

The Analysis of Possible Bankruptcy Using *Altman Z-Score* Model of Financial Report Analysis in Listed Telecommunication Company at BEI

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ABSTRACT

The research investigated the use of financial report analysis to predict the bankruptcy in telecommunication company using *Altman Z-Score* model. *Altman Z-Score* has five financial ratio indicators that can be combined to differentiate between bankrupt and not bankrupt company. The five indicators are *Working Capital to Total Assets*, *Retained Earnings to Total Assets*, *EBIT to Total Assets*, *Market Value of Equity to Book Value of Liabilities and Sales to Total Assets*. The five financial ratio indicators represent the aspect of Liquidity, Profitability, Solvability and Activity. The purpose of the research is to identified and analyse *Altman Z-Score* model of financial ratios in a telecommunication company listed in Indonesia Stock Market. The sample of the research were choosed by the purposive sampling method and identified two companies meet the criteria which are PT Telkom, Tbk and PT Indosat, Tbk. The investigation showed that on the period of analysis between 2003-2007 PT Telkom, Tbk is chategorized as healthy company with *Altman Z-Score* > 2,99 meanwhile PT. Indosat, Tbk has *Altman Z-Score* between 1,8 – 2,99 chategorized in the grey area condition.

Keywords: financial report analysis, financial ratio, *altman z-score*, telecommunication company

1. Introduction

The deregulation in Indonesian telecommunication company started from the legislation No.36 year 1999 by preventing monopoly of two big telecommunication company which are PT. Telkom. Tbk and PT. Indosat Tbk. After the legislation new telecommunication companies start to join the industry such as Excelcomindo, Bakrie Telekomunikasi, Infoasia Teknologi dan Mobile 8. This condition start to shape the telecommunication industry as a competitive industry in Indonesia.

Global crisis in 2008 has made the telecommunication industry grow slower. Price competition among companies also made the operator in telecommunication industry to reduce its profit margin. (**www.kompas.com, 2009**). This stiff price competition may result in the financial problem of the company.

Based on the condition there is a need to design an *early warning system* to anticipate any financial problem that can cause bankruptcy to the company. This system designed with a model that predict the risk of bankruptcy in telecommunication company. As stated by Lesmana 2004:174, A bankruptcy risk related to uncertain capability of company to continue its operation whenever there is a financial problem. Early detect of the possible financial problem will help company to anticipate financial crisis. In this investigation, *Altman Z-Score* model will be applied to analyse the financial report in order to predict possible bankruptcy risk in telecommunication company.

There are many models that has been used to predict possible bankruptcy of a company (*Bankruptcy Models*). One of the models is developed by *Profesor Edward I Altman* from *New York University's Stern School Of Business* in 1960, known as ***Altman Z-Score*** (www.bankruptcyaction.com). Altman (1968) used *Multiple Discriminant Analysis (MDA)* to developed his predicted model and the final model formulated as *Altman Z-Score*. This formula used components in financial report as tools to predict the possible bankruptcy.

The Altman Z-Score model is implemented by analysing the financial report of company. The financial report contain important information that reflect the financial condition of company so that many stakeholder based the information on this report to decide any policy. (Munawir, 2004:5). The same statement came from Margaretha, 2005:17 stated that financial ratio is value resulted from comparison between one financial post with another with significant relation. (Sofyan, 2006:297) also stated that financial ratio can be used to evaluate the financial performance of company by comparing to other company from the same industry or evaluating the the financial ratio throughout years. The result of the analysis described the strength and weakness of company and other important information for the company.

This investigation used five financial ratios which are : *Working Capital to Total Assets*, *Retained Earnings to Total Assets*, *EBIT to Total Assets*, *Market Value of Equity to Book Value of Liabilities* dan *Sales to Total Assets*. The five ratios represented aspects of liquidity, profitability, solvability, and activity.

2. Data

The investigations used descriptive method and combine the analyses of time series and cross sectional data. The data analyzed in this research are the financial report published by BEI specifically from *Indonesian Capital Market Directory* and *JSX annual report*.

The object of the investigation is telecommunication industry in Indonesia such as PT. Telkom, Tbk PT. Indosat, Tbk PT. Excelcomindo, Tbk Bakrie Telekomunikasi, Natrindo, Hutchinson Indonesia, Smart Telecom dan Mobile 8. The survey used the *purposive sampling method* with five criteria to choose the sample :

1. Go Public telecommunication companies.

2. Telecommunication companies listed at Indonesia Stock Market (Bursa Efek Indonesia/ BEI).
3. Telecommunication companies publish the financial report yearly.
4. Telecommunication companies audited its financial report by external independent auditor.
5. Telecommunication companies with active stocks for 2003-2007 period

Based on the above criteria we get two telecommunication companies meet the criteria which are PT. Telkom, Tbk and PT. Indosat, Tbk.

Currently PT. Telkom, Tbk has a monopoly to operate local and long-distance telephone services in Indonesia. This will soon cease as the government has begun deregulating the telecommunications market. Another telecommunications company, Indosat, has been granted permission by the government to operate such services. Telkom claims to be the largest telecommunications company in Indonesia with 10 subsidiaries, the number of fixed phone subscribers reaching and 15 million and mobile phone subscribers 50 million.

Indosat was established in 1967 as a Foreign Capital Company, and started operations in 1969. In 1980 Indosat became State-Owned Enterprises (SOE) wholly owned by the government of Indonesia. Until now, Indosat provides cellular services, international telecommunications services and satellite services for broadcasting service providers.

PT Satelit Palapa Indonesia (Satelindo) was established in 1993 under the auspices of PT Indosat. Satelindo in 1994 to operate as a GSM operator. Satelindo establishment as a subsidiary of Indosat makes him the first GSM operator in Indonesia to issue prepaid cards and postpaid Matrix Mentari. On October 19, 1994 Indosat's shares began trading on the Indonesia Stock Exchange and the New York Stock Exchange.

The Indonesian Government deregulated the telecommunications sector by opening a free-market competition. Thus, TELKOM no longer monopolize the telecommunications Indonesia. In 2001, Indosat established PT Indosat Multi Media Mobile (IM3) and a pioneer of GPRS and multimedia services in Indonesia, and in the same year Indosat has full control of PT Satelit Palapa Indonesia (Satelindo).

At the end of 2002 the Government of Indonesia sold 41.94% shares of Indosat to Singapore Technologies Telemedia Pte. Ltd. Thus, has made Indosat back to Foreign Investment Company. In November 2003, Indosat merger three of its subsidiaries (acquisition) of PT Satelindo, PT IM3, and Bimagraha, and then became one of the major cellular operators in Indonesia

On March 1, 2007 STT sold Indosat shares of 25% in Asia Holdings Pte. Ltd. to Qatar Telecom. On December 31, 2008, Indosat shares owned by Qatar Telecom QSC (Qtel) indirectly through Indonesia Communications Limited (ICLM) and Indonesia Communications Pte Ltd (ICLS) for 40.81%, while the Government of the Republic of Indonesia and the public have respectively 14.29% and 44.90%. In 2009 Qtel has a 65% stake in Indosat through a tender offer (having an additional 24.19% shares of series B of the public)

3. Methodology & Result

3.1. The Altman Z'-Score

The investigation used the original version of Altman Z-Score. The Altman Z-score is a linear combination of five common business ratios, weighted by coefficients.

Altman Z-score estimated:

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

X_1 : Working Capital to Total Asset (WCTA)

X_2 : Retained Earning to Total Assets (RETTA)

X_3 : Earnings before Interest and Taxes to Total Assets (EBITTA)

X_4 : Market Value of Equity to Book Value Total Liabilities (MVOE to BVTL)

X_5 : Sales to Total Assets (SATTA)

Z : Overall Index

Zones of discrimination are:

- $Z < 1.81$

Distress Zone or Bankrupt (company facing financial problem or facing the possibility of serious bankruptcy)

- $1.81 < Z < 2.99$

Grey Zone (Company facing financial problem that should be corrected well and if there is no improvement either in management or financial structure the company will face bankruptcy in next one or two years).

- $Z \geq 2.99$

Safe Zone or Not bankrupt (company is in healthy financial condition, no financial problem or safe from bankruptcy)

Tabel 3.1. The Financial Ratios of Altman Z-Score model

Variable	Description	Indicator
<i>WCTA</i> X_1	Measures liquid assets in relation to the size of the company.	$WCTA = \frac{\text{Working Capital}}{\text{Total Assets}}$
<i>RETTA</i> X_2	Measures profitability that reflects the company's age and	$RETTA = \frac{\text{Retained Earnings}}{\text{Total Assets}}$
<i>EBITTA</i> X_3	Measures operating efficiency apart from tax and leveraging factors. It recognizes operating earnings as being important	$EBITTA = \frac{\text{EBIT}}{\text{Total Assets}}$
<i>MVOEtoBVTL</i> X_4	Adds market dimension that can show up security price fluctuation as a possible red flag.	$MVOE\ to\ BVTL = \frac{\text{Market Value of Equity}}{\text{Book Value of Total Liabilities}}$
<i>SATTA</i> X_5	Standard measure for sales turnover (varies greatly from industry to	$SATTA = \frac{\text{Sales}}{\text{Total Assets}}$

In its initial test, the Altman Z-Score was found to be 72% accurate in predicting bankruptcy two years prior to the event, with a Type II error (false positives) of 6% (Altman, 1968). In a series of subsequent tests covering three different time periods over the next 31 years (up until 1999), the model was found to be approximately 80-90% accurate in predicting bankruptcy one year prior to the event, with a Type II error (classifying the firm as bankrupt when it does not go bankrupt) of approximately 15-20% (Altman, 2000).

3.2. The Investigation of Financial Ratio of the Two Telecommunication Company

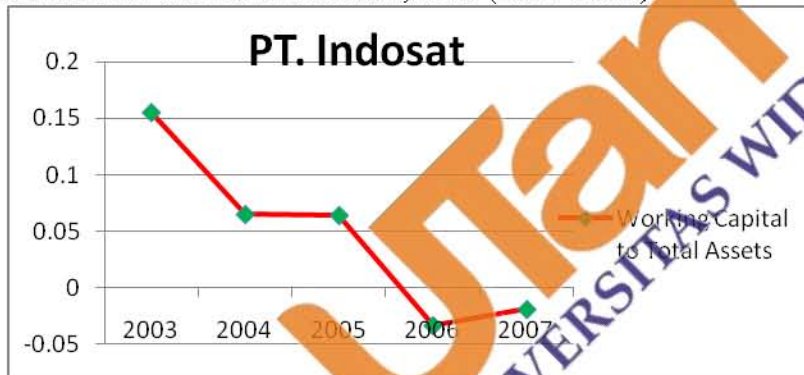
3.2.1. Working Capital to Total Assets (WCTA)

Table 3.2. *WCTA* PT Telkom, Tbk and PT. Indosat, Tbk (2003–2007)

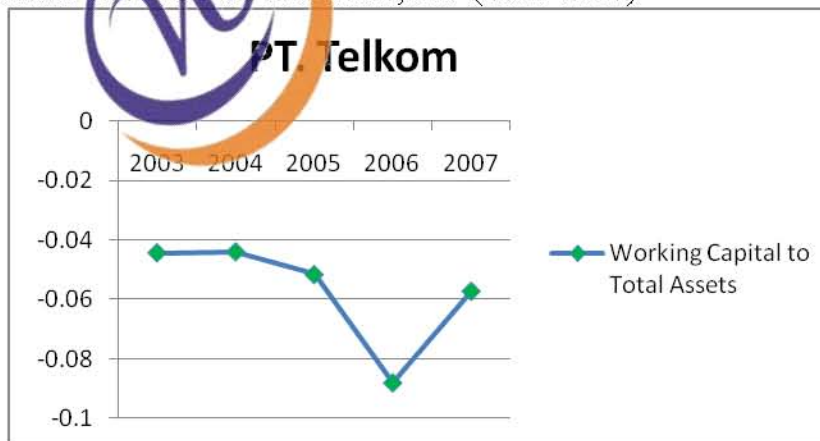
No	Company	2003	2004	2005	2006	2007	average
1	PT. Indosat, Tbk	0.155	0.065	0.064	-0.033	-0.019	0.046
2	PT. Telkom, Tbk	-0.044	-0.044	-0.052	-0.088	-0.057	-0.057
Total		0.111	0.021	0.012	-0.121	-0.076	
Average		0.055	0.010	0.006	-0.061	-0.038	
Maximum		0.155	0.065	0.064	-0.033	-0.019	
Minimum		-0.044	-0.044	-0.052	-0.088	-0.057	

The data showed that on average the ability of both companies to meet short term liabilities is decreasing. There is the possibility that the two companies not able to meet current liabilities with its current asset. Both companies facing the problem of working capital. The condition can be observed from the picture 3.1 and 3.2

Picture 3.1. *WCTA* PT. Indosat, Tbk (2003–2007)



Picture 3.2. *WCTA* PT. Telkom, Tbk (2003–2007)



3.2.2. Retained Earnings to Total Assets (RETTA)

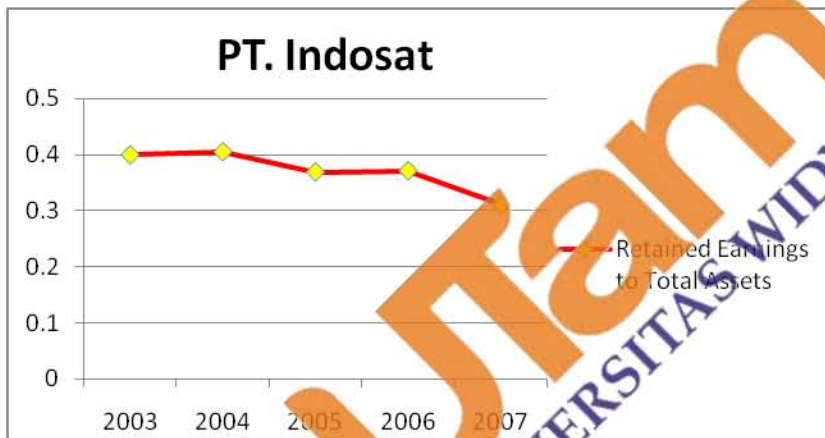
Table 3.3. RETTA PT Indosat, Tbk and PT Telkom, Tbk (2003–2007)

No	Company	2003	2004	2005	2006	2007	average
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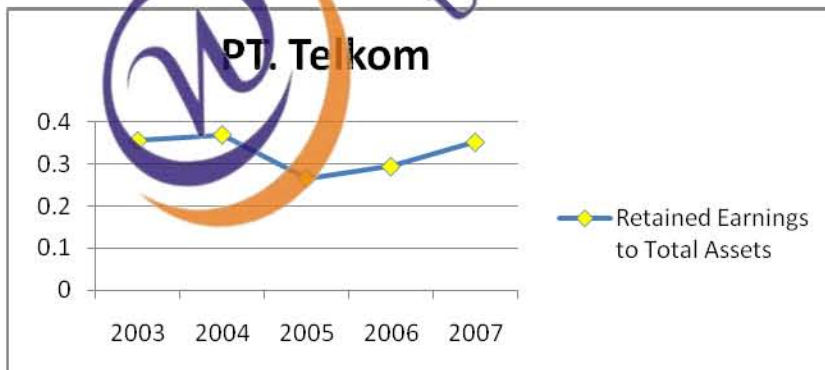
1	PT. Indosat	0.400	0.405	0.369	0.371	0.310	0.371
2	PT. Telkom	0.356	0.370	0.265	0.294	0.352	0.327
Total		0.755	0.775	0.634	0.665	0.662	
Average		0.378	0.388	0.317	0.333	0.331	
Maximum		0.400	0.405	0.369	0.371	0.352	
Minimum		0.356	0.370	0.265	0.294	0.310	

The data showed that during 2003-2007 PT. Indosat, Tbk decreasing its ability to accumulate profit meanwhile PT. Telkom experience the same problem until 2005 after that it increase until 2007. The condition can be observed from the picture 3.3 and 3.4

Picture 3.3. RETTA PT. Indosat, Tbk (2003–2007)



Picture 3.4. RETTA PT. Telkom, Tbk (2003–2007)



3.2.3. Earnings before Interest and Taxes to Total Assets (EBITTA)

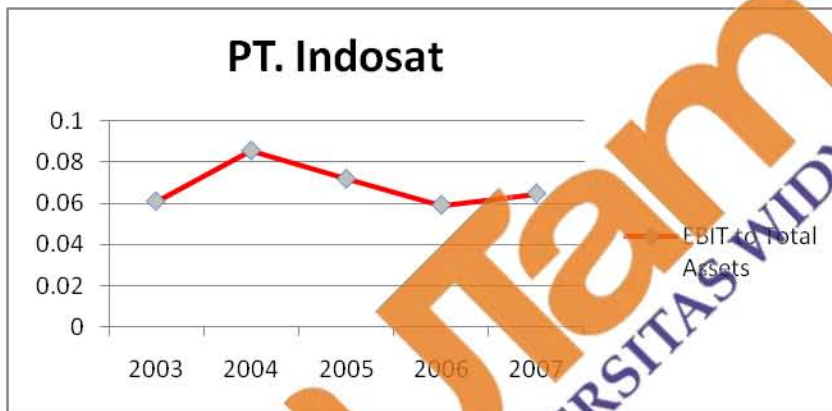
Table 3.4. EBITTA PT. Indosat, Tbk and PT. Telkom, Tbk (2003–2007)

No	Company	2003	2004	2005	2006	2007	Average
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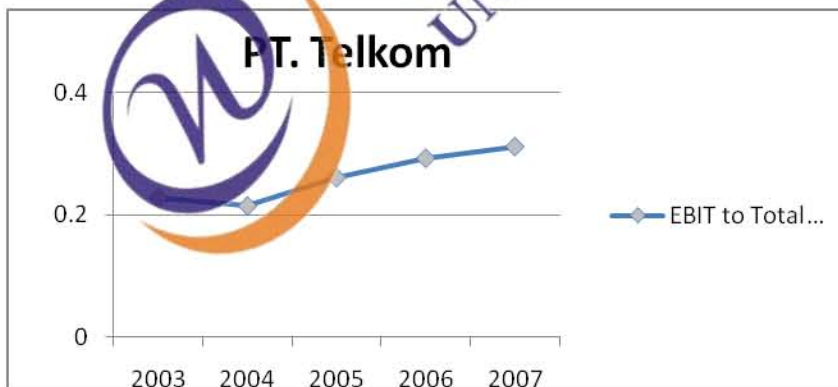
1	PT. Indosat, Tbk	0.061	0.085	0.072	0.059	0.065	0.068
2	PT. Telkom, Tbk	0.228	0.215	0.261	0.293	0.312	0.262
Total		0.289	0.300	0.333	0.352	0.377	
Average		0.144	0.150	0.166	0.176	0.188	
Maximum		0.228	0.215	0.261	0.293	0.312	
Minimum		0.061	0.085	0.072	0.059	0.065	

The data showed that there are fluctuation in PT. Indosat, Tbk ability to create profit meanwhile PT. Telkom, Tbk increasing their profit from 2003 to 2007. The condition can be observed from following pictures.

Picture 3.5. EBITTA PT. Indosat, Tbk (2003–2007)



Picture 3.6. EBITTA PT. Telkom, Tbk (2003–2007)



3.2.4. Market Value of Equity to Book Value Total Liabilities (MVOE to BVTL)

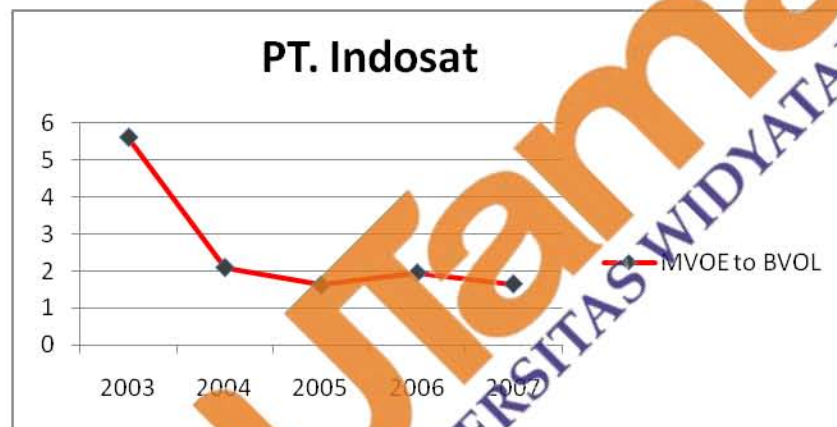
Table 3.5. MVOE to BVOL PT. Indosat, Tbk and PT. Telkom, Tbk 2003–2007

No	Company	2003	2004	2005	2006	2007	average
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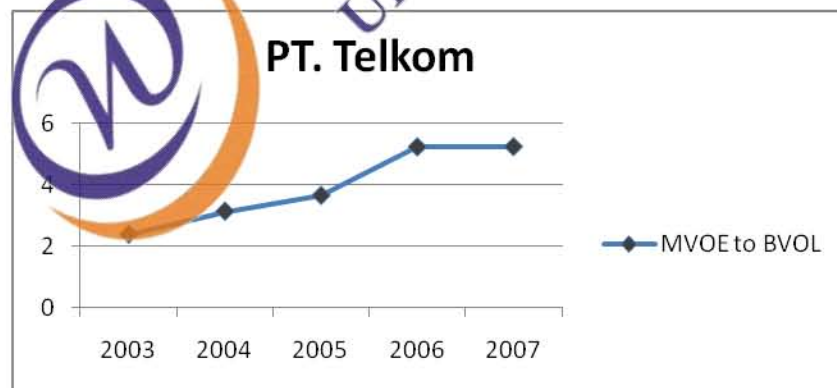
1	PT. Indosat, Tbk	5.598	2.093	1.625	1.948	1.651	2.583
2	PT. Telkom, Tbk	2.377	3.131	3.652	5.237	5.246	3.928
Total		7.975	5.223	5.276	7.185	6.897	
Average		3.988	2.612	2.638	3.593	3.449	
Maximum		5.598	3.131	3.652	5.237	5.246	
Minimum		2.377	2.093	1.625	1.948	1.651	

The data showed that there are decreasing ability of PT. Indosat, Tbk to meet its liabilities on the contrary PT. Telkom, Tbk increase its ability to meet the obligation. The condition can be observed from following pictures:

Picture 3.7. *MVOE to BVOL* PT. Indosat, Tbk (2003–2007)



Picture 3.8. *MVOE to BVOL* PT. Telkom, Tbk (2003–2007)



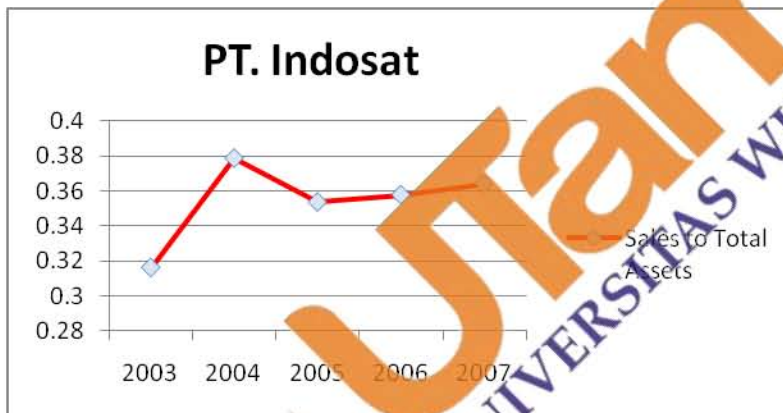
3.2.5. Sales to Total Assets (SATTA).

Table 3.6. *Sales to Total Asset* PT Indosat, Tbk and PT Telkom (2003–2007)

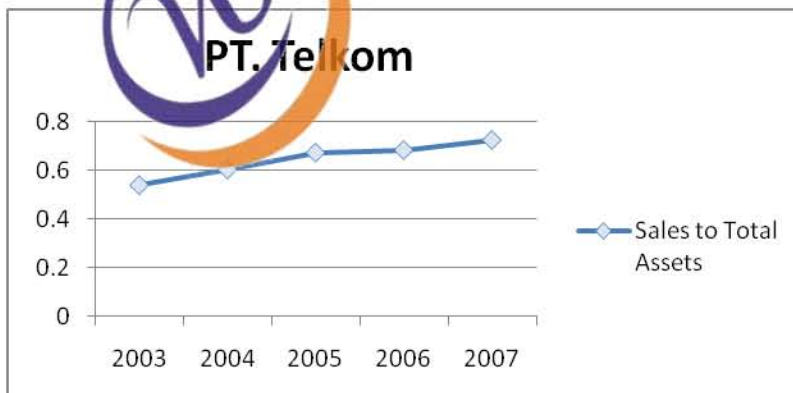
No	Company	2003	2004	2005	2006	2007	Average
1	PT. Indosat, Tbk	0.316	0.378	0.353	0.358	0.364	0.354
2	PT. Telkom, Tbk	0.539	0.603	0.672	0.683	0.724	0.644
Total		0.855	0.982	1.026	1.040	1.088	
Average		0.428	0.491	0.513	0.520	0.544	
Maximum		0.539	0.603	0.672	0.683	0.724	
Minimum		0.316	0.378	0.353	0.358	0.364	

There are fluctuation in the ability of PT.Indosat, Tbk to create sales from its asset, the highest sales was in 2004 meanwhile there are increasing trend in the ability of PT. Telkom, Tbk to create sales. This achievement showed the efficiency in utilizing its asset to create sales. The following pictures showed the condition:

Picture 3.9. *Sales to Total Assets* PT. Indosat, Tbk (2003–2007)



Picture 3.10. *Sales to Total Assets* PT. Telkom, Tbk (2003–2007)



3.3. Analysis of Potential bankruptcy by Altman Z' Score

Table 3.7. Altman Z'-Score and predicted bankruptcy in PT. Indosat, Tbk and PT Telkom , Tbk 2003-2007

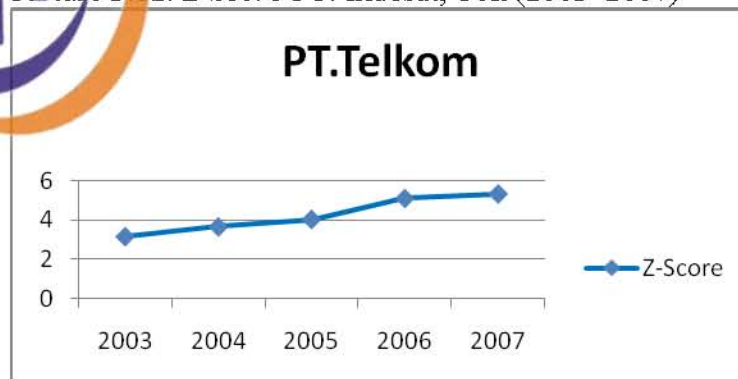
No	Company	2003		2004		2005		2006		2007		Mean
		Z-Score	Prediction	Z-Score	Prediction	Z-Score	Prediction	Z-Score	Prediction	Z-Score	Prediction	
1	PT. Indosat	4.62	Safe/Healthy	2.56	Grey Area	2.15	Grey Area	2.20	Grey Area	1.97	Grey Area	2.705
2	PT. Telkom	3.16	Safe/Healthy	3.65	Safe/Healthy	4.03	Safe/Healthy	5.09	Safe/Healthy	5.32	Safe/Healthy	4.255
Maximum		4.62		3.65		4.03		5.09		5.32		
Minimum		2		1		4		7		6		
Mean		3.89		3.10		3.09		3.64		3.65		

During the period of investigation, PT. Indosat, Tbk decreasing its Altman Z-Score and the prediction said it is on the *grey area* which means that it facing financial problem that should be manage immediately. The Altman Z'-Score for PT. Telkom showed that this company is in a healthy financial condition. The following pictures showed the condition:

Picture 3.11. Z-Score PT. Indosat, Tbk (2003-2007)



Picture 3.12. Z-Score PT. Telkom (2003-2007)



4. Concluding Remarks

The research analyse the financial condition of the two telecommunication companies using the five financial ratio which are *Working Capital to Total Assets*, *Retained Earnings to Total Assets*, *EBIT to Total Assets*, *Market Value of Equity to Book Value of Liabilities* and *Sales to Total Assets*. The investigation showed that during investigation period PT. Indosat, Tbk facing a decrease on its financial ratio meanwhile on average the financial ratio PT. Telkom, Tbk is increasing.

The calculation of Altman Z'-Score showed that during period of investigation PT. Indosat, Tbk has coefficient 2.705 which means it is in the grey area meanwhile PT. Telkom, Tbk is in a safe zone or healthy financial condition.

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