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BANKRUPTCY ANALYSIS USING ALTMAN Z SCORE MODEL IN MANUFACTURING COMPANY AT INDONESIA STOCK EXCHANGE IN 2013-2014

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Abstract; Analysis of financial distress is very important, because it enables to assess an indication of the company's financial distress, how the indication of financial distress using Altman z-score in industry manufacturing sector in 2013-2014, and whether the Altman z-score model can be used as a tool in predicting the tendency of financial distress. The purpose of this study is to analyze the financial distress of 125 manufacturing companies with different sectors and subsectors using Altman Z-Score model in 2013 and 2014. The source of data used was secondary data, such as financial statements of manufacturing companies' publication issued by BEI and obtained from the internet by downloading through the website: www.idx.com. This study employed descriptive quantitative method. The findings of the Z-Score index on manufacturing companies in 2013 were occupied by PT. Intan Wijaya International Tbk. in chemical subsector, and in 2014 Herbal and Pharmaceutical Industry of PT Sido Muncul Tbk. was the first highest rank and healthy condition. Whereas the lowest rank was PT. Asia Pacific Fiber Tbk. in textile and garment sub-sector in 2013 and 2014, having financial distress condition. The findings of this study are not consistent or even in accordance with the reality which shows that the Altman method cannot be used as a tool to indicate a tendency towards company's financial distress.

Abstrak; Analisis kebangkrutan sangat penting, karena dapat menilai indikasi kesulitan keuangan perusahaan, bagaimana indikasi kesulitan keuangan menggunakan Altman z - score di industri sektor manufaktur pada tahun 2013-2014, dan apakah model Altman z - score dapat digunakan sebagai alat dalam memprediksi kecenderungan kesulitan keuangan. Tujuan dari penelitian ini adalah untuk menganalisis kebangkrutan perusahaan manufaktur sebanyak 125 perusahaan dengan sektor dan subsektor yang berbeda dengan menggunakan model ALTMAN Z-Score pada tahun 2013 dan 2014. Sumber data yang digunakan adalah data sekunder yakni berupa data Laporan Keuangan Publikasi Perusahaan Manufaktur yang diterbitkan Bursa Efek Indonesia dan diperoleh dari media internet dengan mendownload melalui website: www.idx.com. Penelitian ini menggunakan metode deskriptif kuantitatif. Hasil index Z-Score pada perusahaan manufaktur tahun 2013 diduduki oleh PT. Intan Wijaya Internasional Tbk pada subsector kimia dan PT. Industri Jamu & Farmasi Sido Muncul Tbk pada subsektor farmasi tahun 2014 dengan peringkat pertama tertinggi dengan kondisi sehat, sedangkan yang menduduki peringkat paling terakhir dan terendah di perusahaan manufaktur BEI adalah PT. Asia Pacific Fiber Tbk pada subsektor tekstil & garmen pada tahun 2013 dan 2014 dengan kondisi bangkrut. Serta hasil penelitian ini tidak konsisten/ sesuai dengan kenyataan sebenarnya yang menunjukkan bahwa metode altman tidak dapat dijadikan alat untuk mengindikasikan kecendrungan terhadap kebangkrutan.

INTRODUCTION

Company's bankruptcy is a phenomenon that commonly occurs in the business's world that is influenced by internal or external factor. For example, there is an increase in raw material cost, wage cost, or other costs without being offset by company's ability, or competitor's product's existence that is superior which consequently affects the sales and manager's incapability to manage a company. This particular problem will directly affect company's performance reduction which leads into bankruptcy.

To anticipate the possibility of bankruptcy a company must have early preparation to prevent unexpected things happen. A company is expected to have an access on company's ongoing situation to obtain a better picture from company's current situation, thus it will lead to a right decision to keep a company stay alive and stay compete in business.

One of bankruptcy models proven to give many benefits is the Z-Score model. This model is developed by Edward I Altman, a financial economist. This model is a discriminant multiple statistical techniques that combine several variables effect. It is a financial analysis which has been widely used in the USA. In the study, Altman took a sample of 66 companies which half of it has gone bankrupt. Based on Multiple Discriminant Analysis model, fifth financial ratio's coefficient is determined later. The addition and multiplication between the coefficient and financial ratio create multivariate score. Altman, mentioned this multivariate score as Z-Score.

Research on Altman Z-Score method in Indonesia, is conducted by Usman (2013). The result shows that in 2013 as many as 54.5 % company are healthy, 9.1 % is gray area and 36.4 % is in bankrupt. PT Malindo Feedmill Tbk, PT Gudang Garam Tbk, PT Hanjaya Mandala Sampoerna Tbk, PT Multi Bintang Indonesia Tbk, and PT Delta Djakarta Tbk are predicted as healthy company. Further research by Silaban (2014) on bankruptcy analysis uses Altman Z-Score Model, a case study in Perusahaan Telekomunikasi. The analysis shows that between 2010-2012 company's health is not in a good position. If a company is in gray area in 2010, it means that it decreases in the next year, therefore, the company will be bankrupt in 2012. Telkom is in healthy zone and increasing every year, meanwhile, Indosat is in unhealthy zone by z-score that always increases every year. Next study by Jaya (2014) on financial report as bankruptcy prediction uses Altman model. The result of the above study indicates that Altman model can be used as a tool to predict company's bankruptcy.

Some studies use sampling from manufacture industry because the growth rate only reaches 6,2% in 2013. Various problems occur from laborer to energy that inhibits manufacturer's growth. One of the problems is provincial minimum wage increases in some areas that reach 40% to make industrial expense increases, especially for a labor-intensive industry that use a lot of manpower to operate. Other problem such as electricity tariff increases along with the rise in gas price increases. With this uncertain situation and condition experienced by manufacturing industry, it becomes heavy to grow thus the industry must adapt to the pressure. Meanwhile, sluggish infrastructure developments do not only make the industry's growth trimmed but also make the high cost of economy and logistic.(http://www.kemenperin.go.id/)

The bankruptcy analysis is very important because it indicates the company's bankruptcy, whether it is threatened by bankruptcy or not. When a company's file for bankruptcy, there are lots of harmed parties such as manager, investor, creditor, and even the employees. Based on the problems above, the researcher considers conducting a study on how is bankruptcy's indication uses Altman Z-Score model in manufacture industry in 2013 and 2014; whether Altman Z-Score Model can be used as a tool to predict company's bankruptcy trend. This study is conducted by analyzing bankruptcy using Altman Z-Score Model in manufacture industry listed at Indonesia Stock Exchange in 2013-2014.

The study's research problem is: Is the Altman Z-Score model can be used as a tool to predict company's bankruptcy trend? While the objective of the study is whether Altman Z-Score Model can be used as a tool in predicting company's bankruptcy trend.

RESEARCH METHOD

Research Population

The population used in this study was the company engaged in sector that listed at Indonesia Stock Exchange (BEI) in the 2013-2014 period as many as 139 companies.

Research Sampling

Sampling technique used in the study was purposive sampling, that was a carefully selected sample relevant to research design and was expected to represent each of the population characteristics, by the following criteria:

1. The company was included in Indonesia's manufacturing industry.
2. Manufacturing Company has published a complete financial report that available during period of study, 2013 and 2014.
3. The Manufacturing Company was not in a state of merger or liquidation.

Sampling used in this study was 125 manufacturing companies listed at Indonesia Stock Exchange (BEI), 14 of them were not used as the sample because of incomplete financial report, such as: WTON, ISSP, ETWA, SOBI, AKPI, SIPD, MYTX, IKBI, VOKS, AISA, ALTO, UNVR, CINT, KDSI.

Research Variable

This study used 2 variables, namely dependent variable and independent variable. A dependent variable was company's bankruptcy status while an independent variable was Liquidity (X1), Profitability in certain period (X2), Profitability (X3), Financial Structure (X4), and a Capital Turnover (X4):

Research Model

Z-Score calculation was started by calculating used variables then entered those variable score into Z-Score to obtain Z score. The variable consisted of Liquidity Ratio (X1), Age of Firm and Cumulative Profitability Ratio (X2), Profitability Ratio (X3), Financial Structure Ratio (X4), and Capital Turnover Ratio (X5)

Z-Score can be calculated using:

Z-Score = 0,717X1 + 0,847X2 + 3,107X3 + 0,420X4 + 0,998X5

In which:

X1 = (Current Asset - Current Liabilities) / Total Asset
X2 = Retained Earning / Total Asset
X3 = EBIT / Total Asset
X4 = Market Value Equity / book value of Total Debt
X5 = Sales / Total Asset

Z-Score	**Indication**
< 1.81	Bankrupt
1.81 – 2.99	
> 2.99	Gray Area / zone of ignorance
Not Bankrupt	

Data Collection

This study used quantitative data. The data was secondary data, in the form of Publication Financial Statement Manufacturing Company data published at Indonesia Stock Exchange and website: www.idx.com.

The literature review was collected from any sources such as theses, journals, articles, newspapers, books, etc. The researcher collected, studied and noted the necessary data that gathered from various sources in STEI's library or other library.
The technique used in collecting the data was literature research (Library research). As well as observation in directly observing research object to get the real situation of the object obtained. Through this field research (field research) the researcher wanted to know the consistency test, thus the researcher would obtain a relevant and accurate data.

Data Analysis Method

The method of analysis used by researcher to process the data was using Altman Z-Score method and level of conformity test with the actual reality.

The stage that was used in this study to determine financial condition using Altman Z-Score were:

1. Calculating financial ratio
2. Conducting a calculation with discriminant analysis found by Altman through following formula:
   Z-Score = 0,717X1 + 0,847X2 + 3,107X3 + 0,420X4 + 0,998X5
3. Conducting an interpretation of processed Z-Score result calculation. This was certainly with the limit that has been determined,
   Z-Score Indication
   < 1.81 Bankrupt
   1.81 – 2.99
   > 2.99 Gray Area / zone of ignorance
   Not Bankrupt
4. Arranged a ranking index/ranking based on z-score.

In this study, the researcher used historical analysis to determine conformity level with actual reality.

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Z-Score	Indication
< 1.81	Bankrupt
1.81 – 2.99	*Gray Area / zone of ignorance*
> 2.99	Not Bankrupt

4. Arranged a ranking index/ranking based on z-score.

In this study, the researcher used historical analysis to determine conformity level with actual reality.

FINDINGS AND DISCUSSION

Altman Z-Score Model Analysis

Altman score calculation is presented in Table 1 below.

Table 1.
Company Rating Index Result in 2013

Code	Z-Score	Ranking
INCI	5.2488	1
MLBI	5.2049	2
HMSP	5.0123	3
ALKA	4.7677	4
DLTA	4.7268	5
JPRS	4.0087	6
SIDO	3.9675	7
KIAS	3.8184	8
DPNS	3.5497	9

Source: Data analysis result

In Table 1, a company with INCI code is PT. Intan Wijaya Internasional Tbk in chemical subsector that has 5,2488 *z*-score. The company has an indication higher than 2,99 so that it is on healthy condition and the first rank of manufacturing company in 2013. Next, the company with SQBB code is PT. Taisho Pharmaceutical Indonesia Tbk in pharmacy subsector that has 3,0478 *z*-score by an indication is higher than 2,99. Consequently, the company is in health condition and ranked 19th in manufacturing company in 2013.

Table 2.
Company Rating Index Result in 2014

Code	Z-Score	Ranking
SIDO	5.3240	1
ALKA	5.3204	2
INCI	5.1253	3
SIAP	5.0890	4
HMSP	4.5178	5
DLTA	4.4395	6
KIAS	4.2866	7
IGAR	3.7644	8
JPRS	3.7240	9
CEKA	3.6981	10
SMBR	3.5237	11
TBMS	3.3968	12
KICI	3.3446	13
KBLI	3.3319	14
LMSH	3.2977	15
SKBM	3.2340	16
MERK	3.2219	17
SMSM	3.1994	18
TFCO	3.1983	19
SCCO	3.1818	20
SQBB	3.1069	21
KLBF	3.0989	22

Source: Data analysis result

In Table 2, a company with SIDO code is PT. Industri Jamu & Farmasi Sido Muncul Tbk in pharmacy subsector that has 5,3240 *z*-score by an indication is upper than 2,99. The result means that a company is in healthy position and ranked/highest rank in manufacturing company at Indonesia Stock Exchange(BEI) in 2014. Next, the company with KLBF code is PT. Kalbe Farma Tbk in pharmaceutical subsector that has 3,0989 *z*-score by an indication is upper than 2,99 which is ranked 22nd in manufacturing company at Indonesia Stock Exchange (BEI) in 2014.

Table 3.
2013 Gray Area indication ranking index

Code	Z-Score	Ranking
GDST	2.9706	1
KBRI	2.9001	2
KICI	2.8959	3
KLBF	2.8859	4
SMSM	2.8738	5
SCCO	2.8641	6
GDYR	2.8344	7
KAEF	2.8123	8
ARNA	2.7721	9
TCID	2.7630	10
MAIN	2.6945	11
SRSN	2.6764	12
ULTJ	2.6647	13
PSDN	2.6584	14
TSPC	2.6468	15
INTP	2.6431	16
DVLA	2.6241	17
LION	2.6035	18
TFCO	2.5993	19
TRIS	2.5941	20
UNIC	2.5723	21
EKAD	2.4611	22
WIIM	2.4523	23
BTON	2.3757	24
SKLT	2.3597	25
TOTO	2.2959	26
BATA	2.2955	27
AMFG	2.2934	28
MYOR	2.2711	29
ADES	2.1853	30
PBRX	2.1592	31
CTBN	2.1495	32
GGRM	2.1481	33
SMGR	2.1367	34
JPFA	2.0351	35
ALDO	1.9958	36
MRAT	1.9838	27
FPNI	1.9585	28
INDS	1.9487	29
APLI	1.9283	40
MBTO	1.9242	41
ICBP	1.9210	42
KBLM	1.9079	43
STTP	1.8777	44
SRIL	1.8466	45

Source: Data analysis result

In Table 3, it is GDST code, that is PT. Gunawan Dianjaya Steel Tbk in metal subsector that has 2,9706 z-score by an indication of 1,81 - 2,99. The result means that a company is in *gray area* and ranked the highest in manufacturing company at Indonesia Stock Exchange (BEI) in 2013. Further, PT Sri Rejeki Isman Tbk with SRIL code in textile & garment subsector that has 1, 8466 z-score by an indication is 1,81 - 2,99. The results indicates that a company is ranked on 45th in manufacturing company in 2013.

Table 4.
2014 *Gray Area* indication ranking index

Code	Z-Score	Ranking
APLI	2.8984	1
ARNA	2.8981	2
ULTJ	2.8666	3
MLBI	2.7971	4
KAEF	2.6743	5
PTSN	2.6612	6
TSPC	2.6492	7
SKLT	2.6446	8
UNIC	2.6239	9
DPNS	2.5935	10
EKAD	2.5865	11
FPNI	2.5765	12
INTP	2.5326	13
SRSN	2.4899	14
AMFG	2.4800	15
DVLA	2.4378	16
BATA	2.3253	17
TCID	2.3199	18
TOTO	2.3149	19
WIIM	2.2927	20
TRIS	2.2797	21
CPIN	2.2734	22
GDYR	2.2272	23
GGRM	2.1585	24
SMGR	2.1203	25
ICBP	2.1166	26
MYOR	2.0937	27
STTP	2.0853	28
LION	2.0637	29
INDS	2.0280	30
BTON	2.0263	31
JPFA	2.0118	32
PSDN	2.0095	33
IMPC	2.0068	34
PYFA	1.9750	35
ALDO	1.9571	36
MBTO	1.9396	37
MRAT	1.9268	38
KBLM	1.9117	39
ADES	1.8977	40
CTBN	1.8696	41

Source: Data analysis result

Table 4 shows that a company with APLI code is PT. Asiaplast Industries Tbk in plastic subsector & packaging that has 2,8984 z-score by an indication of 1,81 - 2,99. Consequently, the company is in *gray area* and ranked the first in manufacturing company at Indonesia Stock Exchange (BEI) in 2014. Further, the company with CTBN code is PT. Citra Tubindo Tbk in metal subsector that has 1,8696 z-score by an indication of 1,81 - 2,99. The company is in *gray area*, ranked 41st in manufacturing company at Indonesia Stock Exchange (BEI) in 2014.

Table 5.
2013 Bankrupt Indication Ranking Index Result

Code	Z-Score	Ranking	Code	Z-Score	Ranking
PYFA	1.8020	1	LPIN	1.0313	32
BRAM	1.7772	2	SIAP	1.0263	33
IMPC	1.7567	3	RMBA	0.9974	34
TPIA	1.7238	4	YPAS	0.9937	35
SMBR	1.7212	5	FASW	0.9312	36
ASII	1.6694	6	BRNA	0.9301	37
NIKL	1.6478	7	MASA	0.9109	38
AUTO	1.6289	8	SSTM	0.8759	39
ADMG	1.6148	9	TKIM	0.8661	40
PICO	1.5742	10	BAJA	0.8201	41
NIPS	1.5197	11	SCPI	0.7763	42
ROTI	1.4788	12	LMPI	0.7710	43
ERTX	1.4296	13	INKP	0.7616	44
RICY	1.3824	14	JKSW	0.5916	45
INDR	1.3730	15	PRAS	0.5689	46
BUDI	1.3716	16	IKAI	0.5324	47
JECC	1.3686	17	ESTI	0.5159	48
BRPT	1.3637	18	CNTX	0.5006	49
STAR	1.3629	19	UNIT	0.2977	50
IPOL	1.3297	20	MLIA	0.1453	51
GJTL	1.3033	21	TIRT	0.0761	52
SMCB	1.2687	22	BIMA	0.0064	53
ALMI	1.2640	23	HDTX	(0,0516)	54
DAJK	1.2414	24	SIMA	(0,1671)	55
INDF	1.2123	25	ARGO	(0,1800)	56
INAF	1.1638	26	AKKU	(0,1932)	57
KRAS	1.1535	27	INRU	(0,4951)	58
IMAS	1.1149	28	UNTX	(0,9859)	59
SPMA	1.0937	29	SULI	(2,6519)	60
TRST	1.0856	30	POLY	(5,2665)	61
INAI	1.0510	31			

Source: Data analysis result

Table 5 shows that a company with PYFA is PT. Pyridam Farma Tbk in pharmacy sub sector that has 1,8020 z-score by an indication of < 1,81. The result means that a company is in bankrupt position and ranked/ highest ranked in manufacturing company at Indonesia Stock Exchange (BEI) in 2013. Further, the company with POLY code is PT. Asia Pacific Fibers Tbk in textile & garment sub sector that has (5,2665) z-score by an indication of < 1,81. The company is ranked in 61st in manufacturing company in 2013.

Table 6.
2014 Bankrupt Indication Ranking Index Result

Code	Z-Score	Ranking	Code	Z-Score	Ranking
TPIA	1.7036	1	STAR	1.2120	32
RICY	1.6999	2	TIRT	1.2115	33
PICO	1.6863	3	BUDI	1.2099	34
GDST	1.661	4	ALMI	1.1612	35
SRIL	1.6290	5	LMPI	1.1308	36
JECC	1.6248	6	KRAS	1.0439	37
ASII	1.5970	7	SMCB	1.0374	38
ROTI	1.5856	8	IMAS	0.9259	39
PBRX	1.5735	9	MASA	0.9066	40
YPAS	1.5703	10	MLIA	0.8954	41
AUTO	1.4785	11	SCPI	0.8349	42
ERTX	1.4645	12	TKIM	0.8175	43
ADMG	1.4601	13	SSTM	0.7918	44
INDF	1.4472	14	INKP	0.7650	45
BRAM	1.4353	15	LPIN	0.7104	46
INAF	1.4261	16	RMBA	0.6905	47
MAIN	1.4044	17	CNTX	0.6671	48
BRPT	1.3979	18	SIMA	0.5914	49
INDR	1.3650	19	JKSW	0.4602	50
TRST	1.3597	20	PRAS	0.4575	51
NIKL	1.3282	21	UNIT	0.3641	52
GJTL	1.3072	22	ESTI	0.2116	53
DAJK	1.3046	23	IKAI	0.1182	54
BRNA	1.3016	24	AKKU	(0,1055)	55
NIPS	1.2905	25	HDTX	(0,1851)	56
SPMA	1.2840	26	INRU	(0,3987)	57
BAJA	1.2765	27	KBRI	(0,7327)	58
INAI	1.2710	28	UNTX	(0,9026)	59
IPOL	1.2465	29	SULI	(0,9179)	60
BIMA	1.2357	30	ARGO	(1,3555)	61
FASW	1.2333	31	POLY	(8,0419)	62

Source: Data analysis result

In Table 6 a company with TPIA code is PT. Chandra Asri Petrochemical Tbk in pharmacy sub sector that has 1,7036 z-score by an indication of < 1,81. Consequently, the company is in bankrupt and ranked/first ranking in manufacturing company in 2014. Further, the company with POLI code is PT. Asia Pacific Fiber Tbk in textille & garment that has (8,0419) z-score by an indication < 1,81. Consequently, the company is in bankrupt and ranked/ranking 62nd or the lowest in manufacturing company in 2014.

Table 7.
Company Health Level Percentage

Indication	2013	2014
Healthy	15,2%	17,6%
Gray area	36%	32,8%
Bankrupt	48,8%	49,6%

Source: Data analysis result

Based on the researcher study on bankruptcy indication uses Altman Z-Score method in Table 4.7. indicates that in 2014 at Indonesia Stock Exchange (BEI) there are 125 manufacturing companies from various sector with the percentage of 49,6% is in bankrupt, 32,8% is in gray area, and 17,6% in healthy position. The healthy position is fewer than other, this means to be not good in manufacturing company at Indonesia Stock Exchange (BEI) in 2013 at Indonesia Stock Exchange there are 125 manufacturing companies from various sector with the percentage of percentage of 48,8% is in bankrupt and 36% is in *gray area* and 15,2% is in healthy position. The healthy position is fewer than the other; this means to be not good in manufacturing company at Indonesia Stock Exchange (BEI).

Conformity with Actual Reality Analysis

Table 8
Conformity with Actual Reality Tahun 2013 – First I

No	Code	2013 Z-Score	2014 bankrupt / no bankrupt	No	Code	2013 Z-Score	2014 bankrupt / no bankrupt
1	INCI	Healthy	not bankrupt	37	LION	gray area	not bankrupt
2	MLBI	Healthy	not bankrupt	38	TFCO	gray area	not bankrupt
3	HMSP	Healthy	not bankrupt	39	TRIS	gray area	not bankrupt
4	ALKA	Healthy	not bankrupt	40	UNIC	gray area	not bankrupt
5	DLTA	Healthy	not bankrupt	41	EKAD	gray area	not bankrupt
6	JPRS	Healthy	not bankrupt	42	WIIM	gray area	not bankrupt
7	SIDO	Healthy	not bankrupt	43	BTON	gray area	not bankrupt
8	KIAS	Healthy	not bankrupt	44	SKLT	gray area	not bankrupt
9	DPNS	Healthy	not bankrupt	45	TOTO	gray area	not bankrupt
10	TBMS	Healthy	not bankrupt	46	BATA	gray area	not bankrupt
11	SKBM	Healthy	not bankrupt	47	AMFG	gray area	not bankrupt
12	IGAR	Healthy	not bankrupt	48	MYOR	gray area	not bankrupt
13	LMSH	Healthy	not bankrupt	49	ADES	gray area	not bankrupt
14	PTSN	Healthy	not bankrupt	50	PBRX	gray area	not bankrupt
15	CEKA	Healthy	not bankrupt	51	CTBN	gray area	not bankrupt
16	CPIN	Healthy	not bankrupt	52	GGRM	gray area	not bankrupt
17	MERK	Healthy	not bankrupt	53	SMGR	gray area	not bankrupt
18	KBLI	Healthy	not bankrupt	54	JPFA	gray area	not bankrupt
19	SQBB	Healthy	not bankrupt	55	ALDO	gray area	not bankrupt
20	GDST	gray area	not bankrupt	56	MRAT	gray area	not bankrupt
21	KBRI	gray area	not bankrupt	57	FPNI	gray area	not bankrupt
22	KICI	gray area	not bankrupt	58	INDS	gray area	not bankrupt
23	KLBF	gray area	not bankrupt	59	APLI	gray area	not bankrupt
24	SMSM	gray area	not bankrupt	60	MBTO	gray area	not bankrupt
25	SCCO	gray area	not bankrupt	61	ICBP	gray area	not bankrupt
26	GDYR	gray area	not bankrupt	62	KBLM	gray area	not bankrupt
27	KAEF	gray area	not bankrupt	63	STTP	gray area	not bankrupt
28	ARNA	gray area	not bankrupt	64	SRIL	gray area	not bankrupt
29	TCID	gray area	not bankrupt	65	PYFA	bankrupt	not bankrupt
30	MAIN	gray area	not bankrupt	66	BRAM	bankrupt	not bankrupt
31	SRSN	gray area	not bankrupt	67	IMPC	bankrupt	not bankrupt
32	ULTJ	gray area	not bankrupt	68	TPIA	bankrupt	not bankrupt
33	PSDN	gray area	not bankrupt	69	SMBR	bankrupt	not bankrupt
34	TSPC	gray area	not bankrupt	70	ASII	bankrupt	not bankrupt
35	INTP	gray area	not bankrupt	71	NIKL	bankrupt	not bankrupt
36	DVLA	gray area	not bankrupt	72	AUTO	bankrupt	not bankrupt

Table 9
Conformity with Actual Reality 2013 – Part II

No	Code	2013 Z-Score	2014 bankrupt / no bankrupt	No	Code	2013 Z-Score	2014 bankrupt / no bankrupt
73	ADMG	bankrupt	not bankrupt	99	YPAS	bankrupt	not bankrupt
74	PICO	bankrupt	not bankrupt	100	FASW	bankrupt	not bankrupt
75	NIPS	bankrupt	not bankrupt	101	BRNA	bankrupt	not bankrupt
76	ROTI	bankrupt	not bankrupt	102	MASA	bankrupt	not bankrupt
77	ERTX	bankrupt	not bankrupt	103	SSTM	bankrupt	not bankrupt
78	RICY	bankrupt	not bankrupt	104	TKIM	bankrupt	not bankrupt
79	INDR	bankrupt	not bankrupt	105	BAJA	bankrupt	not bankrupt
80	BUDI	bankrupt	not bankrupt	106	SCPI	bankrupt	not bankrupt
81	JECC	bankrupt	not bankrupt	107	LMPI	bankrupt	not bankrupt
82	BRPT	bankrupt	not bankrupt	108	INKP	bankrupt	not bankrupt
83	STAR	bankrupt	not bankrupt	109	JKSW	bankrupt	not bankrupt
84	IPOL	bankrupt	not bankrupt	110	PRAS	bankrupt	not bankrupt
85	GJTL	bankrupt	not bankrupt	111	IKAI	bankrupt	not bankrupt
86	SMCB	bankrupt	not bankrupt	112	ESTI	bankrupt	not bankrupt
87	ALMI	bankrupt	not bankrupt	113	CNTX	bankrupt	not bankrupt
88	DAJK	bankrupt	not bankrupt	114	UNIT	bankrupt	not bankrupt
89	INDF	bankrupt	not bankrupt	115	MLIA	bankrupt	not bankrupt
90	INAF	bankrupt	not bankrupt	116	TIRT	bankrupt	not bankrupt
91	KRAS	bankrupt	not bankrupt	117	BIMA	bankrupt	not bankrupt
92	IMAS	bankrupt	not bankrupt	118	HDTX	bankrupt	not bankrupt
93	SPMA	bankrupt	not bankrupt	119	SIMA	bankrupt	not bankrupt
94	TRST	bankrupt	not bankrupt	120	ARGO	bankrupt	not bankrupt
95	INAI	bankrupt	not bankrupt	121	AKKU	bankrupt	not bankrupt
96	LPIN	bankrupt	not bankrupt	122	INRU	bankrupt	not bankrupt
97	SIAP	bankrupt	not bankrupt	123	UNTX	bankrupt	not bankrupt
98	RMBA	bankrupt	not bankrupt	124	SULI	bankrupt	not bankrupt

Source: Data analysis result

Table 10
Conformity with Actual Reality Tahun 2014 – Part I

No	Code	2014 Z-Score	2015 bankrupt / no bankrupt	No	Code	2014 Z-Score	2015 bankrupt / no bankrupt
1	SIDO	Healthy	not bankrupt	19	TFCO	Healthy	not bankrupt
2	ALKA	Healthy	not bankrupt	20	SCCO	Healthy	not bankrupt
3	INCI	Healthy	not bankrupt	21	SQBB	Healthy	not bankrupt
4	SIAP	Healthy	not bankrupt	22	KLBF	Healthy	not bankrupt
5	HMSP	Healthy	not bankrupt	23	APLI	gray area	not bankrupt
6	DLTA	Healthy	not bankrupt	24	ARNA	gray area	not bankrupt
7	KIAS	Healthy	not bankrupt	25	ULTJ	gray area	not bankrupt
8	IGAR	Healthy	not bankrupt	26	MLBI	gray area	not bankrupt
9	JPRS	Healthy	not bankrupt	27	KAEF	gray area	not bankrupt
10	CEKA	Healthy	not bankrupt	28	PTSN	gray area	not bankrupt
11	SMBR	Healthy	not bankrupt	29	TSPC	gray area	not bankrupt
12	TBMS	Healthy	not bankrupt	30	SKLT	gray area	not bankrupt
13	KICI	Healthy	not bankrupt	31	UNIC	gray area	not bankrupt
14	KBLI	Healthy	not bankrupt	32	DPNS	gray area	not bankrupt
15	LMSH	Healthy	not bankrupt	33	EKAD	gray area	not bankrupt
16	SKBM	Healthy	not bankrupt	34	FPNI	gray area	not bankrupt
17	MERK	Healthy	not bankrupt	35	INTP	gray area	not bankrupt
18	SMSM	Healthy	not bankrupt	36	SRSN	gray area	not bankrupt

Table 11
Conformity with Actual Reality 2014 – Part II

No	Code	2014 Z-Score	2015 bankrupt / no bankrupt	No	Code	2014 Z-Score	2015 bankrupt / no bankrupt
37	AMFG	gray area	not bankrupt	83	TRST	bankrupt	not bankrupt
38	DVLA	gray area	not bankrupt	84	NIKL	bankrupt	not bankrupt
39	BATA	gray area	not bankrupt	85	GJTL	bankrupt	not bankrupt
40	TCID	gray area	not bankrupt	86	DAJK	bankrupt	not bankrupt
41	TOTO	gray area	not bankrupt	87	BRNA	bankrupt	not bankrupt
42	WIIM	gray area	not bankrupt	88	NIPS	bankrupt	not bankrupt
43	TRIS	gray area	not bankrupt	89	SPMA	bankrupt	not bankrupt
44	CPIN	gray area	not bankrupt	90	BAJA	bankrupt	not bankrupt
45	GDYR	gray area	not bankrupt	91	INAI	bankrupt	not bankrupt
46	GGRM	gray area	not bankrupt	92	IPOL	bankrupt	not bankrupt
47	SMGR	gray area	not bankrupt	93	BIMA	bankrupt	not bankrupt
48	ICBP	gray area	not bankrupt	94	FASW	bankrupt	not bankrupt
49	MYOR	gray area	not bankrupt	95	STAR	bankrupt	not bankrupt
50	STTP	gray area	not bankrupt	96	TIRT	bankrupt	not bankrupt
51	LION	gray area	not bankrupt	97	BUDI	bankrupt	not bankrupt
52	INDS	gray area	not bankrupt	98	ALMI	bankrupt	not bankrupt
53	BTON	gray area	not bankrupt	99	LMPI	bankrupt	not bankrupt
54	JPFA	gray area	not bankrupt	100	KRAS	bankrupt	not bankrupt
55	PSDN	gray area	not bankrupt	101	SMCB	bankrupt	not bankrupt
56	IMPC	gray area	not bankrupt	102	IMAS	bankrupt	not bankrupt
57	PYFA	gray area	not bankrupt	103	MASA	bankrupt	not bankrupt
58	ALDO	gray area	not bankrupt	104	MLIA	bankrupt	not bankrupt
59	MBTO	gray area	not bankrupt	105	SCPI	bankrupt	not bankrupt
60	MRAT	gray area	not bankrupt	106	TKIM	bankrupt	not bankrupt
61	KBLM	gray area	not bankrupt	107	SSTM	bankrupt	not bankrupt
62	ADES	gray area	not bankrupt	108	INKP	bankrupt	not bankrupt
63	CTBN	gray area	not bankrupt	109	LPIN	bankrupt	not bankrupt
64	TPIA	bankrupt	not bankrupt	110	RMBA	bankrupt	not bankrupt
65	RICY	bankrupt	not bankrupt	111	CNTX	bankrupt	not bankrupt
66	PICO	bankrupt	not bankrupt	112	SIMA	bankrupt	not bankrupt
67	GDST	bankrupt	not bankrupt	113	JKSW	bankrupt	not bankrupt
68	SRIL	bankrupt	not bankrupt	114	PRAS	bankrupt	not bankrupt
69	JECC	bankrupt	not bankrupt	115	UNIT	bankrupt	not bankrupt
70	ASII	bankrupt	not bankrupt	116	ESTI	bankrupt	not bankrupt
71	ROTI	bankrupt	not bankrupt	117	IKAI	bankrupt	not bankrupt
72	PBRX	bankrupt	not bankrupt	118	AKKU	bankrupt	not bankrupt
73	YPAS	bankrupt	not bankrupt	119	HDTX	bankrupt	not bankrupt
74	AUTO	bankrupt	not bankrupt	120	INRU	bankrupt	not bankrupt
75	ERTX	bankrupt	not bankrupt	121	KBRI	bankrupt	not bankrupt
76	ADMG	bankrupt	not bankrupt	122	UNTX	bankrupt	not bankrupt
77	INDF	bankrupt	not bankrupt	123	SULI	bankrupt	not bankrupt
78	BRAM	bankrupt	not bankrupt	124	ARGO	bankrupt	not bankrupt
79	INAF	bankrupt	not bankrupt	125	POLY	bankrupt	not bankrupt
80	MAIN	bankrupt	not bankrupt				
81	BRPT	bankrupt	not bankrupt				
82	INDR	bankrupt	not bankrupt				

Source: Data analysis result

In Table 8 to Table 11, it is showed that company's operation is still running normally in the further year and a company is said running in good condition after observed by the researcher. The results show that there is no conformity between index result and actual reality. Therefore, Altman z-score model index result cannot be used to predict company's bankruptcy, particularly in manufacturing industry listed in Indonesia stock exchange (IDX).

CONCLUSION

Conclusion

1. Manufacturing company's Z-Score index result in 2013 was occupied by PT. Intan Wijaya Internasional Tbk in pharmacy sub sector that ranked in the first place with a healthy condition, meanwhile the latest and the lowest rank was occupied by PT. Asia Pacific Fiber Tbk in textile & garment with bankrupt.
2. Manufacturing company's Z-Score index result in 2014 was occupied by PT. Industri Jamu & Farmasi Sido Muncul Tbk in pharmacy sub sector as the first rank with healthy condition, while the latest is PT. Asia Pacific Fiber Tbk in textile & garment with bankrupt condition.
3. This result of the study is not consistent/suitable with the actual reality showing that Altman method cannot be used as company's bankruptcy trend tool.

Limitation

In this study there is limitation that can be taken into consideration for the next researcher in order to get better result. The limitations are:

a. Altman z-score analysis result is closely related to the limited number of sample and used data and period. So, this research is not able to analyze a whole part because Altman z-score analysis is limited to manufacturing company only so that it only describes manufacturing company's condition only.
b. Observation period that is only one year, it may give different result if it is conducted in longer period.
c. The used model in this study is only Altman Z-Score, basically there are several models to analyze bankruptcy, it may be different if it is used other model or several models.

Suggestion

The suggestions after conducting the study are:

1. Suggestion to manufacturing company

It is better that manufacturing company should always maintain and improve the company's performance even better, since based in 2013 and 2014 result, most of the company sampled have the potential to experience bankruptcy's indication with Z-Score value lower than 1.81.

For manufacturing company, an Altman z-score model cannot be used to indicate a bankruptcy due to inconsistency with reality, but this model can help to assess and provide input for company's improvement and retention.

2. Suggestion to further study:

The researcher realizes that this research is not perfect at all. The researcher provides suggestions for further research. The number of sample and research's period are extended to produce better information. It is expected to be able to analyze other uncontrolled variable in this study or use various models for bankruptcy analysis such as Springate, Fulmer, Blasztk, etc.

REFERENCES

Asy'ari, M Asim; Prasetyono and Haryadi, Bambang. 2014. Memetakan Satuan Pengawasan Intern Pada Pt X Dalam Kerangka *Four Stage Model. Journal of Auditing, Financeand Forensic Accounting.* Vol. 2 No. 1 April 2014. Hal 23-8

Bastian, Indra. 2009. *Akuntansi Sektor Publik di Indonesia*. Yogyakarta. BPFE Universitas Gajah Mada.

Desmiyawati dan Witaliza, Wulan. 2012. *Pengaruh Komitmen organisasi, Pengendalian Intern, dan Akuntabilitas Publik Terhadap Kinerja Organisasi* (*Studi Empiris pada Rumah Sakit Swasta di Propinsi Riau).* Jurnal Pekbis. Vol. 4. No. 1. hal 26-33.

Dewi, Sarita Permata. 2012. Pengaruh Pengendalian Internal dan Gaya Kepemimpinan terhadap Kinerja Karyawan SPBU Yogyakarta (Studi Kasus Pada SPBU Anak Cabang Perusahaan RB. Group). *Jurnal Nominal*. Vol. I, No.I.

Djajadikerta, Hamfri. 2004. Perbandingan Pengendalian Intern dan Pengendalian Manajemen dalam Hubungannya dengan Agency Theory, Jurnal Bina Ekonomi. Vol. 8. No.1. Hal. 1-109.

Ghany, Nur Farhaty. 2007. *Pengaruh Budaya Organisasi Terhadap Kinerja Karyawan*. Yogyakarta. Genta Press.

Ghozali, Imam. 2013. *Aplikasi Analisis Multivariate dengan Program SPSS Edisi 7.* Semarang. Badan Penerbit Universitas Diponegoro.

Halim, Abdul. 2007. *Akuntansi Keuangan Daerah*. Jakarta. Salemba Empat.

Ivancevich, John M. Robert Konopaske, and Michael T. Matteson. 2007. *Perilaku dan Manajemen Organisasi. Edisi Ketujuh*. Jakarta. Erlangga

Jensen, and W. H. Meckling, 1976, Theory of The Firm: Managerial Behavior, Agency Costs and Ownership Structure. *Journal Of Financial Economics*. Vol. *3*. Pg. 305-360.

Kusuma, I Gede Eka Arya. 2013. *Pengaruh Kejelasan Sasaran Anggaran, Komitmen Organisasi dan Ketidakpastian Lingkungan pada Ketepatan Anggaran* (*Studi Empiris di SKPD Pemerintah Provinsi Bali)*. Tesis. Universitas Udayana

Kistoyo. 2008. *Pengaruh Kepemimpinan, Komunikasi dan Lingkungan Fisik Terhadap Kinerja Pegawai Pada Kantor Dinas Pendidikan Kabupaten Pekalongan.* Tesis, Universitas Sebelas Maret Surakarta.

Labni. 2015. *Pengaruh Komitmen Organisasional, Sistem Pengendalian Intern Pemerintah, dan Akuntabilitas Publik Terhadap Kinerja Manajeria*l, Tesis. Universitas Mataram.

Locke, E.A., dan Latham, 1990, *A Theory of Goal Setting and Task Performance*, New Jersey, Prentice-Hall Inc.

Mardiasmo. 2009. *Akuntansi Sektor Publik*. Yogyakarta. Andi.

Mahsun, Mohammad. 2014. *Pengukuran Kinerja Sektor Publik Edisi Pertama. Cetakan kelima*. Yogyakarta. BPFE Universitas Gajah Mada.

Mahmudi. 2013. *Manajemen Kinerja Sektor Publik Edisi Kedua Cetakan Kedua,* Yogyakarta. UPP STIM.

Mulyadi, 2013, *Sistem Akuntansi.* Edisi 3, Cetakan 3, Jakarta, Salemba Empat

Mowday, Richard T, Steers, Richard M, Porter, Lyman W, 1979, *The Measurement of Organization Commitmen. Journal of Vacational Behavior 14: 224-247*.

Nawawi, H Hadari, 2006, *Kepemimpinan Mengefektifkan Organisasi,* Yogyakarta, Gadjah Mada University Press

Nasir, Azwir dan Oktari, Ranti, 2011, *Pengaruh Pemanfaatan Teknologi Informasi, dan Pengendalian Intern Terhadap Kinerja Instansi Pemerintah* (*Studi pada Satuan Kerja Perangkat Daerah Kabupaten Kampar).* Universitas Riau.

Peraturan Pemerintah Nomor 58 Tahun 2005 tentang Pengelolaan Keuangan Daerah

Peraturan Pemerintah Nomor 60 Tahun 2008 tentang Sistem Pengendalian Intern Pemerintah.

Permendagri Nomor 13 Tahun 2006 tentang Pedoman Pengelolaan Keuangan Daerah.

Permen PAN dan RB Nomor 53Tahun 2014 tentang Petunjuk Teknis Perjanjian Kinerja, Pelaporan Kinerja dan Tata Cara Review atas Laporan Kinerja Intansi Pemerintah.

Pamungkas, Sum Rahmani. 2014. *Pengaruh Gaya Kepemimpinan Terhadap Keefektifan Anggaran Partisipatif Dalam Peningkatan Kinerja Manajerial* (*Studi Kasus Pada Rumah Sakit Umum Daerah Di Wilayah Eks Karesidenan Surakarta).* Universitas Muhammadiyah Surakarta.

Putri, Gustika Yolanda. 2013. *Pengaruh Komitmen organisasi dan Sistem Pengendalian Intern Pemerintah* (*SPIP) Terhadap Kinerja manajerial SKPD* (*Studi Empiris pada Satuan Kerja Perangkat Daerah Kota Padang)*. Universitas Negeri Padang.

Ramandei, P. 2009. *Pengaruh Karakteristik Sasaran Anggaran dan Sistem Pengendalian Intern Terhadap Kinerja Manajerial*. Tesis. Universitas Diponegoro.

Rivai, Veithzal dan Mulyadi, Deddy. 2014. *Kepemimpinan dan Perilaku Organisasi Edisi Ketiga.* Jakarta. Raja Grafindo Persada.

Robbins, Stephen P. 2006. *Perilaku Organisasi Edisi kesepuluh*. Jakarta. Indeks Kelompok Gramedia.

Robbins, Stephen P, Judge, Timothy A. 2008. *Perilaku Organisasi Edisi 12,* Jakarta. Salemba Empat.

Sedarmayanti. 2004. *Good Governance* (*Kepemerintahan yang Baik).* Bandung. Mandar Maju.

Siregar, Sofian. 2013. *Metode Penelitian Kuantitatif Dilengkapi dengan Perbandingan Perhitungan Manual & SPSS*. Jakarta. Kencana Prenadamedia Group.

Sugiyono. 2014. *Metode Penelitian Bisnis, Cetakan Kedelapan Belas,* Bandung, Alfa Beta.

Sudiarianti, Ni Made. 2015. *Pengaruh Kompetensi Sumber Daya Manusia Pada Penerapan Sistem Pengendalian Intern Pemerintah dan Standar Akuntansi Pemerintah Serta Implikasinya Pada Kualitas Laporan Keuangan Daerah*, Tesis, Universitas Udayana, Denpasar.

Supriyatno. 2010. *Pengaruh Partisipasi Pejabat Struktural dalam Penyusunan Anggaran, Komitmen Organisasi, Profesionalisme dan Struktur Organisasi Pada Kinerja Manajerial Pemerintah Kota Denpasar.* Tesis Universitas Udayana.

Sujihartini. 2013. *Pengaruh Kepemimpinan, Motivasi dan Lingkungan Kerja Terhadap Kinerja Pegawai Pada Dinas Koperasi, Usaha Mikro Kecil dan Menengah Provinsi Nusa Tenggara Barat.* Tesis. Universitas Mataram.

Sumarno, J. 2005. *Pengaruh Komitmen Organisasi dan Gaya Kepemimpinan Terhadap Hubungan Antara Partisipasi Anggaran dan Kinerja Manajerial.* Simposium Nasional Akuntansi VIII, Universitas Hasanuddin. Makasar.

Sumarno. 2006. *Pengaruh Sistem Pengendalian Terhadap Kinerja Manajerial* (*Studi Kasus Pada Perusahaan Pelayaran Di Semarang).* Tesis. Universitas Diponegoro, Semarang.

Tunti, Maria Elerina Douk. 2008. *Analisa Pengaruh Kepuasan Kerja, Komitmen Organisasi dan Motivasi Terhadap Kinerja Manajeria Pemerintah Daerah*. Tesis. Universitas Gadjah Mada.

Thoha, Miftah. 2013. *Kepemimpinan Dalam Manajemen.* Jakarta. Rajawali Pers.

Umam, Khaerul. 2010. *Perilaku Organisasi.* Bandung. Pustaka Setia.

Warisno. 2009. *Faktor-Faktor yang Mempengaruhi Kinerja Satuan Kerja Perangkat Daerah* (*SKPD) di Lingkungan Pemerintah Provinsi Jambi.* Tesis. Universitas SumateraUtara.