

## **The Determinants and Implementation of Risk-Based Capital on the Financial Performance of Insurance Companies in Indonesia**

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### **ABSTRACT**

*The insurance company is one of the pillars in supporting economic growth. In Indonesia, insurance companies are required to report their solvency ratio to the government on a regular basis. Therefore, the objective of this research is to assess the effect of retention, investment assets, leverage, technical reserves and maturity mismatch on Risk Based Capital (RBC) and financial performance of insurance companies in Indonesia. This research is a quantitative approach using panel data regression method. The population of this research is companies in the insurance industrial sector in 2014-2018. The sample used in this research was 91 insurance companies. This research used secondary data obtained from financial reports published in print media and company websites during 2014-2018. The results of this research indicate that retention and investment assets have a positive effect on risk-based capital (RBC) and the financial performance of insurance companies. While leverage has no effect on risk-based capital (RBC) or financial performance of insurance companies. On the other hand, the technical reserve variable only affects the financial performance of insurance companies but has no effect on the company's risk-based capital. In addition, the maturity mismatch variable indicates a negative effect on risk-based capital but has no effect on the financial performance of insurance companies. Meanwhile, risk-based capital affects the financial performance of insurance in Indonesia.*

**Keywords:** *Investment Assets, Leverage, Maturity Mismatch, Retention, Risk-Based Capital*

## INTRODUCTION

The Financial Services Authority (OJK), as the supervisor of insurance business activities in Indonesia, has revoked business licenses, warned and sanctioned several insurance companies related to the fulfillment of minimum capital requirements since 2013. The RBC problem indicates that the company is having financial difficulties, which has an impact on the company's solvency level that does not comply with the minimum requirements of Financial Services Authority. RBC is a solvency ratio that indicates the assets and capital of insurance companies to be able to fulfill their obligations. The greater the RBC level of an insurance company, the healthier the financial condition of that company. Furthermore, the government has set a minimum RBC limit for insurance companies to ensure that the financial level of insurance companies is sufficient. The purpose of government in applying the risk-based capital method is not only to protect the interests of the public as insurance policyholders, but also to adjust to the development of national insurance industry.

Cummins and Weiss (2014) stated that the US system that uses RBC as a solvency indicator disregards operational risk, catastrophe risk and qualitative criteria, such as risk management systems and corporate governance. Therefore, their research indicated that RBC is not an accurate predictor of insurance solvency. Insurance companies required long-term strategic decision-making because strategic decision-making cannot be accomplished by RBC, which is an indicator of the company's financial health based on annual solvency. Grundi et al (2016) stated that insurance companies are generally liquid and have positive net cash flow, which in the long-term will lead to good solvency. Insurance solvency itself is the ability of insurance companies to fulfill contractual obligations in a certain period through the value of assets that are higher than liabilities. The impact of problems encountered by the insurance industry on the economy and society will be considerable because most of the funds managed by insurance companies are funds from insurance policyholders sourced from the premiums they pay. Therefore, the issue of minimum capital adequacy in the insurance industry is very important to be studied further.

Meanwhile, the research of Schlütter (2014), RBC provisions will assist public policy makers in making decisions, but it is required to assess the benefits of efficiency from RBC regulations. Further research is needed on the role of RBC and risk management in the strategic context of corporate financial performance because good RBC control and risk management can improve the financial performance of insurance companies. Companies that do not identify and manage their risks will suffer poor performance, and may even be bankrupt. There are many factors that affect the financial performance of insurance companies. In this research, the factors that affect financial performance of insurance companies are limited to capital, assets, liabilities, technical reserves, maturity mismatch and RBC.

This research has similarities with several previous researches, both using the object of insurance companies in Indonesia, but this research has differences in the involvement of more variables, the year of data collection and analysis tests from previous research using path analysis, while this research used multiple regression analysis. Therefore, the objective of this research is to assess the effect of retention, investment assets, leverage, technical reserves and maturity mismatch on Risk Based Capital (RBC) and financial performance of insurance companies in Indonesia.

## **LITERATURE REVIEW**

### **The Effect of Retention on Risk-Based Capital**

The retention ratio is a ratio used with aims to measure the level of insurance company's ability to maintain the amount of premiums available (Utami & Werastuti, 2020). The retention ratio indicates the level of company retention to cover the risks occurred. The higher the result of this ratio, the greater the risk appetite of insurance companies to cover their own risks (Prakash & Rajaram, 2016). According to Meirianie (2013), this ratio is used to measure the company's retention rate and the amount of premiums retained compared to the premiums received. The results of research conducted by Utami and Khoiruddin (2016) indicated that the retention ratio has a positive effect on risk-based capital. Therefore, the hypothesis that can be proposed as follows:

H<sub>1</sub>: Retention has a positive effect on risk-based capital

### **The Effect of Investment Assets on Risk-Based Capital**

Assets are property or wealth owned by the company, both at certain times and certain periods (Kasmir, 2016). However, in the insurance industry, assets are dominated by investment (participation), which is one of the main financial management activities outside the insurance business. Investment assets can be measured using the Investment Ratio which indicates the amount of investment compared to total assets (Barua et al., 2018). There are several researches that examine the effect of investment assets on the company's risk-based capital. Research conducted by Alamsyah and Wiratno (2017) indicated that there is an effect between investment assets on risk-based capital. In addition, the results of this research are also supported by research conducted by Antonio (2022) who analyzed the effect of premium income, investment return ratio and claims on risk-based capital in insurance and reinsurance companies. This research concluded that there is a significant effect of premium income and investment return ratio on risk-based capital. Therefore, the hypothesis that can be proposed as follows:

H<sub>2</sub>: Investment assets have a positive effect on risk-based capital

**The Effect of Leverage on Risk-Based Capital**

The leverage ratio is used to describe the company's ability to pay all its long-term obligations (financial leverage). The leverage ratio is also used to measure the amount of a company's assets that come from debt or capital, thus it can be determined the position and fixed obligations of the company to other parties and the balance of the value of fixed assets with existing capital (Loppies et al., 2022). The higher the leverage value owned by an insurance company, it will have an impact on the health level of the insurance company as represented by risk-based capital. On the other hand, the higher the leverage value owned by an insurance company, it will represent an adverse or declining health condition of the insurance company. Therefore, the hypothesis that can be proposed as follows:

H<sub>3</sub>: Leverage negatively affects risk-based capital

**The Effect of Technical Reserves on Risk-Based Capital**

Technical reserve is the amount of equity capital compared to total assets, with a large equity capital, the company has an increased capital reserve (Pattiruhu, 2022). In his research, Pattiruhu (2022) indicated that companies need to increase the technical reserve ratio in order to improve the company's risk-based capital. The hypothesis in this research is considered to refer to research conducted by Ndaru and Soesetio (2021) and Soniati et al (2020) which stated that there is a relationship between technical reserves and risk-based capital. Therefore, the hypothesis that can be proposed as follows:

H<sub>4</sub>: Technical reserves have a negative effect on risk-based capital

**The Effect of Maturity Mismatch on Risk-Based Capital**

The maturity mismatch between assets and liabilities can cause the company to be affected by liquidity risk. Liquidity risk is a risk that the company has suffered due to its inability to fulfill its short-term obligations, which has an impact on the insured, the company's activities are not operating normally. The greater this ratio, the more liquid a company (Dewi & Srihandoko, 2018). In the insurance industry, this ratio occurs when there is insufficiency to pay obligations, which include operational costs and loss/benefit payments in insurance policies, when overdue (Kaya, 2015). Companies that can manage their liquidity risk allow the company to pay all its obligations at maturity using its current assets (Rudianto & Dewangga, 2021).

Based on previous research, Utami and Khoiruddin (2016) stated that maturity mismatch has a negative effect on risk-based capital. Maturity mismatch, which is described by high liquidity, indicates a liquidity problem and there is a high probability that the company is insolvent. Companies need to reduce the amount of liquidity so that the company's solvency increases because if the company has large funds, the company's solvency level will be maintained. In

addition, the increasing maturity mismatch in insurance companies will have an impact on the company's risk-based capital. Thus, the hypothesis that can be proposed as follows:

H<sub>5</sub>: Maturity mismatch has a negative effect on the risk-based capital of insurance companies in Indonesia.

### **The Effect of Retention on Financial Performance**

The retention ratio is a ratio used to measure the company's retention rate, or measure the amount of premium retained by itself compared to the premium received directly (Putri et al., 2015). The higher the retention ratio, the higher the financial performance. Arifin (2013) stated that the retention ratio has a positive and significant effect on financial performance.

The research conducted by Hidayat and Yusniar (2021) and Sumartono and Harianto (2018) stated that the retention ratio has no effect on financial performance. These results are in contrast to research conducted by Fadrul and Simorangkir (2019) and Utami and Werastuti (2020) which indicate that the retention ratio has an effect on financial performance. The higher the retention ratio obtained, the more courageous the company in taking its own risk and it will have an impact on the company's performance. Thus, the hypothesis that can be proposed as follows:

H<sub>6</sub>: Retention has an effect on financial performance

### **The Effect of Investment Assets on Financial Performance**

The main purpose of investing in an asset owned by the company, and will be used as an investment is to implement and maximize programs that have been planned and organized properly which can achieve good goals such as positive returns and also align with high profitability (Triana & Dewi, 2020).

This investment return will interpret the investment management ability of the insurance company in managing its funds, by choosing the right investment instrument that will be profitable for the company. This is supported by Sastri et al (2017) who stated in her research that investment assets have a positive effect on profit which is a proxy for financial performance. In addition, research conducted by Utami and Werastuti (2020); and Triana and Dewi (2020) also indicated that investment assets affect the company's financial performance. Therefore, by choosing the right investment assets, the company's performance will also increase. Thus, the hypothesis that can be proposed as follows:

H<sub>7</sub>: Investment assets have an effect on financial performance

### **The Effect of Leverage on Financial Performance**

Leverage determines the amount of debt collateral covered by the company compared to its capital or assets (Fahmi, 2017). One of the calculation ratios in

measuring leverage is the debt to equity ratio. In general, debt to equity ratio is a ratio used to measure the ratio between total debt and total capital. It compares equity sources derived from debt with equity capital (Sari, 2020). Kasmir (2016) stated that the debt to equity ratio is a leverage ratio used to assess the ratio between total liabilities and total company equity.

Based on previous research conducted by Hidayati and Shofawati (2018); Nurlatifah and Mardian (2016); and Burca and Batrinca (2014), they stated that companies that have a high level of leverage have a risk of bankruptcy if company management is unable to manage it properly. The research conducted by Morara and Sibindi (2021) also strengthens that leverage has a significant effect on the profitability of insurance companies. In addition, research conducted by Putra (2015) stated that if leverage increases, the company's profitability will decrease. Thus, the hypothesis that can be proposed as follows:

H<sub>8</sub>: Leverage has an effect on financial performance

#### **The Effect of Technical Reserves on Financial Performance**

Technical reserves in insurance companies have an effect on the company's financial performance. Johny et al (2021) in their research stated that technical reserves affect the financial performance of insurance companies. It is also strengthened by previous research conducted by Carayannopulos et al (2010) which stated that the technical reserve ratio has a positive effect on the company's financial performance as proxied by return on equity. Therefore, it can be concluded that if there is an increase in the technical reserve ratio, it will lead to an increase in the financial performance of insurance companies. Thus, the hypothesis that can be proposed as follows:

H<sub>9</sub>: Technical reserves have an effect on financial performance

#### **The Effect of Maturity Mismatch on Financial Performance**

The maturity mismatch between assets and liabilities is one of the causes of liquidity risk. The maturity gap between assets and liabilities in a certain period is called a liquidity gap. Through this method, insurance companies can find out whether there is a maturity mismatch that can cause insurance companies to experience liquidity difficulties. Liquidity Mismatch Index (LMI) is described using an index constructed by various current assets and current liabilities. Liquidity conditions are called ideal when current assets are equal to current liabilities (Diandra & Lim, 2017). The research conducted by Martias (2017) stated in his research that there is a significant effect between maturity mismatch as measured by current ratio on financial performance.

On the other hand, as identified by Kaya (2015) and Adrian and Brunnermeier (2014), maturity mismatch as measured by liquidity ratio has a negative and

statistically significant effect on the performance of insurance companies. Thus, the hypothesis that can be proposed as follows:

H<sub>10</sub>: Maturity Mismatch has an effect on the financial performance of insurance companies (ROE) in Indonesia.

### **The Effect of Risk-Based Capital on Financial Performance**

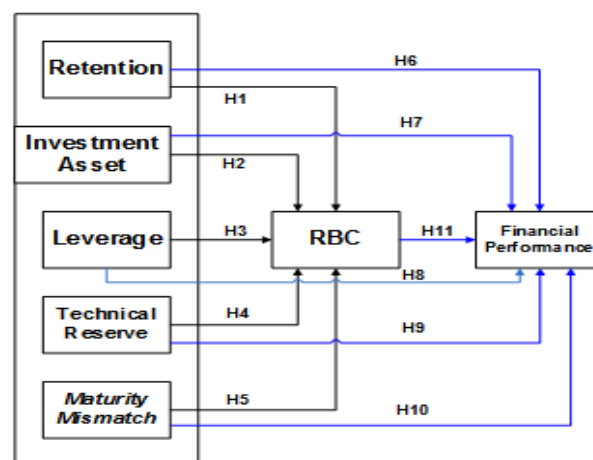
Risk-based capital is a ratio that indicates the health level of an insurance company (William & Colline, 2022). The higher the level of risk-based capital of a company, it represents that the insurance company will be healthier because the company's ability can exceed the risk of claims received by the company (Nasution & Nanda, 2020). In addition, this is strengthened by Bogar's (2016) statement in his research which stated that the greater the risk-based capital in a company, it indicates that the funds that can be used to manage the company are greater, making the profits generated by the company also greater.

The research conducted by Fadrul and Simorangkir (2019); Siswanto and Hasanah (2019) indicated that risk-based capital has no effect on financial performance. However, the research conducted by Utami and Werastuti (2020); Hidayat and Yusniar (2021); Sastri et al (2017); Sumartono and Harianto (2018); Saputro (2018); and Meka and Handayani (2018) which indicate that risk-based capital affects financial performance.

Based on previous research, it can be interpreted that companies that have a high level of health will have an impact on achieving good company performance. The greater the risk-based capital ratio value obtained by the company, the better the company's financial condition. Thus, the hypotheses that can be proposed as follows:

H<sub>11</sub>: Risk-based capital has an effect on financial performance

Based on the previous hypotheses development described, the conceptual framework of this research is illustrated as follows:



**Figure 1.** Conceptual Framework



## RESEARCH METHODOLOGY

This research used quantitative approach by using panel data regression method. The data analysis obtained in this research will use the help of computer technology, that is, the Econometric Views (Eviews) application program. This research used secondary data obtained from financial reports published in print media and company websites during the 2014-2018 period. The population of this research is the insurance industry in 2014-2018. The Financial Services Authority (OJK) listed the total of 138 insurance companies operating in Indonesia on May 2019. The sample selected using purposive sampling method was 91 insurance companies registered with OJK. The panel data regression model in this research is divided into 2 models. Model 1 used the RBC variable (Y) as the dependent variable. While Model 2 used the Financial Performance variable (Z) as the dependent variable.

$$\text{Model 1} \rightarrow Y_{i,t} = \alpha_0 + \beta_1 X_{1i,t} + \beta_2 X_{2i,t} + \beta_3 X_{3i,t} + \beta_4 X_{4i,t} + \beta_5 X_{5i,t} + \epsilon_{i,t}$$

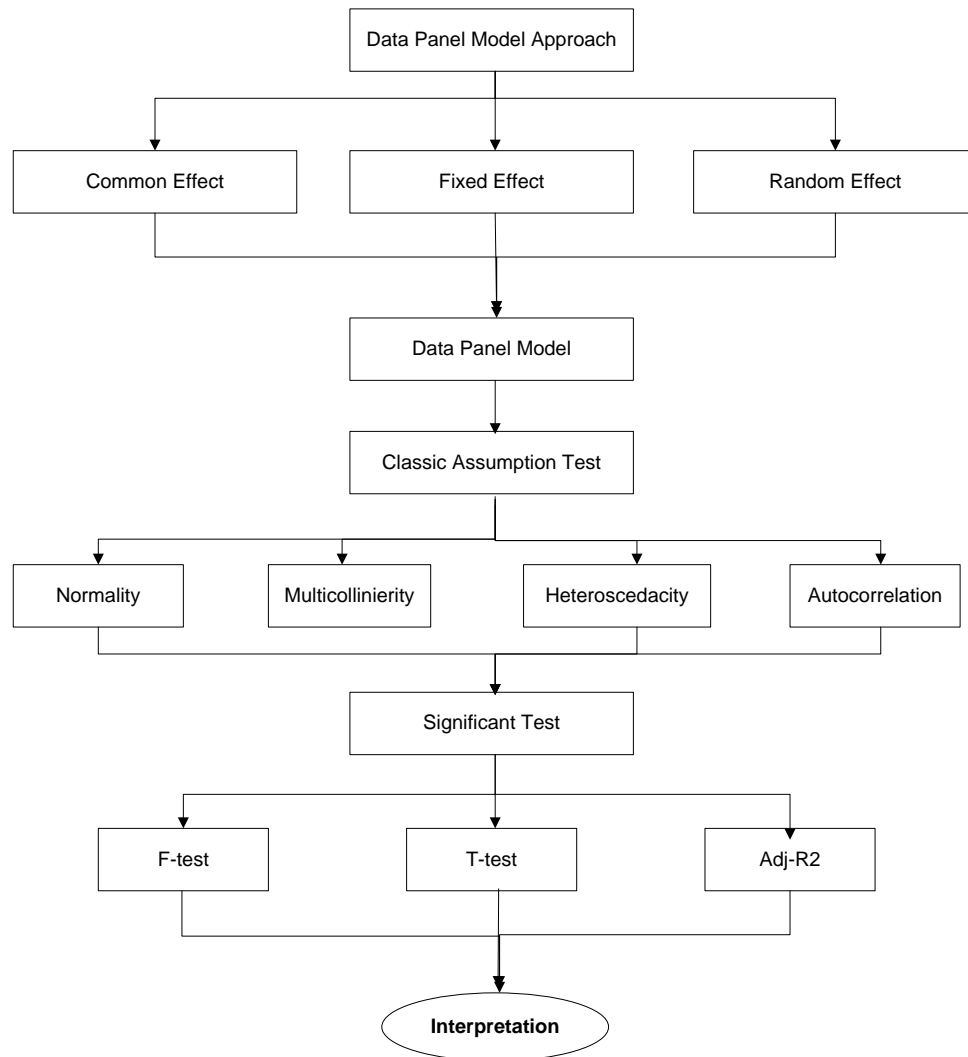
$$\text{Model 2} \rightarrow Z_{i,t} = \alpha_0 + \beta_1 X_{1i,t} + \beta_2 X_{2i,t} + \beta_3 X_{3i,t} + \beta_4 X_{4i,t} + \beta_5 X_{5i,t} + \beta_6 Y_{i,t} + \epsilon_{i,t}$$

**Table 1.** Research Measurement

Variable	Indicator	References
Retention	Retention Ratio	Prakash and Rajaram (2016)
Investment Asset	Investment Ratio	Barua et.al (2018)
Leverage	Debt to Equity Ratio	Hery (2016) and Abor (2005)
Technical Reserve	Technical Reserve Ratio	Wong (2002)
Maturity Mismatch	Current Ratio	Andrievskaya (2012)
Risk Based Capital	Solvability Ratio	Financial Services Authority Regulation Number 71/POJK.05/2016 concerning Financial Health of Insurance Companies and Reinsurance Companies (2016)
Financial Performance	Return on Equity (ROE)	Cekrezi (2015); Almajali et al (2012)

Source: Processed Data by Researchers





**Figure 2.** The Steps of Panel Data Regression

## RESULT AND DISCUSSION

### Research Result

Based on hypothesis tests, it can be observed that most hypotheses are well supported. The details of the hypothesis test results are explained as follows:

**Table 2.** The Result of Hypothesis Test

No.	Hipotesis	Coeff	t-stat	p	Result
1.	There is a retention effect on risk-based capital	2,876752	3,303258	0,0011	The hypothesis is supported
2.	There is an effect of investment assets on risk-based capital	1,992119	3,128421	0,0019	The hypothesis is supported
3.	There is a leverage effect on risk-based capital	-0,157221	-1,731633	0,0842	The hypothesis is not supported

4.	There is an effect of technical reserves on risk-based capital	-0,182299	1,190433	0,2347	The hypothesis is not supported
5.	There is a maturity mismatch effect on risk-based capital	-0,874600	8,188390	0,0000	The hypothesis is supported
6.	There is a retention effect on financial performance	4,748652	4,735108	0,0000	The hypothesis is supported
7.	There is an effect of investment assets on financial performance	2,145460	2,751782	0,0062	The hypothesis is supported
8.	There is a leverage effect on financial performance	-0,005278	-1,635252	0,1027	The hypothesis is not supported
9.	There is an effect of technical reserves on financial performance	-0,010128	-1,988259	0,0411	The hypothesis is supported
10.	There is a maturity mismatch effect on financial performance	-0,003122	0,735030	0,4627	The hypothesis is not supported
11.	There is an influence of Risk Based Capital on financial performance	0,006003	-3,758014	0,0002	The hypothesis is supported

Source: Processed Data by Researchers

Based on the table above, it can be observed that hypotheses H<sub>1</sub>, H<sub>2</sub>, H<sub>5</sub>, H<sub>6</sub>, H<sub>7</sub>, H<sub>9</sub>, and H<sub>11</sub> are supported or accepted. Because the p-value  $\leq 0.05$ , the hypothesis is supported. Meanwhile, H<sub>3</sub>, H<sub>4</sub>, H<sub>8</sub>, and H<sub>10</sub> are not supported because they have a p-value  $> 0.05$ .

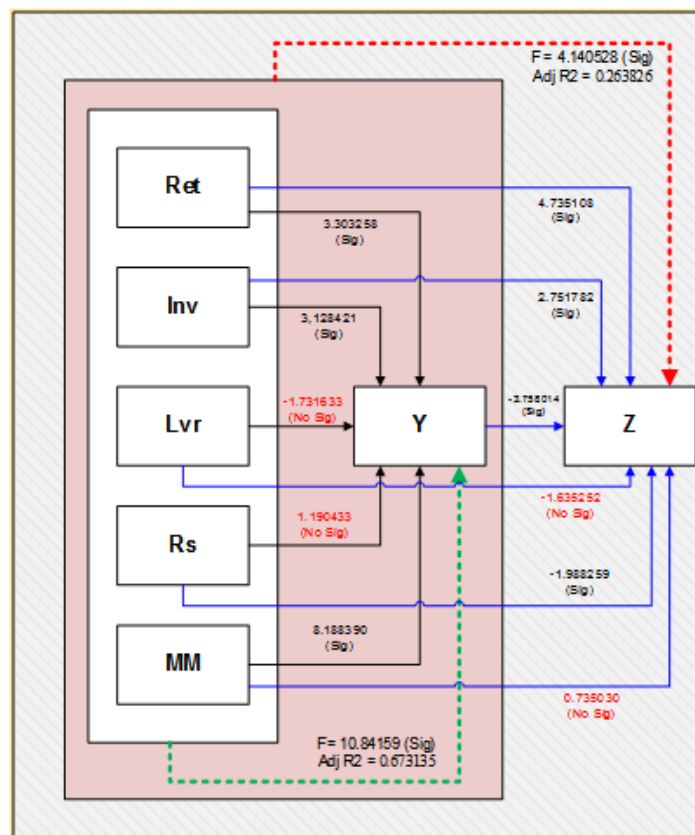


Figure 3. The Summary Result

## **Research Discussion**

### **Theoretical Implication**

The implementation of optimal retention is very important for the continuation of company activities and also for the sustainability of the financial health of insurance companies. In addition, retention can also improve the financial performance of insurance companies. The increase in investment assets owned by the company has an impact on increasing the company's risk-based capital and will increase the company's financial performance over the long-term. In addition, it is stated that leverage has no effect on risk-based capital and the company's financial performance. It indicates that insurance companies in Indonesia are able to maintain the level of leverage of the company that does not affect the risk-based capital and financial performance of the company.

Furthermore, the result of this research indicated that technical reserves have no effect on risk-based capital but have a negative effect on the company's financial performance. The lower the maturity mismatch that occurs, the higher the risk-based capital ratio and the higher the financial performance of insurance companies in Indonesia. Therefore, insurance companies need to control or even eliminate maturity mismatch in order to increase the risk-based capital ratio and financial performance. This research contributes to the economic science literature in the form of retention roles, investment assets, leverage, technical reserves, and maturity mismatch in affecting risk-based capital and financial performance of insurance companies in Indonesia.

### **Practical Implication**

In increasing the company's risk-based capital, insurance company management can create the right policies to increase the risk-based capital ratio by considering aspects of retention, investment assets, and maturity mismatch. In addition, insurance company management is expected to provide a more comprehensive focus on aspects of retention, investment assets, technical reserves, and risk-based capital in order to improve the company's financial performance. The role of company owners, especially directors, to maintain and improve risk-based capital ratios and financial performance, directors set up a policy framework oriented to the factors that have affected them. To prevent the risk-based capital ratio and financial performance of insurance companies to stay healthy as determined by the government, the Financial Services Authority conducts more stringent supervision, especially by supervising technical reserves and maturity mismatch which are often not reported in accordance with actual conditions. The field supervisor can develop and implement an ongoing coaching program for insurance companies, especially those related to improving risk-based capital ratios and financial performance.

### Limitation of Research

This research has only examined the insurance industrial sector. The results of this research cannot be generalized to all similar populations, especially related to the period of research objects. The limited number of samples studied was caused by companies that did not have or did not publish complete financial reports in accordance with the research criteria during the research period.

### CONCLUSION

Retention and investment assets have a positive effect on risk-based capital (RBC) and the financial performance of insurance companies. While leverage has no effect on risk-based capital or financial performance of insurance companies. On the other hand, the technical reserve variable only affects the financial performance of insurance companies but has no effect on the company's risk-based capital. In addition, the maturity mismatch variable indicates a negative effect on risk-based capital but has no effect on the financial performance of insurance companies. Meanwhile, risk-based capital affects the financial performance of insurance in Indonesia. In addition, retention, investment assets, leverage, technical reserves and maturity mismatch have a significant effect on risk-based capital. Furthermore, retention, investment assets, leverage, technical reserves, maturity mismatch and risk-based capital have a significant effect on the financial performance of insurance companies in Indonesia. Based on the sensitivity analysis results of the regression test results, the most dominant independent variable affecting risk-based capital is the technical reserve variable. While the most dominant independent variable affecting financial performance is the maturity mismatch variable.

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