

# RISK MANAGEMENT AND FINANCIAL DISTRESS IN EMERGING MARKET

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## ABSTRACT

**Purpose** - The purpose of this paper is analyzed the effect of risk management, its proxied by the Risk Management Committee and the internal audit of potential bankruptcy in Indonesia.

**Design/methodology/approach** - The study used a sample of companies whose stocks are actively traded on the Indonesia Stock Exchange. The data used were panel data, namely, the data of cross section and time series with twenty five manufacturing companies listed on the Stock Exchange in 2010 and 2011, and the analytical techniques by using clustering models for classifying the company which could potentially bankrupt or not, then we employed Altman model Z-score as financial distress facing by companies. Furthermore we also used logisitcs regression analysis.

**Findings** – The results were the risk management committee (RMC) and internal audit (IA) significantly affects the potential bankruptcy simultaneously. Partially risk management committee, a significant effect on the potential for bankruptcy, while internal audit (IA) did not significantly influence the potential bankruptcy.

**Keywords** : Risk Management Committee (RMC), Internal Audit (IA), Altman Z-Score Model

**Paper type**: Research paper

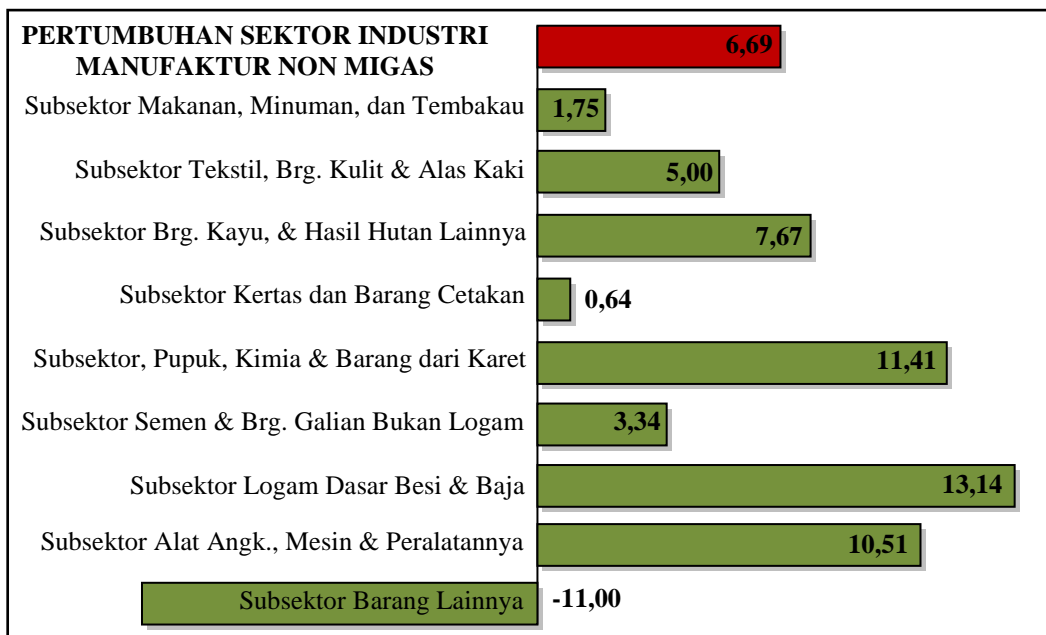
### 1. Introduction

None the companies could avoid the risk of bankruptcy. No business can prosper forever. The combination of a weakening plan combined with mismanagement can be fatal for a company. Potential bankruptcy will become stronger when the economy is on the global recession. Weakening purchasing power will test the fundamental a company. Weakening purchasing power as the result from the global economic crisis in 2008 (Cornett et al., 2009). Poor macro-economic conditions, decline in currency exchange rates, and rising inflation due to high interest rates led to the industrial sector of Indonesia had difficulty maintaining a going concern (Naude and Research, 2009). Indonesian Industries are facing challenges in maintaining its going concern is a manufacturing company.

According to the Economic Development Report First Quarter of 2013 reported by the Ministry of National Development Planning / National Development Planning Agency (Bappenas) that growth in non-oil and gas manufacturing industry significantly increased by 6.7 percent. A big contribution from some industrial sectors, such as cement subsector and not Metals and Minerals goods subsector Fertilizers,

Chemicals and Rubber goods by 8.8 percent and 8.6 percent showed growth in production and consumption in the industrial market. The increase in the fertilizer subsector, Chemistry, and Manufactures of rubber is supported by revitalization and construction of fertilizer plants in several manufacturers, so as to improve the productivity and quality of fertilizer used. At the same time, Sub Paper and Printed Matter increasingly decreased from the year 2012 at the point of -4.85 percent. Growth in non-oil and gas manufacturing industry in the first quarter of 2013 will move on upper domestic market saw high efforts and market movements in achieving productivity and local needs.

Pict:1.1 Percentage Growth in Non-Manufacturing Subsector Oil and Gas Industry The First Quarter 2013



Sumber : Badan Pusat Statistik

Based on the issues described above, if these problems continue to occur and have no way out or repairs sooner or later will be many companies are experiencing financial difficulties or a state of financial distress. According to Benefactor (2007), before the company went bankrupt, then the company will experience a financial difficulty called financial distress. Research conducted by Luciana Spica Almilia, Platt and Platt (2002), defines that financial distress is the decline stage of a company's financial condition prior to the bankruptcy or liquidation. Meanwhile, according to BUTET Agrina Kurniawanti (2002), the bankruptcy or insolvency is defined as the failure of the company to run the company's operations to generate profits in accordance with the main goal is to maximize profit. Given the magnitude of the impact of the global crisis on the company as systematic risk, then the crucial role of risk management in ensuring the company's condition when facing potential bankruptcy still produce inconclusive results among researchers. Therefore, it encourages the writer to examine the impact of risk management in corporate bankruptcies symptoms.

Based on the research background, there are some problem statement on this research such as: "How the impact of risk management on the potential bankruptcy of the manufacturing companies in emerging country?"

## 2. Literature Review

### 2.1 Risk Management

Based on the Minister of Finance Regulation No. 191 / PMK.04 / 2010 explained that risk management is systematic approach to determine the best course of action under uncertainty. Furthermore,

according to Coullier 2010, he mentioned that the risk management is risk mitigation in various ways. Risk management arose because of the risk. Risks due to the uncertainty that results in a person doubts on the ability to predict various possibilities that will take place in conditions that would Dating (Collier, 2009). In order to the company did not suffer losses efforts are needed mitigate risks. Reduction of risk to do with prevention, retention (tolerate risk), risk transfer, and risk management (Collier, 2009). The risk management is important for their evaluation of the risk management program can provide a snapshot of success and failure of the company's operations. Another benefit is a direct contribution to the improvement of the company's profits and the interests of others.

Risk management can not be separated from the role of humans or the ability organ of the company. Organ of the company the right to engage in risk management is an organ that is considered to have good skills and abilities in the risk assessment that the risk management committee (Froot et al., 1993). In addition there is also a risk management committee that became a variable internal audit risk management. Some of the research areas of risk management such as Hogan and Wilkins stated that internal audit can help organizations identify and evaluate risks (Hogan and Wilkins, 2008).

### 2.2 Risk Management Committee

According to Subramaniam et al (2009) there are two types of risk management committee, risk management committee that is stand-alone and risk management committee integrated with the audit committee. Separate risk management committee of the audit committee will be able to control the risk compared to the risk management committee which is integrated with the audit committee. This was due to

criticism of the duties of the audit committee itself is very complex. So that raises some doubts and criticisms will be the ability of the audit committee in risk management. Based on financial Ministerial Regulation No. 142 / PMK.010 / 2009 on export financing institution's risk management Indonesia as referred to in Article 18 covers the risk management unit includes: a working unit of risk management as amend in Article 15 letter c must be independent of the operating unit (risk-taking units) and the working unit which undertakes the function of internal control, risk management work unit as referred to in paragraph (1) is directly responsible to the Executive Director or the Executive Director specifically assigned, and task work unit of risk management at least include: monitoring the implementation of management strategies risk; monitor the overall risk position (composite), per type of risk and per type of activity and perform stress testing; periodically reviewing the risk management process; reviewing proposed activities and / or new products; evaluate the model's accuracy and validity of the data used; provide recommendations to the operational unit (risk-taking units) corresponding authority possessed; prepare and submit a report profile / composition of the risk to the executive director or managing director of a specially assigned.

### 2.2.1 Internal Audit

According to the Institute of Internal Auditors (IIA) cited by Sawyer (2005) the internal audit is intended to determine whether the financial and operating information is accurate and reliable; whether the risks faced by the company have been identified and minimized; whether external regulations and internal policies and procedures that can be received have been followed; whether the criteria for satisfactory operation have been met; whether resources have been used efficiently and economically; and whether the objectives have been achieved effective organization. Internal audit programs can be used as a planning tool and effective supervision SATAS overall audit work. In gathering such evidence, internal audit may consider audit procedures as follows:

- a. Conduct research and review developments, trends, and the latest industry information related to the work done by the organization, as well as other sources of information appropriated to determine the risks and exposures that may affect the organisation along with the relevant control procedures.
- b. Reviewing the company's policies and minutes of meetings of the Board to determine the organization's business strategy, philosophy and methodology of risk management, risk appetite and risk acceptance.
- c. Reviewing the risk assessment report previously issued by management, internal audit, external audit, and other sources.
- d. Review the completeness of risk analysis by management as well as the actions taken to address

issues raised by the risk management process, and suggest improvements. In addition, the internal audit also plays a significant role in ensuring the monitoring of the quality of financial reporting and corporate accountability (Hogan and Wilkins, 2008). In addition, they are also considered as the need for internal audit reports to improve government transparency to external stakeholders. So, it is pertinent to say, because of the asymmetry of information between management and external stakeholders, internal audit is the most important mechanisms for interests external to gather relevant information and to make a decision.

### 2.2.2 Risks of Bankruptcy

According to Shim and Siegel (1994), when viewed from the financial side, the risk of bankruptcy is a last revelation of the inability of a company to continue operations as well as the obligation to pay existing debts. Furthermore, Martin et al (1999) provides a definition of the term bankruptcy as failure (failure) is used in a variety of contexts. The failure of the economy (economic failure) means the cost incurred a company exceeds its opinion. Another definition, the rate of return (return on investment-ROI) is smaller than the internal cost of capital (cost of capital) of the company. Insolvabilitas (insolvency) refers to certain serious financial problems.

According to some researchers in the field of financial distress suggest that the ability to predict bankruptcy will benefit many parties, especially creditors and investors (Altman and Eisenbeis, 1978). Then the bankruptcy prediction also serves to provide guidance for each party about the company's financial performance will suffer financial hardship whether or not in the future. Then, as the party arriving outside the company, investors should have knowledge about bankruptcy so that the decision will not be wrong. One of the indicators that can be used to determine the level of bankruptcy is a financial indicator. Prediction financial difficulty one stated by a profesor at New York University named Edward Altman called the Altman Z-Score. Z-Score formula uses the components of financial statements as a prediction of whether or not possibilities of bankrupt.

From the theory set forth above that in predicting bankruptcy can determine the company's financial condition in the future of the components used in the Z-Score formula as a predictive tool against the possibility of whether or not the company bankrupt.

### 2.2.3 The method of Altman Z-Score

In 1978, Edward. I Altman gave the formulas that serve to predict the potential bankruptcy of a company. Altman uses the figures in the financial statements and representing in a figure, the Z-Score which can be a reference for determining whether a company has the potential to bankrupt or not. Single output can also help break the deadlock when trying to analyze the various ratios that are sometimes

conflicting interpretations (Altman and Eisenbeis, 1978).

The results of the study to measure the Z-Score is a model of effective with the accuracy of more than 70%. Z-Score combine four or five common business ratios by using the weighted calculation system by Altman to determine the likelihood of bankruptcy. The weighted system was originally based on manufacturing which has been publicly owned, but has been modified to manufacturing that has not been publicly owned, non-manufacturing and service companies. Variables used in the Altman Z-Score is the working capital to total assets (working capital / total assets), retained earnings to total assets (retained earnings / total assets), earnings before interest and taxes to total assets (earnings before interest and taxes / total assets), market value of equity to book value of the liability (the market value of equity / book value of debt) and the sales to total assets (sales / total assets).

### 2.2.4 Conceptual Framework

Based on the description contained in the theoretical basis, it will be made to explain the conceptual framework of this study. Conceptual framework involves the Risk Management Committee (RMC) and Internal Audit (IA) as the independent variable and potential bankruptcy as the dependent variable.

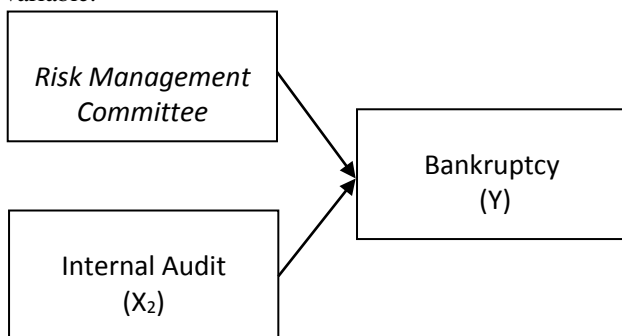


Figure 2.2 Model Parsial

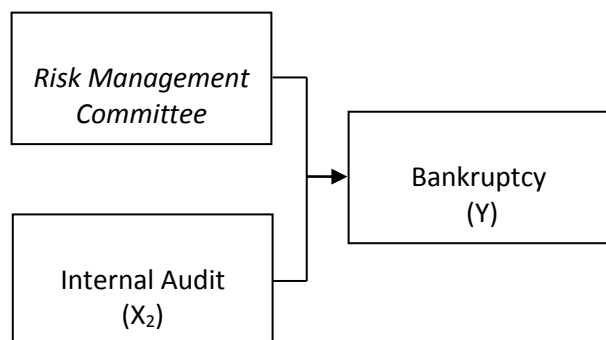


Figure 2.3 Model Simultan

### 2.2.5 Hypothesis

With reference to previous research and theoretical basis described previously as well as drawing on the conceptual framework, then the hypothesis proposed in this study are as follows:

H1: There is the influence of the effect of risk management proxy in the Risk Management Committee (RMC) and internal audit (IA) partially against potential bankruptcy.

H2: There is the influence of the effect of risk management proxy in the Risk Management Committee (RMC) and internal audit (IA) simultaneously to a potential bankruptcy.

## 3. Research Method

### 3.1 Operational Definition and Measurement of Variables

#### 3.1.1 Dependent variables

The variables in question in this research is the potential bankruptcy of the Altman Z-Score on manufacturing companies listed in Indonesia Stock Exchange (BEI). The dependent variable of this study were obtained using cluster analysis is to classify companies into two groups: companies that did not experience problems with the financial condition and its group of companies will experience financial problems if no improvement - a significant improvement in the management and financial structure. Cluster analysis obtained by using variables in the model of the Altman Z-Score is working capital to total assets (working capital / total assets), retained earnings to total assets (retained earnings / total assets), earnings before interest and taxes to total assets (earnings before interest and taxes / total assets), market value of equity to book value of the liability (the market value of equity / book value of debt), and sales to total assets (sales / total assets).

Companies that have not experienced problems with the financial conditions will be given a value of zero (0), otherwise if the company will experience financial problems if it does not do significant improvement in the management and financial structure will be given a value of one (1).

#### 3.1.2 Independent variables

##### 1) Risk Management Committee (RMC)

Risk Management Committee (RMC) is the presence of RMC stand-alone and separate from the other committees. The Committee has the functions of risk management disclosure of financial statements showing the risks and risk management, including financial risk, operational risk, and market risk (Hanafi, 2009).

Companies that disclose the existence of RMC separately from other committees in the annual report is given a value of one (1), were instead given a value of zero (0).

##### 2) Internal Audit (IA)

Internal Audit (IA) is the existence of the internal audit function in the company, the internal audit role is widening of control for managing risk and corporate governance (Walker et al, 2003). Walker (2003, p 52) states that internal audit can help

organizations identify and evaluate risks, move the profession to the forefront of risk management. With this (Goodwin & Kent, 2006) anticipates that there is a relationship between the internal audit and the company's commitment to risk management. Companies that disclosed the existence of internal audit in its annual report is given a value of one (1), were instead given a value of zero (0).

### 3.2 Population and Sample

The population of this research is all manufacturing companies listed on the Stock Exchange in 2010-2011. The number of companies manufacturing the population in this study was 131. The sample in this research are 25 companies listed on the Stock Exchange. Based on random sample selection company, the company manufacturing the sample in this study were 25 companies in the years 2010-2011 sehingga number of observations in this study was 50.

### 3.3 Analysis Techniques

Logistic regression wanted to test whether the probability of the dependent variable can be predicted by the independent variables, according to Cameron and Trivediterkadang assumption of multivariate normal distribution can not be fulfilled because the independent variable is a mix between continuous variables (metric) and categorical (non-metric) (Cameron and Trivedi, 2009) , In this case can be analyzed with logistic regression because it does not need the assumption of normality of the data on the independent variable. Logistic regression was chosen because the data in this study are nominal data and ratio data. The dependent variable in this study a ratio of nominal data and data models, namely the potential bankruptcy Altman Z-Score. While the independent variable in the form of nominal data, namely risk management and internal audit committee. In this case, to analyze the study can be analyzed by logistic regression. So, logistic regression is commonly used if consumed multivariate normal distribution is not met (Gujarati, 2011).

Logistic regression model is:

$$\text{Logit (Z-Score)} = \alpha + \beta_1 \text{RMC} + \text{IA} + e$$

Information:

Potential Bankruptcy = dummy variable, a value of 0 for the group of companies that are not having problems with the financial condition, while a value of 1 for the group of companies will experience financial problems if it does not do significant improvement in the management and financial structure. RMC = Risk Management Committee dummy variable, the value 1 to companies that have the RMC, while a value of 0 otherwise.

IA = Internal Audit dummy variable, the value 1 to companies that have IA, while 0 otherwise.

## 4. Findings

### 4.1 Research on Variable Potential Bankruptcy by Cluster analysis model

A. Tabel 4.2.  
B. Output Cluster

No.	Kode	Tahun	Cluster	Dummy
1	ARGO	2011	2	0
2		2010	2	0
3	IGAR	2011	2	0
4		2010	2	0
5	LMPI	2011	2	0
6		2010	2	0
7	MYTX	2011	2	0
8		2010	2	0
9	NUSA	2011	2	0
10		2010	2	0
11	INRU	2011	2	0
12		2010	2	0
13	IKAI	2011	2	0
14		2010	2	0
15	FASW	2011	1	1
16		2010	1	1
17	PBRX	2011	2	0
18		2010	2	0
19	BRNA	2011	2	0
20		2010	2	0
21	IPOL	2011	2	0
22		2010	2	0
23	SIAP	2011	2	0
24		2010	2	0
25	KDSI	2011	2	0
26		2010	2	0
27	KICI	2011	2	0
28		2010	2	0
29	TKIM	2011	2	0
30		2010	2	0
31	ESTI	2011	2	0
32		2010	2	0

From the above test results obtained Z score results for the variable X1, X2, X3, X4 and X5. Of these five variables yielded two clusters with indicators dummy variable 0 means it will run into financial problems and 1 means not having financial problems,

there are seven companies fourteen observations affected outlier, with the problem, the authors delete data outliers, according to (Gujarati, 2011 ) that the way to normalize the data by eliminating data that is considered as the cause of abnormal data, so as to dispose of such data, the data will be closer to the average value. In addition, testers also remove four pieces of data because such data had two fourth cluster in one company.

The test results further states that the data did not experience multicollinierity. The results are as follows:

Tabel 4.3.  
Output Uji Multikolinearitas  
Coefficients<sup>a</sup>

Model		Collinearity Statistics	
		Tolerance	VIF
1	X1	.575	1.740
	X2	.918	1.089
	X3	.393	2.544
	X4	.924	1.083
	X5	.513	1.948

a. Dependent Variable: TAHUN

From the above results it can be seen, the variance inflation factor (VIF) The fifth variable is less than 5, so it is suspected that an independent variable multicollinearity problem does not occur.

#### 4.2 Analysis Model

Table 4.4. the output of the logistic regression with potential bankruptcy as the dependent variable and the RMC and IA as an independent variable. From the results of the regression using STATA 12.0 software output obtained with a coefficient, error, z (z-score for a test of  $\beta = 0$ ),  $P > |z|$  (P-value for z-test). The main parameters that must be seen from the results of the output is reflected by the Likelihood Ratio Prob > chi2, Z-stat which is represented by  $P > |z|$ , and the goodness of fit is represented by Pseudo R2.

Tabel 4.4.  
Output Regresi Logit

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. logistic bankrupt risk audit, robust
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Logistic regression              Number of obs   =       36
Wald chi2(2)                    =       8.53
Prob > chi2                     =       0.0141
Log pseudo likelihood = -16.202963      Pseudo R2      =       0.2705
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Bankrut	Robust				
	Odds Ratio	Std. Err.	z	P> z	[95% Conf. Interval]
risk	17.74889	17.50476	2.92	0.004	2.568492 122.6491
audit	2.157389	1.911367	0.87	0.385	.3800103 12.2479
_cons	.1021049	.1132047	-2.06	0.040	.0116228 .8969788

### 5. Significance

#### 5.1 Simultaneous test

LR (Likelihood Ratio) is the replacement for the F-stat function to test whether all flope regression

coefficients of independent variables jointly affect the dependent variable. At the output of the above can be seen that with a confidence level of 95%, the probability of LR statistic is 0.0141 so H0 is rejected, which means: both RMC and IA variables simultaneously affect bankruptcy. Value Wald chi2 test of 8.53 with Prob> chi2 of 0.0141 indicates that simultaneous, independent variables in the model can explain the dependent variable.

#### 5.2 Partial test

Partial assay for each independent variable is done by look over  $P > |z|$  of each of the variables that can be seen in the following output:

Tabel 4.4  
Output of partially test

bankrut	Robust				
	Odds Ratio	Std. Err.	z	P> z	[95% Conf. Interval]
risk	17.74889	17.50476	2.92	0.004	2.568492 122.6491
audit	2.157389	1.911367	0.87	0.385	.3800103 12.2479
_cons	.1021049	.1132047	-2.06	0.040	.0116228 .8969788

Output is defined: with a 95% confidence level, where  $P > |z|$  risk of 0.004 less than 0.05, then H0 is rejected, meaning the Risk Management Committee significantly influence the potential bankruptcy.

Output is defined: with a 95% confidence level, where  $P > |z|$  audit amounted to 0.385 greater than 0.05, then H1 is accepted so interpreted that the internal audit did not significantly affect the potential for bankruptcy.

#### c. Goodness of Fit Test

Goodness of Fit test done to see how well a model can explain the relationship between the dependent variable and independent. Or, how big a variation of the dependent variable can be explained by the model. In the logistic regression, the parameters are seen on the Goodness of Fit test is Pseudo R2 is R-square OLS on a logit model. [On the output above shows that the results of Pseudo R2 adalah at 0.2705. This indicates that the independent variable can only explain the dependent variable of 27,05persen. Alternatively, only 27.05 percent of the variation of the dependent variable that can be explained by the model.

Nonetheless, the value of Pseudo R2 is small does not make a model is not considered good. This is because, Pseudo R2 value is worth 0 to 1 is not an interpretation which is natural but rather a clone to replace R-square OLS on logit model (Greene, 2000). This is supported by Gujarati (2003) were found in the logistic regression model, the main thing to note is the significant indicators models, the significance of the independent variables. While the amount of Pseudo R2 does not take precedence. In addition, the use of pooled

data on this research implications: the value of the low-square  $-R^2$  not necessarily signify that the models used are not good. If the Z-stat test results show significant results and in accordance with less direction from economic theory, the model can be classified as a model viable statistic (Gujarati, 2011).

## 6. Odds Ratio Analysis

Odds Ratio is the ratio between the two chances that the chances of success and the opportunity to fail. On the results of this output, the chances of success defined as the possibility of temporary financial difficulties failed chance be interpreted as an opportunity not the financial difficulties. Odds Ratio is that then can be interpreted as a value that indicates the effect of changing the value of variabel independent and dependent variable. In STATA 12.0 software used in this study, the logit transformation can easily be done so that the value oods ratio would easily listed on the following output:

Tabel 4.5

Output Odds Ratio Logit

```

. logistic bankrupt risk audit, robust

Logistic regression              Number of obs =          36
Wald chi2(2) =                   8.53
Prob > chi2 =                     0.0141
Log pseudolikelihood = -18.202963   Pseudo R2 =             0.2705

```

Bankrut	Robust					
	Odds Ratio	Std. Err.	z	P> z	[95% Conf. Interval]	
risk	17.74889	17.50476	2.92	0.004	2.568492	122.6491
audit	2.157369	1.911367	0.87	0.385	.3800103	12.2479
_cons	.1021049	.1132047	-2.06	0.040	.0116228	.8969788

Assuming all other variables in the model has not changed or constant, each of which can be interpreted as follows:

- Risk management committee has the tendency to affect the potential bankruptcy of 17.74 times greater than the internal audit.
- Internal audit discount tendencies affect the potential bankruptcy of 2.15 times smaller than the risk management committee.

## 7. Effect Analysis between Variables

### a. Influence of Risk Management Committee Against Potential Bankruptcy

The results of the effect of risk management committee for a potential bankruptcy in accordance with the economic theory of risk management. According Sallivan, 2001; Soltani, 2005) risk management committee has an important role to determine the organization's risk management strategy that is responsible for evaluating the organization's risk management operations, assess the organization's financial reporting so as to minimize the risk of a company experiencing financial problems.

Risk Management Committee (RMC) in this study using RMC stand-alone or apart due to separate

RMC have internal quality control are higher than RMC combined with the audit committee. It is based on that risk management is a process of identification, and monitoring the management in minimizing risk. RMC allows the board to more effectively deal with and assess the threats and opportunities of the financial problems faced by the entity. Separate RMC will allow committee members to fully focus on the risk management process. It provides internal monitoring quality is better than a joint committee. (Alles et al, 2005).

### b. Effect of Internal Audit Against Potential Bankruptcy

Internal audit does not affect the potential bankruptcy by STATA output where  $P > |z|$  amounted to 0.385 greater than 0.05. The results of the study according to the results of previous studies that research conducted by Mayla Pramono Sari (2011) that an internal audit had a very close relationship terhadap good corporate governance which the internal audit as people in companies who know how the daily performance in the company should be able to apply good corporate governance in order to achieve the objectives and targets set by the company, and does not have a close relationship in terms of anticipating problems financial difficulties.

So we can conclude that the test results showed no influence of internal audit for a potential bankruptcy. But the company's internal audit is very helpful in preventing fraud, provide recommendations on the existing problems, and help to achieve good corporate governance is good.

## 8. Conclusion

### 8.1 Conclusions

Based on test results and hypotheses that have been put forward in the previous chapter, it can be concluded that the risk management committee has a significant effect on the potential bankruptcy of the companies listed on the Stock Exchange and the internal audit did not significantly affect the potential bankruptcy of the companies listed in BEI.

### 8.2 Suggestions

- Suggestions for a manufacturing company based on this research is suggested the company established a risk management committee, stand-alone or separate from the audit committee. The purpose of this establishment is to assist the board of directors to manage risks, establish risk policies appropriate to the circumstances faced by such companies in anticipation of bankruptcy of the company
- Suggestions for further research to not just take a variable risk management and internal audit committee as a proxy of risk management due to the logit regression models can only explain 27.05%. In addition it is also advisable to increase

the number of observations that are expected to gain better research results.

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