

**THE ANALYSIS OF PROPERTY AND REAL ESTATE FINANCIAL PERFORMANCE USING  
ALTMAN (Z-SCORE) TO PREDICT BANKRUPTCY  
(Study on Listing and Delisting Companies in Indonesian Stock Exchange)**

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**ABSTRAK**

Penelitian ini dilatarbelakangi oleh kondisi perusahaan property dan real estate di Indonesia yang diprediksi tidak akan meningkat sampai tahun 2017. Konsultan mengatakan perumahan dan sewa perkantoran akan menurun sampai tahun 2019. Ini bertentangan dengan percepatan pembangunan infrastruktur yang terjadi di era Presiden Jokowi. Suatu Analisis diperlukan untuk mengindikasikan kebangkrutan. Analisis rasio keuangan menggunakan Altman (Z-Score) merupakan salah satu prediksi yang akurat. Penelitian ini menggunakan jenis penelitian deskriptif dengan pendekatan kuantitatif. Digunakan 9 sampel perusahaan, 7 perusahaan yang *listing* di BEI periode 2013-2015 dan 2 perusahaan yang *delisting* dari BEI periode 2015-2017. Ditemukan hasil, 3 perusahaan yang *listing* mengalami zona gray area. Disamping itu, perusahaan yang *delisting* hanya 1 perusahaan yang pernah masuk gray area.

**Kata Kunci: Kinerja Keuangan. Analisis rasio Keuangan, Altman (Z-Score), Properti dan Real Estate, Kebangkrutan**

**ABSTRACT**

This study is motivated by the condition of property and real estate companies in Indonesia that were predicted not improving in 2017. The consultants also said residential or renting for office space would be decreasing until 2019. It is contradict to accelerated development of infrastructure which happens in President Jokowi era. An analysis was needed to find an indication of bankruptcy. Financial ratio analysis using Altman (Z-Score) is one of accurate prediction. This research is supposed to analyze how financial performance could measure company performance. This research use descriptive type with quantitative approach. Using 9 sample, 7 companies for listing in IDX period 2013-2015 and 2 companies for delisting companies from IDX period 2015-2017. Finding result in listing companies there are 3 companies which experience gray area. Besides, for delisting company, one company have experience in gray area.

**Keyword: Financial Performance, Financial Ratio Analysis, Altman (Z-Score), Property and Real Estate, Bankruptcy**

## INTRODUCTION

Property market in Indonesia has been tidal in one last decade. Eddy Hussy as Chairman DPP Real Estate Indonesia (REI) or known Indonesian Real Estate said that level of property low because the purchasing power was slow down. The low purchasing power cause developers of property in Indonesia stop their production. Although land available, developer afraid to build because nobody wants to buy. Some developers began to build, but completed when the property sector was failing so it drive to oversupply (<http://properti.kompas.com>).

Head of Research Universal Broker Indonesia, Satrio Utomo predict the property still not going to improve in 2017. The consultants predict level of selling property like residential or renting for office space would decrease until 2019. Under conditions of high office supply but demand weakened, then occupancy level will decrease (<http://www.bogor-today.com>). The predictions contradict with infrastructure development in Indonesia. President of Indonesia, Joko Widodo claims that the government did the largest infrastructure development program along Indonesian's history.

Developers always think, the increasing population of Indonesia each year, the need of property will increase also. However, desired to buy property are not only influenced by the needs alone. The principle of buyers to acquire appropriate price to those desired property is also an important factor. Moreover, government release Government regulation or *Peraturan Pemerintah (PP)* number 103 of 2015 that allowed foreigner people has property ownership in Indonesia. This regulation could invite bubble property and then tend to be bankrupt.

Bankruptcy is the condition of the company that can not fulfill their obligation to its creditors. therefore company should identify the trigger factors of bankruptcy as soon as possible by analyzing financial statements. The analyzing of financial statements is the calculation of ratios as one of the information source that can manage the strategy to avoid or even to reduce bankruptcy risk. The best method to predict bankruptcy is Altman method. Altman find the value of Z from combining financial ratios which obtain from financial statement.

## LITERATURE REVIEW

### Property and Real Estate

“Property is an institution uniquely qualified to protect certain kinds of value” (Bell, 2005:537). The increasing amount of developing property and real-estate company has made many challenges to improve their competitiveness. In terms of enhancing competitiveness, it is needed for the property and real- estate company to predict the possibility of insolvency.

### Financial Performance

Munawir (2004:2) stated that financial statement basicly is summarization from accounting process that used to report the condition of financial performance and to communicate between financial data or a company with parties related to data. The researcher concludes that financial statements is a accountant process that prepared in the end of period contain of its financial position and condition which is presented in several report such as balance sheet, income statement, change Statement of Changes in Equity ,Statement of Cash Flow and Notes to Financial Statements.

### Financial Statement Analysis

Based on Munawir (2004:35) financial statements analysis is an analysis of financial statements which research and study a relationship and trend to determine financial position, result of action and development of the company. The researcher concludes that financial statement is a tool to analyze the financial condition of the company. The benefit of financial statements analysis is to simplify the data thus able to understand more easy. In this research, cross section analysis is implemented through conducting financial ratio analysis. Researcher collects financial statements of different company in same timeframe. At the end, researcher tries to compare the financial ratio that has been calculated.

### Financial Ratio Analysis

“The detection of company operating and financial difficulties is a subject that has been particularly amenable to analysis with financial ratios “(Altman, 2006 : 238). Based on definition above, researcher concludes that ratio analysis is a method to calculate some ratio, then interpreted it to provide information about financial situation as a consideration of future decision. Information of ratio analysis is also important as a signal

Managers should use the information to provide a strategic future planning.

### Bankruptcy

Act number 37 year 2004 describe bankruptcy is take over all assets of Bankrupt Debtor that the maintenance and settlement conducted by the curator under the supervision of the Supervisory Judge. The main conditions to declare bankruptcy is when find this situation which is a debtor having two or more creditors and failing to pay at least one debt which has matured and became payable, shall be declared bankrupt through a Court decision, either at his own petition or at the request of one or more of his creditors.

### Original Altman Z-Score Model Analysis

On 1966, Edward I Altman did a research on company that has been experiencing bankruptcies and companies with healthy financial performances. In his research, he determined the coefficients or weights. "These weights are objectively determined by the computer algorithm and not by the analyst. As such, they will be different if the sample changes or if new variables are utilized" (Altman, 2006:242).

The result of this third study resulted Altman Z-Score formula as follows:

$$Z = 6.56 X_1 + 3.26 X_2 + 6.72 X_3 + 1.05 X_4$$

Which ratios:

- $X_1$  = Working Capital / Total Asset
- $X_2$  = Retained Earnings / Total Asset
- $X_3$  = Earnings Before Interest And Tax / Total Asset
- $X_4$  = Book Value Of Equity / Book Value Of Total Liabilities.
- $Z$  = Overall Index or Score

Source : Data Processed by Author, 2016

**Table 1 Cut-off point in Altman Modification Model**

Cut-off	Interpretation	Description
$Z > 2.6$	Safe Area	Company is in a good condition
$1.1 < Z < 2.6$	Gray Area	Companies are experiencing financial problem which must be handled immediately
$Z < 1.1$	Danger Area	The company is in a dangerous zone or a company in a state of bankruptcy.

Source : Data Processed by Author, 2016

## RESEARCH METHOD

### Type of Research

This research use descriptive research, with quantitative approach . It is to describe the financial performance of the researched company that is obtained from financial statements as a corporate value reflection. Researcher conducted this research in Indonesian Stock Exchange (IDX). Population used in this research is all listing company and delisting company in Indonesian Stock Exchange (IDX) at property and real estate sector. Total companies that listed in subsector property and real estate is 47 companies and total delisted company is 5 companies. Researcher used purposive sampling as a sampling technique. The considerations that used in this sampling technique were described in the criteria as follows:

**Table 2 Purposive Sampling Criteria**

Point	Listing	Delisting
a	The companies listed in IDX from 2013 until 2015.	The companies which ever delisted from IDX from 2015-2017
b	The companies which never did partial delisted.	The companies never relisted in IDX.
c	Have Listed in LQ 45 during research period.	The company that publish annual report from 2013 until 2015 in IDX

Source : Data Processed by Author, 2016

According to the criteria that was described by using purposive sampling technique, total sample that able to meet the criteria were 7 listed companies and 2 delisted companies as mentioned in Table 3 and Table 4.

**Table 3 Listing Company Chosen as Research Sample**

No	Listing Company	Code
1	PT Alam Sutera Realty Tbk	ASRI
2	Sentul City Tbk	BKSL
3	PT Bumi Serpong Damai Tbk	BSDE
4	PT Ciputra Development Tbk	CTRA
5	PT Lippo Karawaci Tbk	LPKR
6	PT Pakuwon Jati Tbk	PWON
7	PT Summarecon Agung Tbk	SMRA

Source : Data Processed by Author, 2016

**Table 4 Delisting Company Chosen as Research Sample**

No	Delisting Company	Code
1	Ciputra Property Tbk	CTRP
2	Ciputra Surya Tbk	CTRS

Source : Data Processed by Author, 2016

## RESULTS

Ratio used in the formula above were working capital to total assets ratio ( $X_1$ ), retained earnings to total assets ratio ( $X_2$ ), EBIT to total assets ratio ( $X_3$ ), book value of equity to book value of total liabilities ratio ( $X_4$ ).

Table 5 and Table 6 describe Z-score value result for all listing and delisting company during research period. There were four listing company in safe category for three years namely PT Bumi Serpong Damai Tbk, PT Ciputra Development Tbk, PT Lippo Karawaci Tbk and PT Pakuwon Jati Tbk. All of this company had positive value and more than 2.6. The highest value obtained by PT Lippo Karawaci Tbk in 2014 with score 6.392. However PT Ciputra Development Tbk was the only company that able to increase the Z-score value annually among four companies which could maintain their financial performance in safe criteria. Other companies experienced a decreasing Z-score value in 2015 which had increasing value in the previous year.

PT Alam Sutera Realty Tbk in gray area during research period. Besides, the company obtained the smallest value rather than other listing companies in each year during research period. PT Sentul City Tbk had decreasing Z score value in 2015. Table 5 presented PT Summarecon Agung Tbk in safe category in 2014 and 2015. This company was in gray criteria in 2013 with good Z-score value that 2.579 (close to 2.6 as the required value in safe criteria).

According to Table 5, there is no companies in bankrupt criteria. It means all of companies in health condition even though there is indication of bankruptcy. A company regarded in bankrupt condition if Z-score value less than 1.1. Z-score value of PT Alam Sutera Realty Tbk in 2015 was 1.240 that closes to bankrupt criteria (less than 1.1). Most of the company had good Z-score value even some of them had high Z-score value than 2.6 (the requirement value to belong to safe criteria). It can be concluded that properties companies which

listed in Indonesia Stock Exchange were in health condition in 2013-2015.

The following tables are the Z-score calculation result of listing and delisting company as research object:

**Table 5 Z-Score Value on Listing Company**

No	Company	Z-Score			Criteria		
		2013	2014	2015	2013	2014	2015
1	PT Alam Sutera Realty Tbk	1.354	2.104	1.240	Gray	Gray	Gray
2	PT Sentul City Tbk	5.793	5.301	2.405	Safe	Safe	Gray
3	PT Bumi Serpong Damai Tbk	5.498	5.629	5.123	Safe	Safe	Safe
4	PT Ciputra Development Tbk	2.663	3.050	3.203	Safe	Safe	Safe
5	PT Lippo Karawaci Tbk	5.795	6.392	6.248	Safe	Safe	Safe
6	PT Pakuwon Jati Tbk	3.208	3.69	3.014	Safe	Safe	Safe
7	PT Summarecon Agung Tbk	2.579	2.889	2.996	Gray	Safe	Safe

Source : Data Processed by Author, 2016

**Table 6 Z-Score Value on Delisting Company**

No	Company	Z-Score			Category		
		2013	2014	2015	2013	2014	2015
1	PT Ciputra Property Tbk	2.995	2.649	2.388	Safe	Safe	Gray
2	PT Ciputra Surya Tbk	2.664	3.542	4.175	Safe	Safe	Safe

Source : Data Processed by Author, 2016

All delisting Companies have good financial performance. Table 6 presented there is no company in bankrupt area. Besides, the minimum Z- score was 2.388 in 2015 that obtained by PT Ciputra Property Tbk. Even company's financial performance had annually decreased, but it still in gray area in 2015 which in 2013 and 2014 in safe category. PT Ciputra Surya Tbk was in safe category for 2013 until 2015. It indicated PT Ciputra Surya Tbk was able to maintain the financial performance. The result of research describes there is no delisting companies were in bankrupt situation when they make decision to being delisted from IDX. Both of the delisting company decided to voluntary delisted in 2017

because these companies was merged with PT Ciputra Development Tbk in the same year.

Listing companies and delisting companies never being in bankrupt category during research period. However several of them were in gray criteria which indicated that they were experiencing financial problem. Nonetheless, the result reject the assumption about bankrupt condition of delisted companies is not necessarily true.

## CONCLUSION AND SUGGESTION

### Conclusion

Based on the result that was explained in the previous chapter, the researcher finally had some point of conclusion as below:

- a. Financial performance of the companies can measure company performance by calculating financial ratio (liquidity ratio, leverage ratio, profitability ratio and book value of equity to book value of total liabilities) of each company then inserted to Altman Z-score formula.
- b. The companies that listed in Indonesian Stock Exchange and become go public does not always mean have good financial performance. The result of the research presented some samples that listed companies are either totally in gray area which means suffered financial problems or partially in gray area during research period.
- c. Vice versa from point b, not all delisting company suffered financial problems. When a company decides to delisting from Indonesian Stock Exchange (IDX) does not means it was in bankrupt situation. Some companies delisted because they are merging with another company or going private company. That is known as voluntary delisting.

### Suggestion

- a. Being go public by listed in IndonesiaSn Stock Exchange (IDX) need trust from public investor. Investor will take consideration on company condition and credibility. It is needs for a company to evaluate the financial performance periodically thus a company able to maintain the sustainability and detect if there is bankruptcy indication. The company able to set some strategies involving Z-score formula simulation.

- b. Investor needs also to investigate financial performance and trace the track record before invest to that company. If there are some bankruptcy indications, investor needs to take consideration moreover when the Z-score value is close to 1.1. But, if the company Z-score value is high from 2.6, it indicates a good company.
- c. Selecting more than 2 companies in delisting company to more enhance the reliability of the future study.

## BIBLIOGRAPHY

- Aji, Yuska A. 2016. "Tren Bisnis Properti Lesu Hingga 2019", accessed on 26<sup>th</sup> January 2017 from <http://www.bogor-today.com/tren-bisnis-properti-lesu-hingga-2019/>
- Altman and Hotchkiss .2006. *Corporate Financial Distress and Bankruptcy*. New Jersey: John Wiley & Sons, Inc.
- Bell, A & Parchomovsky, G. 2005. A theory of property. *Cornell Law Revies*. Vol 90, pp 533-613.
- Coldwell Banker Commercial Indonesia. 2016. "Pengaruh Infrastruktur Terhadap Properti Komersial", accessed on 3<sup>rd</sup> February 2017 from <http://www.cbcindonesia.com/research/9/pengaruh-infrastruktur-terhadap-properti-komersial>
- Harum, Sica. 2017. "Properti Lesu, Apartemen dan Perkantoran di Jakarta Kelebihan Stok", accessed on 26<sup>th</sup> January 2017 from <http://marketplus.co.id/2017/01/investasi-properti-lesu-apartemen-dan-perkantoran-kelebihanstok/14453101/ini.infrastruktur.yang.dibangun.selama.dua.tahun.jokowi-jk>
- Kuwado, Fabian J. 2016. "Ini Infrastruktur yang Dibangun Selama Dua Tahun Jokowi-JK", accessed on 3<sup>rd</sup> February 2017 from <http://nasional.kompas.com/read/2016/08/16>
- Laila, Ramdhini. 2016. "Industri Perumahan Masih Lesu", accessed on 27<sup>th</sup> January 2017 from <http://www.beritasatu.com/properti/405413-industri-perumahan-masih-lesu.html>

Munawir, S. 2004. *Analisis Laporan Keuangan*.  
Yogyakarta: Liberty.

Purbaya, Angling A. 2016. "Jokowi: Kami Bangun Infrastruktur Terbesar Sepanjang Sejarah" ,  
accessed on 3<sup>rd</sup> February 2017 from  
<https://finance.detik.com/ekonomi-bisnis/3211582/jokowi-kami-bangun-infrastruktur-terbesar-sepanjang-sejarah>

Ramadhiani, Arimbi. 2016. "Properti Lesu, Ada Pengembang Jakarta Stop Berproduksi",  
accessed on 27<sup>th</sup> January 2017 from  
<http://properti.kompas.com/read/2016/10/18/150000721/properti.lesu.ada.pengembang.jakarta.stop.berproduksi>