Effect of Change in Surplus Ratio, Incurred Loss Ratio, Liquidity Ratio, Premium Growth Ratio, Firm Size and Risk Based Capital to Predict The Posibilities of Financial Distress : The Case of Indonesian Non-Life Insurance Listed in Indonesia Insurance Directory

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ABSTRACT

The insurance company has different characteristics with other companies, so that performance appraisal of insurance company use specific ratios created by The National Association of Insurance Commissioners (NAIC). This study aims to examine the effect of financial ratios of insurance company, namely change in surplus ratio, incurred loss ratio, liquidity ratio, premium growth, firm size and risk based capital (RBC) to forecast the possibility of financial distress, a deteriorating financial condition prior to the bankruptcy of non-life insurance companies registered in Indonesia Insurance Directory in period 2010-2014. The insurance companies which experiencing financial distress is determined based on negative net profit for two consecutive years. By using purposive sampling obtained 63 samples of insurance companies, 53 companies experiencing non-financial distress, 10 companies experiencing financial distress. The method used in this study using logistic regression. The result indicates that the variable of incurred loss ratio, liquidity (liabilities to liquid asset) ratio are positive and significant effect on the occurrence of financial distress. Firm size variable has a negative and significant effect on the occurrence of financial distress, while change in surplus ratio, premium growth ratio and risk based capital have no significant effect on the insurance company's financial distress.

Keywords: Financial Distress, Insurance Financial Ratios, Non-life Insurance, Firm Size, Risk Based Capital

INTRODUCTION

Insurance company is an institution that is able to provide protection against the possibility of risk. Insurance provides protection against financial losses caused by unforeseen events (Agustina, 2012). The increased frequency of catastrophe events in Indonesia such as floods, landslides, fires and smog, earthquakes and terrorism at the same

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time could be a booster for non-life insurance companies increase their sales of insurance products in order that the growth of premiums the insurer is not exhausted by the enormous growth of claims which is capable of interfering the financial condition of the company. The Indonesian Insurance Report mentions the gross premiums of non-life insurance firms at the end of 2014 amounted to Rp. 46.44 trillion, an increase of 19.75 percent compared to 2013 which only grew by 18.79 percent. This indicates that in the normal course of business, the insurance company collects enormous funds from customers.

Supervision of the insurance company really needs to do, the main cause is the fact that the entire value is sold to the public by the condition of the company in the future (future performance). The results of the assessment and supervision of the company's financial strength is a preventive measure when the signs of insolvency fast. Signs of such insolvency one of which resulted in a decrease in the financial condition and financial distress.

Stages of financial distress is defined as a condition where the company has decreased the company's financial condition prior to the bankruptcy. characteristic of companies that distress them have EBIT, EBITDA, net income and negative for two consecutive years (Platt and Platt, 1991; 2002). While Campbell, et al (2010) defines financial distress as the probability of bankruptcy with loss characteristics, high leverage, low stock returns with high volatility, low cash holding.

Predictions regarding financial distress can be known through the analysis of financial ratios, in particular the insurance company has a method called early warning system that is a benchmark created by the National Association of Insurance Commissioner (NAIC). According Satria (1994) Early Warning System is the benchmark for the calculation of financial performance and assess the level of financial health's insurance companies. Early Warning System is able to detect the early lack of liquid

financial condition in the future, identifying companies that require more stringent monitoring and immediate attention, as well as determining the levels (grading) insurance companies.

This study used 4 ratio of early warning system, such as change in surplus ratio, incurred loss ratio, liquidity ratio, premium growth ratio, in addition to these ratios are adding another variable that firm size and the ratio of the achievement of minimum solvency or better known as risk based capital (RBC).

In this paper there is an objective, to determine which variabel that affect financial distress of non-life insurance firms in Indonesia.

LITERATURE REVIEW

Based on the resource-based theory of the firm, the firm's probability of survival depends on their internal characteristics and resources (Tornoa and Tiub, 2014). Insurance company has their own characteristics which is make them different from others companies. Insurance firms has their own financial appraisal and depend to their capabilities in doing underwriting, investing, while embracing the regulatory to avoid financial distress or bankruptcy condition.

Financial distress: During this time a lot more research that predicts the bankruptcy, but very rarely talk about financial distress because it is difficult to define objectively about the beginning of financial distress (Brahmana, 2004; Widarjo and Setiawan, 2009)

Financial distress is phase deteriorating financing conditions experienced by a company, which occurred prior to the bankruptcy or liquidation This condition generally characterized have EBIT, EBITDA, and net income negative for two consecutive years

(Platt and Platt, 1991; 2002). Other factors causing financial distress is the cash flow difficulties, the amount of debt (Damodaran, 2001)

Insurance Firm's Financial Ratio: Early Warning System ratio is a financial ratio for the insurance industry that has different characteristics with other industries so that the estimates in its financial statements are also different. Early Warning System is a benchmark of the National Association Insurance Commisioners (NAIC) or business entity insurance supervision agencies in USA for measuring the financial performance and assess the level of health insurance companies.

Change in surplus ratio was found to be negatively related to probability of financial distress in some of insurance literature. Capital growth is calculated as one-year rate of change in capital and surplus. Kleffner and Lee (2009) stated that the capital growth is changes in an insurer's ability to absorb unexpected losses. The higher change in surplus ratio, the lower probability of financial distress (Kleffner and Lee, 2009; Satria, 1994; Tornoa and Tiub, 2014). Hence, the researcher proposes the following hypothesis:

Hypothesis 1: Change in Surplus Ratio is negatively related to probabilitiy of financial distress non-life insurance firms.

Incurred loss ratio is one of the predictor of insolvency and significantly affects the solvency state of the insurers and this ratio is a measure of the performance of an insurance company (Rameshchandra, 2013; Tornoa and Tiub, 2014). This high ratio provides information about the poor underwriting and closing acceptance of risk (Satria, 1994). The higher incurred loss ratio the higher probability of financial distress (Ambrose dan Seward, 1998; Kurniawan, 2006; Satria, 1994; Yusuf and Dansu, 2014). Hence, the researcher proposes the following hypothesis:

Hypothesis 2: Incurred Loss Ratio is positively related to probabilitiy of financial distress non-life insurance firms.

Liquidity ratio (liabilities to liquid asset) this ratio provides an overview to assess the ability of the insurer to meet its liabilities and provide information whether the company's financial condition in a solvent condition or not. High liquidity ratio indicates liquidity problem and the company in conditions that are not solvent (Satria, 1994). Insurers that attained higher liquidity (liabilities to liquid asset) level are expected to have higher financial distress risk (Brockett, 1994; Kurniawan, 2006; Putri and Lestari, 2014; Satria, 1994). Hence, the researcher proposes the following hypothesis:

Hypothesis 3: Liquidity Ratio is positively related to probabilitiy of financial distress non-life insurance firms.

Premium growth ratio, this ratio is used to measure the stability of the insurance company premiums. Increase or decrease sharply in net premium volume gives an indication of the lack of the stability of the company's operation (Satria, 1994). Increasing premium growth would be advantageous because it increases revenue for the company, however, the premium increases sharply needs special attention because it indicates increases the risk for the company due to the possibility of large claims payments and sudden, sharp premium growth could be the cause of financial failure of a non-life insurance company. So the higher premium growth ratio, the greater posibilities of financial distress (Carson, 2003; Kurniawan, 2006; Marliza, 2014, Satria, 1994; Tornoa and Tiub, 2014). Hence, the researcher proposes the following hypothesis:

Hypothesis 4: Premium Growth Ratio is positively related to probabilitiy of financial distress non-life insurance firms.

Firm Size indicates the ability of insurance companies to bear the risk. So that the size of the company influence the solvent or not the insurance company, because the company has substantial capital larger able to bear more losses. Firm size was found to be negatively related to the insolvency propensity in most insurance literature. The larger the

firm size, the higher the probability to survive (Kleffner and Lee, 2009; Kusuma, 2013; Putri and Lestari, 2014; Rameshchandra, 2013; Sharpe dan Standik ,2007; Tornoa dan Tiub, 2014). Hence, the researcher proposes the following hypothesis:

Hypothesis 5: Firm Size is negatively related to probabilitiy of financial distress non-life insurance firms.

Risk Based Capital, is measurement of the minimum amount of capital that an insurance company needs to support its overall business operations in order to avoid insolvency. Solvency is the difference between the level of admitted assets by the amount of liabilities and paid-up capital required (Prawoto, 2003). The lower level of risk based capital, the higher probability of financial distress (Cummins et al, 1995; Tornoa and Tiub, 2014). Hence, the researcher proposes the following hypothesis:

Hypothesis 6: Risk Based Capital is negatively related to probabilitiy of financial distress non-life insurance firms.

The hypothesized research model is shown in Figure 1.

Figure 1. Hypothesized Research Model.
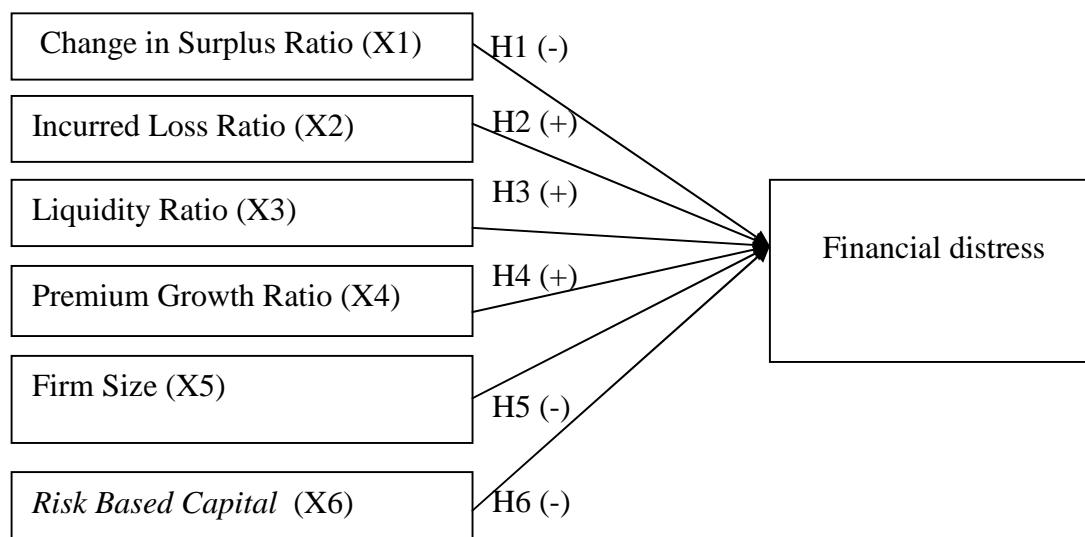
METHODOLOGY

Data Collection and Sample Firms

The subject of the study is the non-life insurance firms in Indonesia. Data were collected through annual report of insurance firms and Indonesia Insurance Statistic Report publish by Indonesia's financial services authority. Purposive sampling method was used in this research with the following conditions:

(1) The non-life insurance firms which regularly publish financial reports as well as complete data were uniformly associated with variables research (2) The non-life insurance has no status or liquidation restrictions on business activities during the period 2010-2014. Companies that qualify as samples are 63 companies. Subsequently the samples were grouped into the category of financial distress and companies who do not experience financial distress. and the results of 10 companies experiencing financial distress and 53 companies did not experience financial distress.

Table 1. Sample selection criteria

Description	Total
Non-life insurance companies registered in the Indonesia Insurance Directory period 2010-2014	76
Non-life insurance company did not submit financial statements as well as the full data during the study period of 2010-2014	13
Samples non-life insurance company used	63
Samples non-life insurance company that is used during the study period (63 x 5 years)	315

Measures

The study included seven variables consisting of one dependent variable and six independent variables. The dependent variable in this research is financial distress. The dependent variable used is the state company so that is a dummy variable. Categorization of financial distress by using the approach of negative net income for two consecutive years. Companies experiencing financial distress were given a score of 1, while the companies are not experiencing financial distress were given a score of 0. The independent variables in this study are change in surplus ratio, incurred loss ratio, liquidity ratio, premium growth, firm size (in natural logarithmic form), and risk-based capital.

Logistic regression models were used are as follows:

$$\text{Ln} \frac{p}{1-p} = \beta_0 + \beta_1 X1 + \beta_2 X2 + \beta_3 X3 + \beta_4 X4 + \beta_5 X5 + \beta_6 X6$$

Where (1) $\frac{p}{1-p}$ is the probability of insurance firm's financial distress, (2) β_0 is constant, (3) β_n is independent variables regression coefficients, (4) X1 = Ratio Surplus Changes, (4) X2 = Ratio Expense Claims, (5) X3 = Liquidity Ratio, (6) X4 = Ratio of Growth in Premiums, (7) X5 = Company Size, (8) X6 = Risk Based Capital

Analytic Techniques

Models in this study are evaluated using statistic descriptive and logistic regression; using logistic regression analysis because the dependent variable (financial distress) is dummy data, logistic regression is used to Determine the probability rate of financial distress of non-life insurance firms using Statistical Package for the Social Sciences (SPSS) version 20. Hosmer Lemeshow test used to assess the overall fit of model to the data. Model fit was assessed with the following hypotheses:

H0: the hypothesized model fit to the data

HA: hypothesized model does not fit with the data

Hosmer and Lemeshow's test the null hypothesis that the empirical data fit with model (there is no difference between the models with the data so that the model can be said to be fit), Omnibust test used to test whether the use of six independent variables in this study can make the model better at explaining the possibility of financial distress conducted by examining changes in the value of the log likelihood model using independent variables hypothesized (Ghozali, 2013), Cox and Snell's R Square and Nagelkerke's R Square can be interpreted as the value of R^2 in multiple regression is to assess how much variables that can predict the financial distress (Ghozali, 2013), and precision of the model predicted using the classification table that calculates the estimated value of the correct and incorrect on the independent variables. Classification table aims to demonstrate the predictive power of the regression model in predicting the probability of financial distress in non-life insurance company (Ghozali, 2013).

RESULTS

Models in this study are evaluated using descriptive statistics to describe the factors or determinants to detect potentials significant variables in the study (see Table 1) and logistic regression; Hosmer Lemeshow test, Omnibust test, Cox and Snell's R Square and Nagelkerke's R Square, and Classification table, and the results shows that the test results obtained by the Hosmer Lemeshow test (goodness of fit) chi-square value of 5.760 and significance of 0.674. With a significance value greater than 0.05 indicates that the model is correct and does not need to modify the model.

Table.1 Descriptive statistics for Survival and failure of non-life insurance companies.

Independent	Dependent	N	Mean	Std. Dev	Minimum	Maximum
Change in Surplus Ratio	0 = Non Distress	277	25.3824	37.1034	-24.28	328.98
	1 = Financial Distress	38	31.575	102.9476	-41.29	610.49
	Total	315	26.1294	49.6284	-41.29	610.49
Incurred Loss Ratio	0 = Non Distress	277	49.12708	48.014296	3.09	580.52
	1 = Financial Distress	38	72.11029	43.911228	17.81	257.47
	Total	315	51.89965	48.060382	3.09	580.52
Liquidity Ratio	0 = Non Distress	277	57.5388	19.1737	16.28	143
	1 = Financial Distress	38	62.6566	17.3592	5.65	85.1
	Total	315	58.1562	19.0115	5.65	143
Premium Growth Ratio	0 = Non Distress	277	27.9716	54.7026	-49.6	550.05
	1 = Financial Distress	38	20.8808	70.0415	-55.4	327.01
	Total	315	27.1162	56.6892	-55.4	550.05
Firm Size	0 = Non Distress	277	12.9297	1.3023	9.6012	16.2385
	1 = Financial Distress	38	12.5025	1.6218	4.2342	14.1707
	Total	315	12.8782	1.3492	4.2342	16.2385
Risk Based Capital (RBC)	0 = Non Distress	277	349.0708	281.9746	121	2374.15
	1 = Financial Distress	38	340.4829	610.9158	63.42	3866.24
	Total	315	348.0348	337.4511	63.42	3866.24

The test results of ombinus test, at the starting block (beginning block) is the only model with a constant, the value of -2 log likelihood is 231.959. In our tests on blocks 1 or assaying with insertion of the entire predictor -2 log likelihood values obtained by 195.241. Thus a decline -2 log likelihood is quite large after using six variables, obtained by chi-square value of 36.717 and a significance of 0.000. With a significance value of less than 0.05 indicates a significant influence on all six predictor of the ratio of change in surplus, the ratio of claims expenses, liquidity (liquid assets to liabilities ratio), premium growth,

company size, and risk-based capital ratio in explaining its influence to possibility of financial distress.

R^2 value as measured by Nagelkerke R Square obtained at 0,211. This means that 21.1% of financial distress can be explained by the sixth variable is the ratio of the change in surplus, the claims expense ratio, liquidity ratio, premium growth, firm size and risk-based capital (RBC). Based on the classification table shows that overall 275 + 6 = 281 companies from 315 companies or 89.2% could accurately be predicted from this logistic regression model.

Change in surplus ratio do not has a significant negative effect on the probability of financial distress of non-life insurance company in Indonesia, with a significance value of 0.375 and the regression coefficient changes obtained surplus of 0.004. This is different from the results by Carson (1993); Satria (1994) which says that the higher rate of change in surplus provides lower the possibility of financial distress, so that the ratio of surplus growth has a negative and significant effect on the probability of financial distress.

The test results showed that the incurred loss ratio positively and significant effect on the probability of financial distress, with a significance value of 0.000 and coefficients variabel of incurred loss ratio obtained at 0,033. Reviews These result prove the theory raised by Ambrose and Seward (1988); Satria (1994); Kurniawan (2006) that the higher incurred loss ratio, the higher the possibility of non-life insurance company experiencing financial distress. The high closing certain claims result in reduced ability of companies to generate profits will increase the potential bankruptcy for the company.

The test results showed that the liquidity (liabilities to liquid assets) ratio positively and significant effect on the probability of financial distress in the non-life insurance company in Indonesia, with a significance value of 0,027 as well as the liquidity coefficient of 0.027. This result supported empirical studies conducted with the results

presented by Brockett (1994); Satria (1994) if the liquidity ratio is high (> 100%) showed a negative influence and indicate possible problems of liquidity and the company in conditions that are not solvent so that the possibility of financial distress will be higher.

The test results showed that the rate of premium growth does not affect positively and significantly to the possibility of financial distress in non-life insurance company in Indonesia, with a significance of 0.715 and the coefficient of -0.001. The results of this study different from the results of research conducted by Pottier and Sommer (2011); Marliza (2014); Tornoa and Tiub (2014); Joseph and Dansu (2015) which states that the rate of premium growth positive and significant effect on the likelihood of financial distress. The results are consistent with research Kleffner and Lee (2009) has not been proved that the larger the ratio of premium growth may increase the likelihood of financial distress. Necessary assessment of the causes of its high net premium, if accompanied by high claims to be paid and the closing of the risks of non-life insurance companies in Indonesia.

The test results showed that the firm size negatively and significant effect on the probability of financial distress of non-life insurance company in Indonesia, with a significance of 0.027 and the coefficient variable obtained at -0.422. These test results consistent with the results of research conducted by Kleffner and Lee (2009); Kusuma (2013); Putri and Lestari (2014); Tornoa and Tiub (2014) that the bigger size of the company will improve their performance, the chances of survival are high, and avoid the possibility of financial distress.

The test results showed that the risk-based capital ratio has no negative and significant effect on the probability of financial distress non-life insurance company in Indonesia, with a significance value of 0.471 and the coefficient variable obtained of 0.001. The results of the study are not consistent with studies conducted by Cummins

(1995); Tornoa and Tiub (2014) that the risk-based capital ratio is negative and significant effect on the probability of financial distress non-life insurance company. The results of this study can not prove that the high risk based capital that can reduce the possibility of significant financial distress. So logistic regression models are as follows:

$$Ln \frac{FD}{1-FD} = -0.325 + 0{,}004 \text{ CSurplus} + 0{,}033 \text{ ILR} + 0{,}027 \text{ Liquid} - 0{,}001\text{PGR} - 0{,}422$$

$$LnTA + 0{,}001 \text{ RBC}$$

CONCLUSIONS

Research in financial distress of insurance firm is an important role to serves as an early warning system in evaluating and monitoring insolvency of non-life insurance in Indonesia. This study filled the empirical problems in insurance literature with using 6 variables that were supported by previous research like change in surplus ratio, incurred loss ratio, liquidity ratio, premium growth ratio, firm size, and risk based capital, to predict the probability of financial distress non-life insurance in Indonesia. The use of 5 years of data, with 63 non-life insurance firms listed in Indonesia Insurance Directory period 2010-2014 sample classified to 53 firms *non-financial distress* and 10 firms *financial distress*.

This study revealed the importance of the variable that were found significant to predict financial distress of non-life insurance firms in Indonesia. Three hypothesis in this study were accepted, which is incurred loss ratio has positive and significant effect, insurance firms with higher incurred loss ratio will have more probability of financial distress so hypothesis 2 accepted. Then liquidity ratio (liabilities to liquid asset) has positive and significant effect, insurance firms with higher liquidity ratio (more than 100%) will have more probability of financial distress so hypothesis 3 accepted, and then firm size has negative and significant effect to predict financial distress of non-life

insurance in Indonesia, Insurance firms that have big asset will be more survive and have

lower probablity of financial distress so that hypothesis 5 accepted.

REFERENCE

Agustina, M. I. *Analisis Kinerja Keuangan Berdasarkan Early Warning System Pada PT. Asuransi Central Asia Cabang Palembang,* Palembang: POLTEK PalComTech (2012).

Ambrose, J. M., & Seward, J. A. Best's Ratings, Financial Ratios and Prior Probabilities in Solvency Prediction. *Journal of Risk and Insurance Vol. 55* , 229-244. (1998)

Brahmana, R. K. 2004. Identifying Financial Distress Condition in Indonesia Manufacture Industry*, Birmingham Business School, University of Birmingham* .

Brockett, L, P., Cooper, W. W., Golden, L. L., & Pitaktong, U. A Neural Network Method for Obtaining an Early Warning of Insurer Insolvency. *The Journal of Risk and Insurance, Vol. 61, No. 3*., 402-424.(1994)

Campbell, J. Y., Hilscher, J., & Szilagyi, J. Predicting Financial Distress and The Performanceof Distressed Stocks. *Journal of Investment Management Vol.9 No.2* , 14-34. (2010)

Carson, J. E. Financial Distress in The Life Insurance industry: An Empirical Examination, (2003) *4th Afir International Colloquium*, pp1211-1240. USA.

Carson, J. E., & Hoyt, R. E. An Empirical Examination of Sample Selection Methods in The Context of Life Insurer Financial Distress. *Journal of Insurance Issues Vol. 26 No. 2* , 114-128 (2003).

Cummins, J. D., Harrington, S. E., & Klein, R. 1995. Insolvency Experience, Risk Based Capital, and Prompt Corrective Action in Property-Liability Insurance. *Working Paper The Wharton Financial Institutions Center* , 1-42.

Damodaran, A. *Corporate Finance : Theory and Practice.* John Wiley & Sons, New Jersey (2001)

Eduardo T. Tornoa, T. S. An early warning system on the Propensity of survival and failure of non-life insurance firms in the philippines. *J. Bus. Financ. 02 (01)* (2014). *47-55* .

Ghozali, I.Aplikasi Analisis Multivariate dengan Program IBM SPSS 21 Update PLS Regresi. Diponegoro University Publisher, Semarang (2013)

Kleffner, A. E., & Lee, R. B. Measuring P&C Insurer Solvency: A North American Investigation. *Insurance and Issues* , 1-20 (2006)

Kurniawan, S. 2006. Analisis Pengaruh Rasio-Rasio Early Warning System Dan Tingkat Suku Bunga Sbi Terhadap Harga Saham: Studi Empiris Pada Perusahaan Asuransi Di BEJ Tahun 1999 - 2003. *Unpublished Thesis, Accounting Magister Diponegoro University.*

Kusuma, m. R., & arfianto, E. D. 2013. Analisis pengaruh profitabilitas, risiko underwriting dan ukuran perusahaan terhadap tingkat solvabilitas perusahaan asuransi di indonesia: Studi Perusahaan Asuransi Kerugian yang Terdaftar di Bursa Efek Indonesia Periode 2006-2012. *Undergraduate Thesis, Faculty of Economics and Business Diponegoro University*

Marliza, N. E., & Prasetiono. 2014. Analisis Faktor-Faktor yang Mempengaruhi Terjadinya Kondisi Financial Distress Perusahaan Asuransi: Studi pada Perusahaan Asuransi Umum yang Terdaftar di Direktori Perasuransian

Indonesia tahun 2008 - 2012. *Undergraduate Thesis, Faculty of Economics and Business Diponegoro University*

Paulson, A., Rosen, R., Mohey-Deen, Z., & McMenamin, R.. *How liquid are U.S. life insurance liabilities.* Chicago: The Federal Reserve Bank September (2013)

Platt, H., & Platt, M. B. (1991a). "A Note on the Use of Industry-Relative Ratios in Bankruptcy Prediction . *Journal of Banking and Finance, Vol. 15* , 1183-1194.

Platt, H., & Platt, M. (2002). Predicting Corporate Financial Distress: Reflections on Choice-Based Sample Bias. *Journal of Economics and Finance, Vol. 26, No. 2* , 184-199.

Pottier, S. W., & Sommer, D. W. 2011. Empirical Evidence on the Value of Group Level Financial information in insurer solvency surveillance. *Risk Management & Insurance Review Vol.14 No.1* , 73-88.

Prawoto, A. 2003. *Hukum Asuransi dan Kesehatan Perusahaan Asuransi berdasarkan Risk Based Capital (RBC).* Yogyakarta: BPFE.

Putri, A. P., & Lestari, H. S. 2014. Faktor Spesifik yang Menentukan Kinerja Perusahaan Asuransi yang Terdaftar di Bursa Efek Indonesia. *eJurnal Manajemen Fakultas Ekonomi Universitas Trisakti Vol.1, No.2* , 1-20.

Rameshchandra, P. O. 2013. Solvency analysis: A study of public and private Insurance companies in India. *Indian Journal of Applied Research Vol 3 No.5* , 1-4.

Satria, S. 1994. *Pengukuran Kinerja Keuangan Perusahaan Asuransi Kerugian di Indonesia Dengan Analisis Rasio Keuangan Early Warning System.* Jakarta: Lembaga Penerbit Fakultas Ekonomi Universitas Indonesia.

Senbet, L. W., & Wang, T. Y. 2012. *Corporate Financial Distress and Bankruptcy: A Survey.* USA: Forthcoming.

Sharpe, I. G., & Stadnik, A. 2006. Statistical Early Warning Model of Financial Distress in Australian General Insurance. *The Journal of Risk and Insurance Vol 74, No.2* , 377-399.

Widarjo, W., & Setiawan, D. 2009. Pengaruh Rasio Keuangan Terhadap Kondisi Financial Distress Perusahaan Otomotif. *Jurnal Bisnis dan Akuntansi Vol. 11, No. 2* , 107-119.

Yusuf, T. O., & Dansu, F. S. 2014. Effect Of Claim Cost On Insurers' Profitability In Nigeria. *International Journal of Business and Commerce Vol. 3, No.10* , 1-20.

Appendix 1: Goodness of Fit (Hosmer and Lemeshow Test)

<table>
<tr><th colspan="4">Hosmer and Lemeshow Test</th></tr>
<tr><th>Step</th><th>Chi-square</th><th>Df</th><th>Sig.</th></tr>
<tr><td>1</td><td>5.760</td><td>8</td><td>.674</td></tr>
</table>

Appendix 2: -2Log Likelihood, Omnibus test (Overall Fit Model)

<table>
<tr><th colspan="10">Iteration History[a,b,c,d]</th></tr>
<tr><th></th><th>-2 Log</th><th colspan="8">Coefficients</th></tr>
<tr><th>Iteration</th><th>likelihood</th><th>Constant</th><th>P.Surplus</th><th>RBK</th><th>Likuid</th><th>P.Premi</th><th>LnTA</th><th>RBC</th></tr>
<tr><td>Step 1</td><td>1</td><td>214.775</td><td>-.810</td><td>.002</td><td>.017</td><td>.011</td><td>-.001</td><td>-.184</td><td>.000</td></tr>
<tr><td></td><td>2</td><td>196.763</td><td>-.757</td><td>.003</td><td>.028</td><td>.021</td><td>-.001</td><td>-.320</td><td>.001</td></tr>
<tr><td></td><td>3</td><td>195.266</td><td>-.442</td><td>.004</td><td>.032</td><td>.026</td><td>-.001</td><td>-.403</td><td>.001</td></tr>
<tr><td></td><td>4</td><td>195.241</td><td>-.329</td><td>.004</td><td>.033</td><td>.027</td><td>-.001</td><td>-.421</td><td>.001</td></tr>
<tr><td></td><td>5</td><td>195.241</td><td>-.325</td><td>.004</td><td>.033</td><td>.027</td><td>-.001</td><td>-.422</td><td>.001</td></tr>
<tr><td></td><td>6</td><td>195.241</td><td>-.325</td><td>.004</td><td>.033</td><td>.027</td><td>-.001</td><td>-.422</td><td>.001</td></tr>
</table>

a. Method: Enter

b. Constant is included in the model.

c. Initial -2 Log Likelihood: 231.959

d. Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

<table>
<tr><th colspan="5">Omnibus Tests of Model Coefficients</th></tr>
<tr><th></th><th></th><th>Chi-square</th><th>Df</th><th>Sig.</th></tr>
<tr><td>Step 1</td><td>Step</td><td>36.717</td><td>6</td><td>.000</td></tr>
<tr><td></td><td>Block</td><td>36.717</td><td>6</td><td>.000</td></tr>
<tr><td></td><td>Model</td><td>36.717</td><td>6</td><td>.000</td></tr>
</table>

Appendix 3: *Cox* and *Snell's R Square* and *Nagelkerke's R Square*

<table>
<tr><th colspan="4">Model Summary</th></tr>
<tr><th>Step</th><th>-2 Log likelihood</th><th>Cox & Snell R Square</th><th>Nagelkerke R Square</th></tr>
<tr><td>1</td><td>195.241[a]</td><td>.110</td><td>.211</td></tr>
</table>

a. Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Appendix 4: Classification Table 2x2

Classification Table[a]

	Observed		Predicted		
			FD		Percentage
			Non Distress	Distress	Correct
Step 1	FD	Non Distress	275	2	99.3
		Distress	32	6	15.8
	Overall Percentage				89.2

a. The cut value is .500

Appendix 5: Hypothesis Test

Variables in the Equation

		B	S.E.	Wald	df	Sig.*	Exp(B)
Step 1[a]	P.Surplus	.004	.004	.788	1	.375	1.004
	RBK	.033	.008	18.904	1	.000	1.033
	Likuid	.027	.012	4.873	1	.027	1.028
	P.Premi	-.001	.004	.134	1	.715	.999
	LnTA	-.422	.191	4.864	1	.027	.656
	RBC	.001	.001	.519	1	.471	1.001
	Constant	-.325	2.352	.019	1	.890	.723

a. Variable(s) entered on step 1: P.Surplus, RBK, Likuid, P.Premi, LnTA, RBC.
*) Significant at alfa 5%