2015 are PT. Mahaka Media Tbk and PT. MNC Sky Vision Tbk. The company is in the healthy category and the bankrupt category is PT. Visi Media Asia Tbk, while companies that fluctuate or are in the category of healthy, gray areas and go bankrupt, namely PT. First Media Tbk.

5.2 Suggestion

Investors, using the Altman Z-Score analysis investors can assess and evaluate the company's financial condition and provide consideration in determining which Advertising, Printing and Media companies will be chosen to invest.

For Company Management. The management of the company still needs to maintain and increase the size of the ratio, both the working capital ratio, retained earnings ratio, earnings before interest and tax ratios and the ratio of book value of equity to the book value of debt. This is because the size of the value of the ratio will provide an overview of the company's business continuity in the future.

For Academic/Researchers. This research still has limitations, namely this study is related to the number of variables used only for quantitative research, so that further research can also consider qualitative aspects such as economic, social, technological factors, and changes in government regulations that cause the bankruptcy of a company.

REFERENCES

- Algifari, (2013), *Inductive Statistics for Economics and Business*, Yogyakarta: YKPN College of Management
- Baran, Stanley J, (2012), *Introduction to Mass Communication*. Jakarta: Erlangga
- Damayanti, Maya, (2014), *Prediction of Sharia Insurance Company Bankruptcy Based on the Altman Z-Score Method*, Undergraduate Thesis, Jakarta: Syari'ah Faculty and Law, Hidayatullah State Islamic University
- Hanafi, Mahmud M. Halim, Abdul, (2016), *Financial Report Analysis*, Yogyakarta: UPP STIM YKPN

- Harahap, Sofyan Syafari, (2011), Critical Analysis of Financial Statements, Jakarta: Raja Grafindo Persada
- Kasmir, (2008), Financial Report Analysis, Jakarta: Kencana Media Group
- Kieso, Donald E, (2007), Intermediate Accounting, Jakarta: Erlangga
- Morissan, (2010), Integrated Advertising Marketing Communication. Jakarta: Kencana Prenadamedia The group
- Munawir, (2010), Analysis of Financial Statements, Yogyakarta: Liberty Yogyakarta
- Prastowo, Dwi, (2015), Analysis of Financial Statements (Concepts and applications, editions third), Yogyakarta: YKPN College of Management
- Prihadi, Toto, (2010), Financial Report Analysis, Jakarta: PPM Rajawali Press
- Subramanyam, K. R. John J. Wild, (2010), Analysis of Book Financial Statements Dua, Jakarta: Salemba Empat
- Suci, Ivida Dewi Amrih and Poesoko Herowati, (2016), Bankruptcy Law, Yogyakarta: Laksbang Grafika.
- Tristantyo, Yoga Rhesana, Altman Z-score Model Analysis in predicting Bankruptcy of a national foreign exchange private banking company that goes public at BEI, thesis, University Widyatama, Bandung: 2013.

