The Effect of Financial Ratios on *Financial Distress* in Insurance Companies

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Abstract: This study aims to analyze the effect of Financial Ratios consisting of Claims Expense Ratio, Liquidity Ratio, Underwriting Ratio, and Own Retention Ratio to Financial Distress which is proxied as RBC (Risk Based Capital) in Conventional Insurance Companies listed on the IDX on period 2017 – 2021, using the panel data regression analysis method. The model chosen in this research is the Fixed Effect Model (FEM). The technique used in sampling was purposive sampling of 13 companies. From the results of research that has been done that produces a Claim Expense Ratio, Liquidity Ratio, Underwriting Ratio, Own Retention Ratio collectively have a significant effect on Financial Distress. And from the partial test results in this study, the Claim Expense Ratio has a negative and significant effect on Financial Distress, the Liquidity Ratio has a negative and significant effect on Financial Distress, the Underwriting Ratio has no effect on Financial Distress, and the Own Retention Ratio has no effect on Financial Distress.

Keywords: Claim Expense Ratio, Liquidity Ratio, Own Retention Ratio, Risk Based, Capital, Underwriting Ratio

INTRODUCTION

Humans are always faced with various problems which contain various possible risks that must be faced, both material and spiritual. To manage material risks, institutions called insurance can help. Insurance from a legal and economic point of view is a form of risk management that is used to avoid the possibility of uncertain losses. Many insurance institutions have been established both in Indonesia and abroad. The World Bank in its presentation entitled "Global Economic Risks and Their Implications for Indonesia" in September 2019 stated that the financial system in Indonesia is generally resilient to shocks. However, there are two areas that require urgent attention, namely financial conglomeration and the weakness of Indonesia's insurance sector. The World Bank said that Indonesia must maintain the credibility of its financial system by overcoming the insurance sector, especially in cases of default.

Table 1. List of Insurance Companies in Indonesia that have failed to pay As of December 31, 2021

Company name	Loss (in trillion)	Level RBC (%)
AJB Bumiputera 1912	(20)	(1,164.77)
Asuransi Bumi Asih	(1.01)	(1159.00)
Asuransi Jiwasraya	(54.4)	(1003.70)

Sources: *www.ojk.go.id*

When viewed from the historical development of insurance companies in Indonesia, the problem of default does not only occur in the Jiwasraya company, but also in the Asuransi Jiwa Bersama (AJB), which failed to pay customer claims totaling 7 million customers, Asuransi Bumi Asih has even had its license revoked by the OJK in 2013 as a result of defaulting on overdue customer claims of 300,000 customers. Almost all insurance companies that go bankrupt are caused by conditions of liabilities that are greater than the assets they own. And this resulted in the company failing to pay the customers' policies.

Reflecting on the above insurance institutions which are involved in the same problem, it is feared that it will reduce customer confidence in insurance performance in Indonesia. Customers who are aware of the importance of the insurance company's financial health condition will be more observant and observe the benchmarks for the insurance company's health, one of which can be seen in the company's solvency ratio.

The above phenomenon shows that insurance services, which are currently used by many people, are actually companies in which they are experiencing quite apprehensive conditions. Decrease in profits and increase in debt in most insurance companies is a phenomenon that is raised in this study. One that influences financial distress is financial ratios. According to Satria (1994) one of the tools that can be used to analyze financial reports and process them into useful information is to use the *Early Warning System* (EWS) calculation. The Early Warning System (EWS) is a calculation benchmark from the NAIC (*National Association of Insurance Commisioners*) or the United States insurance business agency in measuring financial performance and assessing the soundness of insurance companies. This Early Warning System can provide early warning of possible financial difficulties and insurance company operations in the future.

Based on this explanation, this study aims to research on insurance companies listed on the Indonesia Stock Exchange in 2017 – 2021. It is important for insurance companies to measure ratios and know the level of solvency so that companies can determine the problems that exist in these companies and can immediately make wise decisions. The insurance sector was chosen for this study because the insurance sector is one of the economic sectors with its own characteristics. In this study there are several Early Warning System financial ratios that are used to see the effect on financial distress, namely the claims expense ratio, the liquidity ratio, the underwriting ratio, and self-retention.

METHOD

The population used in this study is an insurance company listed on the Indonesia Stock Exchange. The method of determining the sample in this study uses purposive sampling which has the following criteria: 1) Insurance companies listed on the Indonesia Stock Exchange in 2017 – 2021; 2) Insurance companies that operate with conventional types; 3) Companies that present complete annual financial reports for 2017 – 2021 are published on the company's official website; and 4) Have a financial report that ends every December 31.

Based on the sample selection criteria, 13 insurance company samples were obtained that met the following criteria:

Table 2. List of Samples

No.	Code	Company Name
1	ABDA	PT Asuransi Bina Dana Arta, Tbk.
2	ahap	PT Asuransi Harta Aman Pratama Tbk.
3	AMAG	PT Asuransi Multi Artha Guna Tbk.
4	ASBI	PT Asuransi Bintang Tbk.
5	ASDM	PT Asuransi Dayin Mitra Tbk.
6	ASJT	PT Asuransi Jasa Tania Tbk.
7	ASMI	PT Asuransi Maximus Graha Persada Tbk.
8	ASRM	PT Asuransi Ramayana Tbk.
9	LIFE	PT Asuransi Jiwa Sinarmas MSIG Tbk.
10	MREI	PT Indonesian Reinsurance Airlines Tbk.
11	TUGU	PT Asuransi Tugu Pratama Indonesia Tbk.
12	LPGI	PT Lippo General Insurance Tbk.
13	VINS	PT. Victoria Insurance Tbk.

Sources: *www.ojk.go.id*

The data used in this research is documentary data. The documentary data used is in the form of financial reports for the 2017 – 2021 period. The data processed in this study were obtained from insurance company historical data, literature studies, research reports, and financial reports for the 2017 – 2021 period which were published on the insurance company's official website and the Indonesia Stock Exchange.

Variable

1. Dependent Variable (Y)

    The dependent variable in this study is financial distress which is proxied by Risk Based Capital (RBC), where according to POJK Number 71/POJK.05/2016 concerning the Financial Health of Insurance Companies and Reinsurance Companies, the government has established insurance companies in Indonesia at this time must have a Solvency Level Limit (RBC) value of at least 120%. The greater the RBC ratio of an insurance company, the healthier the company's financial condition.

$$RBC = \frac{Solvency\ Level}{Minimum\ Solvency\ Level\ Limit}x100\%$$

2. Independent Variable (X)

    The independent variables in this study consist of:

    a) Claim Expense Ratio (X1)

    According to Nafarin (2009:55) this means that if the claim expense is low, the profit will be high and if the expense is high, the profit will be low.

$$Claims\ Expense\ Ratio = \frac{Net\ Claims\ Expense}{Net\ Premium\ Income}x100\%$$

    b) Liquidity Ratio (X2)

    A high ratio indicates a liquidity problem and the company is likely to be in an insolvent condition.

$$Liquidity\ Ratio = \frac{Amount\ of\ Liabilities}{Total\ Wealth\ Allowed}x100\%$$

c) *Underwriting Ratio*

If the underwriting ratio of an insurance company is low, this indicates that the insurance company cannot maximize profits through risk acceptance. This is because the underwriting results (the difference between net premium income and total expenses) are greater than the costs incurred.

$$Underwriting\ Ratio = \frac{underwriting\ results}{premi\ netto} x 100\%$$

d) Self Retention Ratio

According to the Decree of the Minister of Finance No. 224/KMK.017/1993 the maximum retention is 10% of own capital.

$$Own\ Retention\ Ratio = \frac{Net\ Premium\ Income}{Gross\ Premium\ Income} x 100\%$$

In this study, the data analysis technique used was panel data regression test, which was analyzed statistically using Eviews 12 *software.* The tests used are descriptive statistical tests, multicollinearity tests, heteroscedasticity tests, and hypothesis tests.

RESULTS AND DISCUSSION
Descriptive Statistic

Table 3. Descriptive Statistics

	RBC	BEBAN KLAIM	LIKUIDITAS	UNDERWRI...	RETENSI DIRI
Mean	4.123320	0.544309	0.690556	0.422185	0.566033
Median	3.139564	0.523465	0.711586	0.442716	0.557343
Maximum	15.69916	1.304591	1.011498	0.833898	1.327673
Minimum	1.277075	0.166102	0.272050	-0.304791	0.112297
Std. Dev.	3.124490	0.231647	0.151847	0.232881	0.294327

Sources: Output Eviews 12

The RBC (Risk Based Capital) variable has a maximum value of 15.6992, a minimum value of 1.2771, an average value (mean) of 4.1233, and a standard deviation value of 3.1245. The standard deviation of this variable is smaller than the average (mean), this indicates that the data is spread less varied.

The Claim Expense Ratio variable has a maximum value of 1.3046, a minimum value of 0.1661, an average value (mean) of 0.5443, and a standard deviation value of 0.2316. If you look at it, the standard deviation is smaller than the average (mean), this shows that the data is spread less varied.

The Liquidity Ratio variable has a maximum value of 1.0115, a minimum value of 0.2721, an average value (mean) of 0.6906, and a standard deviation value of 0.1518. It can be seen that the standard deviation of the liquidity ratio variable is smaller than the average (mean). This indicates that the data is spread less varied.

The Underwriting Ratio variable has a maximum value of 0.8339, a minimum value of -0.3048, an average value (mean) of 0.4222, and a standard deviation value of 0.2329. This means, the scattered underwriting ratio variable data is less varied because the standard deviation value is smaller than the average value (mean).

The Own Retention Ratio variable has a maximum value of 1.3277, a minimum value of 0.1123, an average value (*mean*) of 0.5660, and a standard deviation value of 0.2943. The

standard deviation of this variable is smaller than the average (*mean*), this indicates that the data is spread less varied.

Panel Data Test
Chow Test

The chow test is used to select the best regression model used in this study between the fixed effect model (FEM) and the common effect model (CEM). The results of the chow test are as follows:

Table 4. Chow Test Result

Effects Test	Statistic	d.f.	Prob.
Cross-section F	24.184289	(12,48)	0.0000
Cross-section Chi-square	126.910572	12	0.0000

Sources: Output Eviews 12

Based on Table 4, the value of the Probability Cross-section Chi-square is smaller than the significance value, which is 0.0000 <0.05. Thus, H0 is rejected and Ha is accepted, so that the appropriate temporary regression model to use in this study is the fixed effect model (FEM). Furthermore, to choose the best model between the fixed effect model and the random effect model, the Hausman Test will be carried out.

Hausman Test

The Hausman test is used to select the best regression model used in this study, namely between the fixed effect model and the random effect model. The results of the Hausman test are as follows:

Table 5. Hausman Test Results

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	56.891359	4	0.0000

Sources: Output Eviews 12

Based on Table 5, the value of the Random Cross-section Probability is smaller than the significance value, which is 0.0000 > 0.05. Thus, H0 is rejected and Ha is accepted, so that the appropriate and best regression model to use in this study is the fixed effect model (FEM). Therefore, because both tests show the fixed effect model (FEM), the Lagrange test is not carried out.

Classic Assumption Test
Multicollinearity Test

Table 6. Multicollinearity Test Results

	BEBAN_KLAIM	LIKUIDITAS	UNDERWRI...	RETENSI_DIRI
BEBAN...	1.000000	0.019968	-0.754077	0.325085
LIKUID...	0.019968	1.000000	-0.262053	0.087447
UNDE...	-0.754077	-0.262053	1.000000	-0.442506
RETE...	0.325085	0.087447	-0.442506	1.000000

Sources: Output Eviews 12

Ghozali (2017: 73) stated that with a significance level of 90%, the presence of multicollinearity between independent variables can be detected using a correlation matrix. Based on Table 6, the correlation coefficient for the claims expense ratio and the liquidity ratio is 0.01997 <0.90, claims expenses and underwriting ratio is -0.75408 <0.90, claims expense ratio and own retention ratio is 0.32509 <0. 90, the liquidity ratio and underwriting ratio is -0.26205 <0.90, and the liquidity ratio and own retention ratio is -0.44251 <0.90. So it can be concluded that the independent variables are free from multicollinearity or pass the multicollinearity test.

Heteroscedasticity Test

Table 7. Heteroscedasticity Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.012981	4.658624	-0.002786	0.9978
BEBAN_KLAIM	0.710059	3.112279	0.228148	0.8205
LIKUIDITAS	-2.614693	3.136956	-0.833513	0.4087
UNDERWRITING	4.360191	2.626268	1.660223	0.1034
RETENSI_DIRI	-2.941835	2.826692	-1.040734	0.3032

Sources: Output Eviews 12

In the heteroscedasticity test, the researcher in testing whether there is heteroscedasticity or not is to use the Park test. In the heteroscedasticity test with this Park test, if the value of Sig. (significance) of all explanatory variables was not statistically significant ($p \geq 0.05$), so it can be said that the regression equation model does not experience heteroscedasticity. From table 7 above it can be seen that the ratio of claims expense, liquidity, underwriting ratio , and retention ratio itself has a probability value of ≥ 0.05 so it can be concluded that there is no heteroscedasticity.

Model Feasibility Test
Coefficient of Determination (R^2)

Table 8. The Coefficient of Determination and F Test Result

Cross-section fixed (dummy variables)			
R-squared	0.946623	Mean dependent var	4.123320
Adjusted R-squared	0.928831	S.D. dependent var	3.124490
S.E. of regression	0.833539	Akaike info criterion	2.693617
Sum squared resid	33.34975	Schwarz criterion	3.262303
Log likelihood	-70.54256	Hannan-Quinn criter.	2.918000
F-statistic	53.20396	Durbin-Watson stat	1.408818
Prob(F-statistic)	0.000000		

Sources: Output Eviews 12

Based on table 8, it is known that the R-squared value is 0.9466. This value means that the variable claims expense ratio, liquidity ratio, underwriting ratio, and retention ratio itself can influence RBC (*Risk Based Capital*) by 94.66%, while 5.34% is influenced by other variables not included in this research model (*term of error* (e)).

Simultaneous Test (F-test)
Based on table 8, the calculation results obtained an F-count value of 53.2040. Meanwhile, the value of the F-table (α = 0.05, df1 = 4 and df2 = 65) is 2.5252. Thus, the F-count value is greater than the F-table value (53.2040 > 2.5252). In addition, it can be seen from the value of *Prob.* (*F-statistic*) shows a number of 0.0000 which means it is smaller than

the significance value (0.05). So it can be concluded that the variable claims expense ratio, liquidity ratio, underwriting ratio, and own retention ratio together have a significant influence on RBC.

Partial Tests (T-test)

Table 9. T Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9.283793	2.473030	3.754016	0.0005
BEBAN_KLAIM	-5.425937	1.652153	-3.284162	0.0019
LIKUIDITAS	-3.482347	1.665252	-2.091183	0.0418
UNDERWRITING	-0.375480	1.394154	-0.269324	0.7888
RETENSI_DIRI	0.629271	1.500549	0.419361	0.6768

Sources: Output Eviews 12

Based on the results of the table 9, it is obtained that the probability value of the claim expense ratio is smaller than the significance value (0.0019 <0.05). It means that the claim expense ratio has a significant effect on RBC. The probability value of the liquidity ratio is smaller than the significance value (0.0418 <0.05). It means that the liquidity ratio has a significant effect on RBC. The probability value of underwriting ratio is greater than the significance value (0.7888 > 0.05). It means that the underwriting ratio has no significant effect on RBC. The probability value of own retention ratio is greater than the significance value (0.6768 > 0.05), so it is concluded that the retention ratio does not have a significant effect on RBC.

Panel Data Regression Analysis

Table 10. Panel Data Regression Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9.283793	2.473030	3.754016	0.0005
BEBAN_KLAIM	-5.425937	1.652153	-3.284162	0.0019
LIKUIDITAS	-3.482347	1.665252	-2.091183	0.0418
UNDERWRITING	-0.375480	1.394154	-0.269324	0.7888
RETENSI_DIRI	0.629271	1.500549	0.419361	0.6768
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.946623	Mean dependent var		4.123320
Adjusted R-squared	0.928831	S.D. dependent var		3.124490
S.E. of regression	0.833539	Akaike info criterion		2.693617
Sum squared resid	33.34975	Schwarz criterion		3.262303
Log likelihood	-70.54256	Hannan-Quinn criter.		2.918000
F-statistic	53.20396	Durbin-Watson stat		1.408818
Prob(F-statistic)	0.000000			

Sources: Output Eviews 12

Based on table 10, the results of panel data processing (Fixed effect Model), the regression equation is obtained:

$$RBC = 9.2838 - 5.4259X1 - 3.4823X2 + e$$

The Effect of claim burden ratio on RBC Level

The results of the study show that the claim burden ratio has a significant negative effect on financial distress which is proxied by RBC (*Risk Based Capital*). This is evidenced by the value of Prob. (0.0019) < α (0.05). The regression coefficient value is -5.4259, which means that if the claim expense ratio increases by 1%, then the RBC level of an insurance company will decrease by 5.4259%. The results of this study are in line with Ely Pramuji Utami, Moh. Khoiruddin (2016), where claims expense ratio has a negative effect on financial distress which is proxied by RBC. The claim expense ratio shows the company's ability to pay claim expenses through premium income. The negative relationship in the calculation results above means that an increase in the claim expense ratio on EWS will reduce the insurance company's RBC value, which has an impact on the company's financial health.

The Effect of liquidity ratio on RBC Level

The results of the study show that the liquidity ratio has a significant negative effect on financial distress which is proxied by RBC (*Risk Based Capital*). This is evidenced by the value of Prob. (0.0418 < α (0.05). The regression coefficient value is -3.4823 which means that if the liquidity ratio increases by 1%, the RBC level of an insurance company will decrease by 3.4823%. The results of this study are in line with Awad Zam'i Zamachsyari. (2016), where the liquidity ratio significantly affects financial distress but has a negative relationship with financial distress which is proxied with RBC. The results of this study are in accordance with the theory that a high liquidity ratio describes a company's poor financial condition and vice versa if the liquidity ratio is low then it tends to describe a company's good or solvent financial condition. The negative relationship in the calculation results above can be interpreted that an increase in the liquidity ratio in EWS will reduce the RBC value of the insurance company, which has an impact on the financial health of the company.

The Effect of underwriting ratio on RBC Level

The results of the study show that the underwriting ratio has no significant effect on the projected financial distress with RBC. This is evidenced by the value of Prob. (0.7888) > α (0.05). In line with the research of Yunita Sari, Etty Gurendrawat, Dwi Handarini (2021) which states that the underwriting ratio has no significant effect on financial distress which is proxied by RBC (*Risk Based Capital*). This is due to the high underwriting risk experienced by insurance companies does not affect company performance if the company can control the risks that will be faced before it becomes a loss. This loss will have an impact on decreasing company performance which can then result in financial distress.

The Effect of own retention ratio on RBC Level

The results of the study show that the own retention ratio has no significant effect on the projected financial distress with RBC. This is evidenced by the value of Prob. (0.6768) > α (0.05)). The results of this study are in line with Yustin Azzahra (2020) which states that the own retention ratio does not have a significant effect on financial distress. If the own retention ratio increases or decreases, it will not affect the RBC level, this is due to differences in the risk of claims occurring in the present and in the future.

CONCLUSION

Based on the results of simultaneous testing (F Test), there is a simultaneous effect between the independent variables Claim Expense Ratio, Liquidity Ratio, Underwriting Ratio, Own Retention Ratio to Financial distress which is proxied by RBC (Risk Based Capital) on Insurance Company in Indonesia in 2017 – 2021.

Based on the results of the partial panel data regression test (t test) it can be seen that the Claim Expense Ratio and the Liquidity Ratio has a negative and significant effect on financial

distress, the Underwriting ratio and Own Retention Ratio has no significant effect on financial distress.

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