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The Effect of Claim Ratio and Solvency Margin Ratio on Tobin's Q with the Implementation of Risk Management as Moderation

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ABSTRACT: Insurance companies play a crucial role in risk management. This study highlights that the role of enterprise risk management as a moderator indicates that to enhance company value (empirical study on insurance companies listed on the Indonesia Stock Exchange (IDX)), effective risk management practices are essential. Insurance companies serve as a form of risk transfer. The analytical tool used is panel data regression analysis, which aims to analyse how a high claim load can lead to decreased profitability and how the Solvency Margin Ratio measures the financial capability of a company to cover the risks it assumes. This research demonstrates that risk management is necessary for insurance companies. The application of risk management acts as a moderating variable, meaning the impact of the Claim Load Ratio and Solvency Margin Ratio on Tobin's Q may vary depending on the level of risk management implementation.

KEYWORDS: Claim Load Ratio, Solvency Margin Ratio, Enterprise Risk Management (ERM) Implementation, Insurance Companies

I. INTRODUCTION

The increasing uncertainty faced by companies today has been exacerbated by the rising trend of disasters resulting from climate change. This necessitates a proactive response, particularly by transferring risk to insurance companies. Climate change can lead to significant natural disasters, and insurance companies have shown greater resilience when dealing with these larger impacts (Valverde & Convertino, 2019).

The value of a company is one of the factors considered when assessing a company's performance. This value can be measured using Tobin's q, which reflects management's performance in managing the company's assets. Tobin's q indicates the investment opportunities available to a company (Stulz & Walkling, 1989:138). In insurance companies, the company's value is influenced by several ratios, including the claim expense ratio.

The Claim Expense Ratio is a form of accountability from insurance companies to policyholders when risks that affect policyholders arise, provided these risks are covered under the conditions agreed upon during the initial policy application. In life insurance companies, the claim expense ratio does not significantly impact financial performance (Sunarsih et al., 2022). However, if claim costs exceed premium income, this can lead to substantial costs for the insurance company. If investments within the insurance company do not balance out these claim costs, the company may find itself unable to pay claims to its customers (Melisa Anggraini et al., 2022). A high claim expense ratio reflects poor underwriting processes and risk acceptance (Fadrul & Simorangkir, 2019).

The Solvency Margin Ratio is used to determine the financial capability of a company in covering the risks it has underwritten (Fauzan & Arfan, 2012). As a business that mitigates various risks and losses, the insurance industry requires substantial capital availability. The larger the capital, the better the company can meet its obligations and contribute to financial health planning. The Solvency Margin Ratio of an insurance company is crucial in this regard. A high Solvency Margin Ratio indicates that the company's assets are financed by debt. However, if this debt is used to increase fixed assets, sales can rise, leading to higher profits and ultimately improving the company's value (Fauzan & Arfan, 2012).

Risk management within insurance companies is essential because these companies bear the risks of other parties. In this study, the role of risk management as a moderating factor illustrates that enhancing the company's value (an empirical study of

insurance companies listed on the Indonesia Stock Exchange (IDX)) requires proper risk management. The importance of implementing risk management lies in anticipating potential risks due to events that could harm the company. Effective risk management implementation requires commitment from decision-makers, such as the board of directors and commissioners. Without their commitment, the implementation of risk management could be hindered. The application of risk management is also related to the risk appetite of decision-makers, as it will determine the risk priority map. The solvency ratio is used to measure the extent to which the company's assets are financed by debt.

Insurance companies must maintain customer trust by enhancing their performance. However, in the face of increasing uncertainty, many factors must be considered. Thus, this research aims to explore the impact of claim expense and the company's financial ability on the value of insurance companies, with risk management implementation as a moderating variable.

The Claim Expense Ratio represents the liability of an insurance company to policyholders when a risk befalls the policyholder, in accordance with the claim submission conditions at the time of the initial policy application (Badruzaman, 2019). Claims are considered expenses or costs, which can impede asset growth (Juniyanto & Sari, 2022). This ratio measures the amount of cost incurred by an insurance company to pay claims to policyholders. It is calculated by dividing the total claim expenses by the total premium income (Awrasya & Kusumaningtias, 2021).

The Solvency Margin Ratio is a ratio that measures the extent of excess assets held by an insurance company over its liabilities, indicating the company’s ability to bear financial risks in the future (Rahmana & Purwanto, 2024). A high solvency margin ratio indicates that the insurance company has sufficient capital to meet its long-term financial obligations and provides protection against the risk of bankruptcy. The solvency margin ratio is used to measure the financial health of an insurance company (Setianingsih et al., 2024). Conversely, a low solvency margin ratio suggests that the insurance company is at risk of losing its ability to meet financial obligations and faces the risk of bankruptcy (Rahmana & Purwanto, 2024). The solvency margin ratio is a critical metric in insurance companies as it reflects the company's level of financial health (Awrasya & Kusumaningtias, 2021).

The health of an insurance company is closely tied to the role of the insurance company’s management, particularly in the area of Enterprise Risk Management (ERM). ERM is the process of identifying major risks that confront an organization, forecasting the significance of those risks in business processes, addressing the risks in a systematic and coordinated plan, implementing the plan, and holding key individuals responsible for managing critical risks within the scope of their responsibilities (Hampton, 2009). The ERM framework is one of the most commonly adopted frameworks and was introduced by the Committee of Sponsoring Organizations (COSO) of the Treadway Commission in 2004. ERM is defined as a process, effected by an entity’s board of directors, management, and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives (PricewaterhouseCoopers & Commission, 2004; Negese et al., 2024).

ERM, in general, is defined as the process by which a company identifies, measures, manages, and discloses all major risks to enhance value for stakeholders. Effective risk management has a positive impact on the company’s performance (Karunaratne Alawattegama, 2019).

Company Value refers to the market value of a company as a going concern (Anton, 2018). The excess value above liquidation value represents the value of the management organization running the company (Pangestuti, 2018). Company value is an indicator of a company's performance for future growth (Yuliani & Widajatun, 2023). It is also perceived by investors as a measure of the company’s success, often associated with stock prices (Susanti & Restiana, 2018). One measure of company value is Tobin’s Q. Company value is one of the considerations in investor decision-making. Investment decisions are crucial financial decisions for a company and can be influenced by good fund management and risk management. Tobin’s Q measures the relationship between a company's market value and the replacement cost of its assets (Sucuahi & Cambarihan, 2016). A Tobin’s Q value above one indicates that the company will generate a rate of return higher than the cost of assets. Tobin’s Q is defined as the market value of a company divided by the replacement cost of the company’s assets.

II. RESEARCH METHOD

A. Population and Sample

The insurance businesses that were listed between 2018 and 2023 on the Indonesia Stock Exchange (IDX) comprise the study's population. Twelve insurance companies that satisfy the sampling requirements are chosen through the use of purposive sampling as the sampling approach.

B. Data Collection Technique

Secondary data from the 2018–2023 financial reports of insurance companies listed on the IDX was used in this study. The official websites of the corresponding companies, the IDX website at www.idx.co.id, and other pertinent sources are among the data sources. A review of the literature and documentation yielded more information.

C. Data Analysis Technique

The base of the data analysis method used in this study is quantitative data analysis combined with secondary data. Eviews 12 was used for data analysis and hypothesis testing. To determine the relationship between the study's variables, panel data regression analysis and descriptive statistical analysis were used.

III. RESULTS AND DISCUSSION

A. Descriptive Statistical Analysis

The total sample of this study comprises 12 companies, resulting in a total of 72 research samples. The descriptive statistical values are explained in the test results below:

Table 1

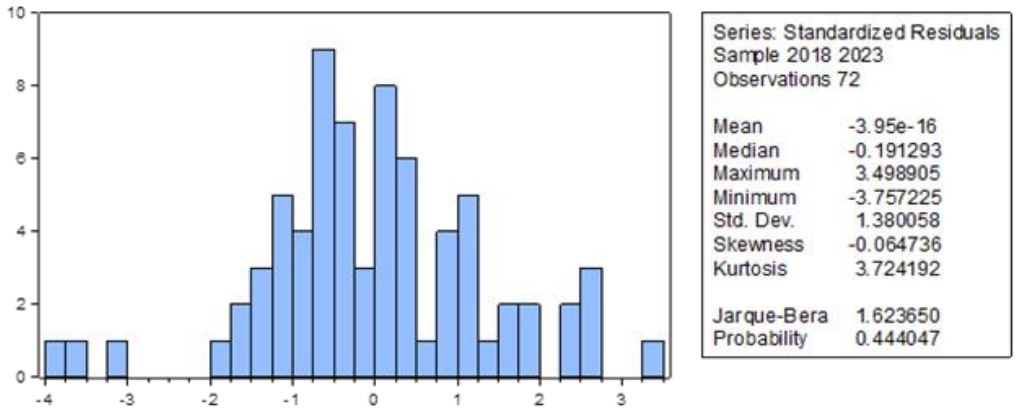
	Tobin's Q	Claim ratio	SMR	ERM
Mean	6.520417	0.543889	3.278750	0.541667
Median	6.380000	0.540000	2.700000	1.000000
Maximum	10.87000	1.070000	9.110000	1.000000
Minimum	3.470000	0.140000	0.620000	0.000000
Std. Dev.	1.411755	0.185385	2.016510	0.501757
Skewness	0.631582	0.053031	1.364279	-0.167248
Kurtosis	3.849588	3.606297	4.110295	1.027972

Source: processed data

The mean Tobin's Q for the 12 companies studied is 6.52, with a maximum of 10.87 and a low of 3.47. 1.41 is the standard deviation. Since the standard deviation is less than the mean, there isn't much of a difference between Tobin's Q's lowest and greatest values. The claim expenditure has a mean of 0.54, a maximum of 1.07, and a low of 0.14. There is a 0.18 standard deviation. There is no discernible difference between the lowest and greatest values of the claim expenditure, as indicated by the standard deviation, which is less than the mean. With a maximum value of 9.11 and a minimum value of 0.62, the mean solvency margin ratio is 3.27. The standard deviation is 2.01. The standard deviation is smaller than the mean, indicating no significant gap between the minimum and maximum values of the solvency margin ratio. The mean ERM is 0.54, with a maximum value of 1.00 and a minimum value of 0.00. The standard deviation is 0.50. The standard deviation is smaller than the mean, indicating no significant gap between the minimum and maximum values of the solvency margin ratio.

B. Normality Test

This test is used to examine the distribution of the data being studied.



Graph 1

Source: processed data

C. Multicollinearity Test

The necessity of conducting classical assumption tests in regression analysis models is to avoid bias that could render the regression results incapable of providing good estimations or being BLUE (Best Linear Unbiased Estimator). The results of the classical assumption tests for the above model are described in the following sections.

Table 2

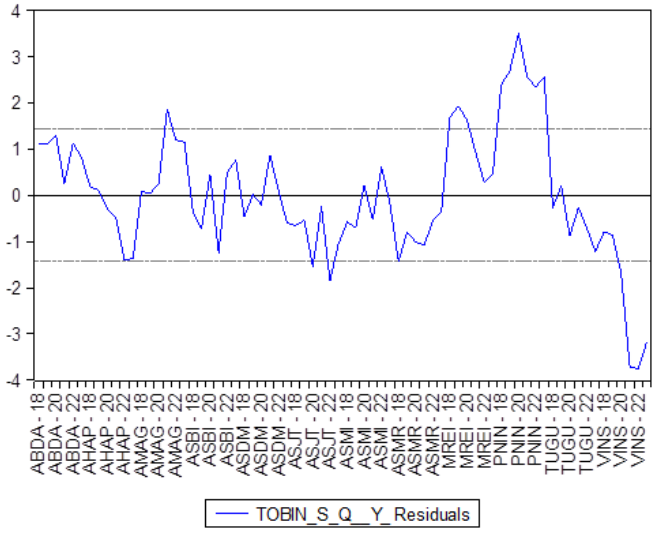
	Y	X1	X2	MODERATING	X1_WITH_MODERATING	X2_WITH_MODERATING
Y	1	0.004408507829440582	0.1188218832371379	0.08994708400013975	0.07109787819470495	0.1902126719467012
X1	0.004408507829440582	1	-0.04670019584845065	-0.00891897504209039	0.293729282357119	0.01646831202561893
X2	0.118821883237 1379	-0.04670019584845065	1	0.004075398903695128	0.019341895766842 06	0.5018840884989554
MODERATING	0.089947084000 13975	-0.00891897504209039	0.004075398903695128	1	0.902493774655 5702	0.7404740216463634
X1_WITH_MODERATING	0.071097878194 70495	0.293729282357119	0.01934189576684206	0.9024937746555702	1	0.6824560390405765
X2_WITH_MODERATING	0.190212671946 7012	0.016468312025 61893	0.5018840884989554	0.7404740216463634	0.6824560390405765	1

Source: processed data

Based on the results in Table 2, it is evident that there is no multicollinearity issue in the multiple regression equation. This is because the correlation matrix values of all independent variables are below 0.85.

D. Heteroscedasticity Test

Heteroscedasticity testing was carried out using the Glesjer Test. The following are the results of the heteroscedasticity test using the glesjer test.



Source: processed data

Based on the results of heteroscedasticity testing in Figure 4.8, it shows that there are no values that exceed the limits of 500 and -500. This means that there is no symptom of heteroscedasticity in the regression model.

E. Panel Data Regression

In determining which testing system is best in the panel data method, it will be seen through the Chow Test, Hausman Test, and Langrage Multiplier Test.

Table 3 Chow test

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	28.890174	(11,55)	0.0000
Cross-section Chi-square	137.785478	11	0.0000

Source: processed data

Based on the results of the Chow Test, it shows that the probability value of Cross-section Chi-square in this study is 0.0000 which is smaller than 0.05. And if seen from the results of the hypothesis H0 is rejected and H1 is accepted, then the best model used from the results of the F Restricted Test is the Fixed Effect Model.

Table 4. Hausman test

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	14.343250	5	0.0136

Source: processed data

The Hausman Test results show that the probability value of Cross-section Chi-square in this study is 0.0136, which means it is smaller than 0.05. Then the hypothesis H_0 is rejected and H_1 is accepted, so the best model used from the Hausman Test results is the Fixed Effect Model. The conclusion from the Chow Test and Hausman Test shows that the best method to use is the Fixed Effect Model, so there is no need to continue the Lagrange Multiplier Test

F. Regression Analysis Data Panel

According to Wijaya and Budiman (2016, 42-43), in conducting regression analysis with moderating variables, it is carried out by regressing the independent variable, moderating variable and interaction variable against the dependent variable.

The following is a multiple regression equation without interaction:

$Y' = a + b_1X_1 + b_2X_2$ .....(1)

Equation (1) is the regression equation for predicting Y with X_1 and X_2 as predictors. The author replaces the symbols X_1 and X_2 with X and M so that it is easy to see in equation (2).

$Y' = a + b_1X + b_2M$ ..... (2)

For example, the author wants to know whether there is a moderating effect of the M variable on the effect of the X variable on the Y variable. To test the moderating effect, the author creates a new variable, namely the XM variable (see equation (3). This variable is a variable obtained by multiplying the X variable with the M variable. The following is a regression equation with interaction:

$Y' = a + b_1X + b_2M + b_3XM$ ..... (3)

where

a = intercept,

b_1 = regression coefficient of X,

b_2 = regression coefficient of M, and

b_3 = regression coefficient of the multiplication variable between variable X and variable

Based on the results of statistical calculations through the EViews statistical program, the results are obtained as contained in the Table below:

Table 5

Dependent Variable: Y
Method: Panel Least Squares
Date: 05/06/24 Time: 13:58
Sample: 2018 2023
Periods included: 6
Cross-sections included: 12
Total panel (balanced) observations: 72

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.405357	0.512087	8.602745	0.0000
X1	2.279238	0.634254	3.593574	0.0007
X2	0.251959	0.092412	2.726471	0.0086
MODERATING	1.632756	0.623343	2.619353	0.0114

Source: processed data

Based on the regression equation in Table 3 above, the partial results of the multiple linear regression are as follows:

Y = 4,405357 + 2.279238(X1) + 0.251959(X2) – 1.632756(M) - 2.301815 (XM1) - 0.089278(XM2) + ε1

The Claim Load Ratio (X1) has a significant positive effect on Tobin's Q, with a coefficient of 2.279238 and a p-value of 0.0007. This means that each one-unit increase in the claim load ratio will increase Tobin's Q by 2.28 units.

The Solvency Margin Ratio (X2) also has a significant positive effect on Tobin's Q, with a coefficient of 0.251959 and a p-value of 0.0086 < 0.05. This indicates that an increase in solvency margin will positively contribute to Tobin's Q.

The moderation factor, represented by ERM, also has a significant positive effect on Tobin's Q, with a coefficient of 1.632756 and a p-value of 0.0114 < 0.05. This suggests that ERM positively influences the relationship between the Claim Load Ratio (X1) and Solvency Margin Ratio (X2) on Tobin's Q (Y).

G. Moderation Test

Table 6

Dependent Variable: Y
Method: Panel Least Squares
Date: 05/06/24 Time: 13:58
Sample: 2018 2023
Periods included: 6
Cross-sections included: 12
Total panel (balanced) observations: 72

Variable	Coefficient	Std. Error	t-Statistic	Prob.
X1_WITH_MODERATING	-2.301815	0.941569	-2.444659	0.0177
X2_WITH_MODERATING	-0.089278	0.074743	-1.194459	0.2374

Source: processed data

ERM is a moderating factor that affects the relationship between the independent variables, namely the Claim Load Ratio and Solvency Margin Ratio, and the dependent variable, Tobin's Q. In this model, ERM has a moderating effect on the relationship between the Claim Load Ratio (X1) and Tobin's Q (Y), as well as between the Solvency Margin Ratio (X2) and Tobin's Q (Y).

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The interaction between the Claim Load Ratio and ERM (X1_With_Moderating) is also statistically significant, with a moderator variable probability value of 0.0177 < 0.05. This suggests that ERM moderates the effect of the Claim Load Ratio on Tobin's Q. The negative coefficient of -2.301815 indicates that the effect of the Claim Load Ratio on Tobin's Q is moderated by ERM.

However, the interaction between Solvency Margin Ratio and ERM (X2_With_Moderating) is not statistically significant. The probability value of the moderator variable (ERM) is 0.2374 > 0.05. Therefore, it can be concluded that ERM does not moderate the effect of the Solvency Margin Ratio on Tobin's Q. The negative coefficient of -0.089278 suggests that the effect of Solvency Margin Ratio on Tobin's Q decreases as ERM increases.

H. Determination Coefficient Test

Table 7

Dependent Variable: TOBIN_S_Q__Y_
Method: Panel Least Squares
Date: 05/05/24 Time: 19:30
Sample: 2018 2023
Periods included: 6
Cross-sections included: 12
Total panel (balanced) observations: 72

R-squared	0.859015	Mean dependent var	6.520417
Adjusted R-squared	0.818001	S.D. dependent var	1.411755
S.E. of regression	0.602273	Akaike info criterion	2.026677
Sum squared resid	19.95030	Schwarz criterion	2.564224
Log likelihood	-55.96039	Hannan-Quinn criter.	2.240676
F-statistic	20.94455	Durbin-Watson stat	2.285589
Prob(F-statistic)	0.000000		

Source: processed data

The Adjusted R-Square value is 0.818001, or 81.80%, which indicates the goodness of fit for the regression model. This means that 81.80% of the variation in the dependent variable can be explained by the two independent variables, namely the Claim Load Ratio and the Solvency Margin Ratio. Additionally, the value of 20.94455 and the very low probability indicate that the model as a whole is statistically significant.

CONCLUSIONS

Based on the data analysis and discussion presented in the previous chapter, the researcher draws the following conclusions:

1. The Overall Model Significance: The study's model is statistically significant overall.
2. Risk Management Implementation: Insurance companies have implemented enterprise risk management, which includes components such as strategy, operations, reporting, and compliance.
3. Variation in Company Value: The value of insurance companies listed on the Indonesia Stock Exchange varies widely, leading to fluctuations in company value.
4. Role of Risk Management as a Moderating Variable: Risk management acts as a moderating variable. This implies that the effect of the Claim Load Ratio and Solvency Margin Ratio on Tobin's Q may vary depending on the level of risk management implementation.

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