Determinant of Financial Performance for General Insurance Companies in Indonesia

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ABSTRACT

The study aims to explore the influence of the insurance company's specific variables and macroeconomic factors on financial performance of general insurance companies in Indonesia. The insurance company's spesific variables are proxied by the claims ratio, premium growth ratio and risk-based-capital ratio as well as macroeconomic variables by Gross Domestic Products (GDP) and inflation, financial performance are proxied by return on assets and return on equity. The research samples are 35 registered general insurance companies at Financial Services Authority (OJK) for the 2016-2019 periods. The research method is panel data regression analysis with three stages model estimation approach ; Chow-test, Hausman-test and Langrange Multiplier-test to estimate the proper regression model of the Common Effect Model, Fixed Effect Model or Random Effect Model. The most fit regression model analysis to be selected is Random Effect Model. The results shows that the claims ratio affects return on assets and return on equity significantly, the risk-based-capital ratio affects return on assets significantly, but not affects return on equity significantly. While the premium growth ratio, GDP and inflation not affects return on assets and return on equity signficantly. The broad line of business requires general insurance companies to be observant in managing claim expenses and maintaining solvency levels, especially investment in assets.
Keywords: financial stability, financial performance, general insurance, panel data regression.

INTRODUCTION

Insurance companies play an important role in financial system stability. Insurance industry is the largest investors in the financial market, have close relationships with banks and other financial institutions and the confrontation of insurance company problems can be spread to the banking sector, insurance companies contribute as a safeguard for the stability of household and company balance sheets by insuring the risks. Investment activities of insurance companies, especially life insurance companies, largest investors in the financial market since investing in insurance premiums received from insurance policy holders. Insurance companies can help stabilize prices in financial markets, unlike investments in other financial assets if the price decreases the investment will be withdrawn or immediately liquidated (European Central Bank, 2009).

The causal relationship between insurance growth and economic development has been suggested by many economists that insurance determines economic growth although it will have more influence on the company's business background and affect income disparity. Insurance can be connected with "growth theory" through several factors such as insurance products or systems that can increase the productivity of labor, capital or technology factors (Jung, 2020).

The role of the insurance company as a company and individual risk sharing party will increase the risk exposure borne by the insurance company. Some insurance companies carry out reinsurance because they have a greater risk probability and are more vulnerable when a natural disaster occurs, compared to insurance companies that do not reinsurance. The company's risk management strategy is reinsurance to reduce potential losses during difficult times, so that during the financial crisis the company's performance still looks good (Caporale et al., 2017). Saunders & Cornett (2006) mentions

that several life insurance companies such as Cigna, SunAmerica, AIG and Prudential have merged with the banking industry in line with the stronger competition in the industry and other financial institutions. Insurance companies benefit from access to equity markets as additional capital for future business expansion (Saunders & Cornett, 2006).

The forward-looking probability of default can warn central bank supervisors about risky businesses, can take preventive actions based on Solvability II such as requiring companies to provide the required minimum capital and minimum solvency capital (Caporale et al., 2017). This requirement regarding the solvency level is also enforced in Indonesia under the supervision of the OJK. The default probability of the general insurance industry varies between periods and the default probability of bankrupt companies tends to be unstable compared to companies that survive a recession. A high probability of default usually occurs in the event of a natural disaster. Insurance companies are relatively stable but very sensitive to natural disasters (Caporale et al., 2017).

Several empirical studies on the general insurance industry state that insurance companies must have an early warning system (Nurfadila et al., 2015; Sumartono & Harianto, 2018) that warns management of financial management, allocates investments with risks and returns according to business strategy and meets risk-based minimum capital. Thus, this study aims to explore the specific effects of general insurance companies such as claims ratios, premium growth ratios, risk-based-capital ratios, and external factors, namely GDP and inflation, on the financial performance of general insurance companies in Indonesia.

LITERATURE REVIEW

Higher investment from the sale of insurance products does not always result in profitability for the insurance sector, for example the sale of insurance products with uncontrolled regulated rates and higher underwriting losses. High leverage indicates a high level of risk borne by the insurance company and if the company's exposure to certain risky insurance products is excessive, it will have a negative effect on the performance of the insurance company. The relationship between leverage power and firm performance is a function of product diversity. Insurance companies with high leverage are able to improve their performance with a diversification strategy to reduce risk by expanding their product offerings to more profitable product segments. Through product diversification, highly leveraged companies can benefit from economies of scope and economies of scale. Insurance companies with low leverage should focus more on products in certain segments, they may not be able to benefit from diversification due to limited human, financial and technical resources (Foong & Idris, 2012).

Several studies in the insurance sector also discuss the company's internal factors that may have an impact on the company's financial performance. A study conducted by Zelie (2019) measuring the profitability of insurance companies using return on capital has a statistically significant positive effect on the financial distress condition of insurance companies in Ethiopia. This implies that the higher the level of profitability, the better the financial health and stability. Insurance company liquidity as measured by the current ratio has a statistically significant positive effect on the financial distress condition of Ethiopian insurance companies. This shows that when the ratio of current assets to current liabilities increases, the financial health of the insurance company will increase (Zelie, 2019).

Zelie (2019) state that the efficiency of insurance companies as measured by the total asset turnover ratio has no significant effect on the financial health condition of Ethiopian insurance companies. The level of insurance company leverage as measured by the debt ratio has a significant negative effect on the financial distress condition of insurance companies in Ethiopia. This means that higher use of debt financing will have a negative impact on the financial health of Ethiopian insurance companies. The size of the insurance company as measured by the natural logarithm of total assets has no

statistically significant effect on the financial distress condition of the Ethiopian insurance company (Zelie, 2019).

Another study by Çekrezi (2015) used the total debt ratio and risk variables to have a significant negative effect on ROA, positive tangibility and a positive effect on ROA. Meanwhile, flexibility and size have no effect on ROA. Insurance companies are expected to avoid situations where the level of leverage leads to bankruptcy when unable to pay debts. Insurance companies with high tangibility ratios have good financial performance. Insurance companies are very close to risk, because it can reduce financial performance (Çekrezi, 2015).

The research of Barua et al. (2018) shows that total assets have a significant negative effect on ROA ROE. Increasing company size and asset base will reduce profitability due to low return on assets invested by insurers and inefficient management for large companies. Tangibility is negatively correlated with ROA, the higher the tangibility, the more funds are used to provide fixed assets that are not used to generate income, thereby lowering profitability and increasing the opportunity cost of the funding. The implication is that the asset base grows insurers have a fairly large role in fixed asset funding compared to the income derived from investment, thus driving a negative impact on the company's profitability. Premium growth has a significant effect on ROA ROE, high premiums increase liquidity and the ability to invest to increase insurer profitability. The loss ratio (high claim settlement) is significantly negative, the higher the loss ratio indicates an underwriting system error that will have an impact on the bottom line. The benefits of higher incoming premiums will significantly decrease if insurers fail to invest their funds wisely. Leverage ratio has a significant positive effect on ROE (Barua et al., 2018).

A study conducted by Mwangi and Iraya (2014) shows that there is no relationship between size, growth rate, retention ratio and financial performance. The higher the investment yield, the higher the ratio of earning assets to total assets, the better the financial performance of general

insurers in Kenya. The higher the loss and expense ratio, the worse the financial performance. Growth rate, size and retention ratio do not determine the financial performance of general insurance in Kenya. The relationship between financial performance with earning assets and investment yield is significant and positive, while the relationship between financial performance and loss ratio and expense ratio is inversely or negative. The implication is that underwriter insurance companies in Kenya should maximize resource allocation to income-generating assets and ensure that funds are invested in high-return assets (Mwangi & Iraya, 2014).

Studies in the insurance sector have a relationship with macroeconomic variables, but not many have reviewed this external relevance. As research by Batool & Sahi (2019) uses internal and external factors such as GDP, CPI, Interest rates, but external factors have no significant effect on ROA ROE. Internal factors (size, leverage, asset turnover) of the insurance industry in the USA are positively correlated with ROA and ROE profitability indicators. The internal factor of liquidity shows an insignificant relationship with profitability indicators ROA and ROE. Insurance companies must increase the size, leverage and asset turnover to boost the financial performance of insurance companies operating in the USA. The insurance industry in the UK shows that internal liquidity is positively correlated with ROA ROE profitability indicators. Internal size and asset turnover factors are not significant with ROA ROE. Insurance companies should increase company liquidity and reduce leverage ratios to boost the financial performance of insurance companies operating in the UK (Batool & Sahi, 2019).

RESEARCH METHOD

The research samples are 35 registered general insurance companies at Financial Services Authority (OJK) that publish financial statements for the 2016-2019 period. Research sample selected specifically for general insurance companies to avoid treatment bias with life insurance companies. The data used are general insurance company

financial ratio panel data, GDP and inflation rate for the 2016-2019 period. The data analysis method uses panel data regression with a model estimation approach, namely a model without the influence of each variable (common effect) and a model with the influence of each variable (fixed effect and random effect).

Panel data regression model:

$$Y_{it} = \beta_0 + \beta_1 X_{it,1} + \beta_2 X_{it,2} + \beta_3 X_{it,3} + \beta_4 X_{it,4} + \beta_5 X_{it,5} + v_{it}$$

Y = dependent variable
X = independent variable

ROA = f (CR, PGR, RBC, GDP, Inf)

$$ROA_{it} = \beta_0 + \beta_1 CR_{it,1} + \beta_2 PGR_{it,2} + \beta_3 RBC_{it,3} + \beta_4 GDP_{it,4} + \beta_5 Inf_{it,5} + v_{it}$$

ROE = f (CR, PGR, RBC, GDP, Inf)

$$ROE_{it} = \beta_0 + \beta_1 CR_{it,1} + \beta_2 PGR_{it,2} + \beta_3 RBC_{it,3} + \beta_4 GDP_{it,4} + \beta_5 Inf_{it,5} + v_{it}$$

Notes:
i = unit of observation (35 general insurance companies)
t = period of time (2016 to 2019)
β_0 = intercept
β_k = coefficient of each explanatory variables
v_{it} = eror term
$CR_{it,1}$ = claim ratio
$PGR_{it,2}$ = premium growth rate ratio
$RBC_{it,3}$ = risk-based-capital ratio
$GDP_{it,4}$ = gross domestic bruto
$Inf_{it,5}$ = inflation
ROA_{it} = return on assets
ROE_{it} = return on equity

The number of observation data panels is 140 observations (35 sample companies multiplied by 4 periods). The independent variable is the financial performance of insurance companies as proxied by return on assets (ROA) and return on equity (ROE). The dependent variable is the insurance company specific variable which is proxied by the claim expense ratio, premium growth ratio and risk-based-capital; macroeconomic variables are proxied by gross domestic product (GDP) and inflation rate.
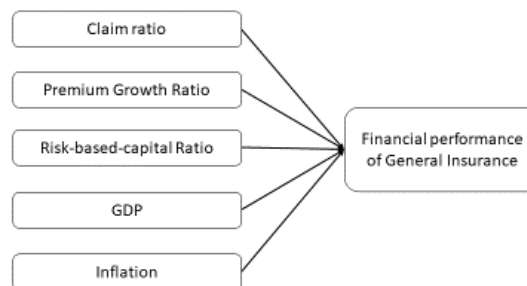

Figure 1. Conceptual Framework

Hypotheses
H1a: Claim ratio affects return on assets significantly.
H2a: Premium growth ratio affects return on assets significantly.
H3a: RBC affects return on assets significantly.
H4a: GDP affects return on assets significantly.
H5a: Inflation affects return on assets significantly.
H1b: Claim ratio affects return on equity significantly.
H2b: Premium growth ratio affects return on equity significantly.
H3b: RBC affects return on equity significantly.
H4b: GDP affects return on equity significantly.
H5b: Inflation affects return on equity significantly.

Variables
The company's financial performance is proxied by ROA (Return on Assets) and ROE (Return on Equity). ROA shows the company's profitability, the amount of profit that can be used to provide the company's operational assets. The higher the ROA ratio, the better the company's performance (Mukherjee et al., 2020).

$$Return\ on\ asset = \frac{premium\ revenue}{total\ assets}$$

Another indicator of the company's financial performance from the equity aspect, namely ROE, shows that net income can be used to support equity needs.

$$Return\ on\ equity = \frac{premium\ revenue}{equity}$$

The claim expense ratio measures the amount of claims that occur to premium income. The

lower the claim expense ratio, the better the company's performance (Mukherjee et al., 2020).

$$Claim\ ratio = \frac{claim\ expense}{premium\ revenue}$$

The premium stability ratio measures the premium growth rate of insurance company.

$$Premium\ growth\ rate = \frac{premium\ netto_t - premium\ netto_{t-1}}{premium\ netto_{t-1}}$$

Risk Based Capital analysis measures the level of risk-based capital with a normal limit of at least 120%. The target level of internal solvency in Indonesia according to OJK Regulation number 71/POJK.05/2016 concerning the financial health of insurance companies and reinsurance companies is set at 120% of the Risk-Based Minimum Capital (OJK, 2016).

$$Risk\ based\ capital = \frac{solvency\ level}{minimum\ solvency\ limit}$$

Stages of analysis
Classical assumption test
Classical assumption test was used to prepare the data prior to analysis, including normality test, multicollinearity test, heteroscedasticity test and autocorrelation test.

The Test of panel data regression model approach
Common effect model or the pooled OLS: combines time series and cross section data, does not consider time and individual dimensions so that in the common effects equation model symbols i (number of units of observation) and t (time period) do not exist (Xu et al., 2007; Zulfikar, 2018). The assumption is that the impact of each unit over the time of observation is considered the same or constant.
Common effect regression model:

$$y = \beta_0 + \beta_1 x_1 + \cdots + \beta_k x_k + v$$

Fixed effects models. Using an estimator in each cross-sectional unit and each observation time period by entering a dummy variable (Xu et al., 2007).
Fixed effect regression model:

$$\begin{aligned} y_{it} = \beta_0 &+ (\delta_1 D_1 + \cdots + \delta_{i-1} D_{i-1}) \\ &+ (\theta_1 T_1 + \cdots + \theta_{t-1} T_{t-1}) \\ &+ \beta_1 x_{it1} + \cdots + \beta_k x_{itk} \\ &+ u_{it} \end{aligned}$$

Notes:
D_i = dummy variables for each cross sectional unit except one
T_t = dummy variables for each time period except one

Random effects models. This approach is also referred to as the component variance model, ignoring heterogeneity. The random effect model estimates the interference variables that have interconnected time and individual dimensions (Xu et al., 2007; Zulfikar, 2018).

There are three types of test for determining the estimation of the panel data regression model (Zulfikar, 2018):
1. Chow test is used to choose between the common effect and fixed effect models.
H0: Common Effect Model → H0: Accepted if Cross Section F>0.05
H1: Fixed Effect Model → H1: Accepted if Cross Section F<0.05
2. Hausman test is used to choose between fixed effect and random effect models.
H0: Random Effect Model → H0: Accepted if prob. > 0.05
H1: Fixed Effect Model → H1: Accepted if prob. <0.05
3. The langrange multiplier test is carried out if the Hausman test results show a random effect model. The langrange multiplier test is used to choose between the common effect and random effect models.
H0: Commom Effect Model → H0: Accepted if Prob. Breusch-Pagan >0.05
H1: Random Effect Model → H1: Rejected if Prob. Breusch-Pagan <0.05

DISCUSSION
Based on table 1, mean value of ROA is 0.0333, it shows some companies experienced a decrease in premium income and even losses relative to total assets as indicated by a minimum value of -0.0039. Mean ROE 0.0989 while the maximum value of 0.5191 is quite large, most of the sample companies experience a decrease in premiums or losses relative to equity. The sample company is a private company, has not received funding through the sale of outstanding shares. The average value of the claim expense ratio is -0.6495, the maximum value is 0.0782, the standard deviation value is 0.2753 indicating that the sample

companies on average have low claims expenses, but also vary in the amount of claim expenses relative to their premium income. The average premium growth is quite low at -0.9683, this is also influenced by the diversity of general insurance product lines offered to clients. The average risk-based-capital ratio (RBC) is 0.5141, the minimum value is 0.1195, the sample companies has a solvency level that still meets the standard. The average value of GDP is 2.422 and the average value of inflation is -0.0640 in the sample period, the dynamic of inflation is still relatively low and under control.

Classical assumption tests

Classical assumption test was done for normality test, multicollinearity test, heteroscedasticity test and autocorrelation test. The p-value of normality test is more than 0.05. The results of Variance Inflation Factors (VIF) test of ROA and ROE models are less than 10, the data is free from multicollinearity. All variable probability values > 0.05, then there is no heteroscedasticity. Durbin-Watson value for ROA's model is dU 1.8029 < dW 2.1246 < 4dU 2.1971 so there is no autocorrelation; Durbin –Watson value ROE's model is 4dU 2.1971 < dW 2.4197 < 4dL 2.8399 there is no autocorrelation.

Model estimation approach

The results of the Chow test of the ROA and ROE models with probability values < 0.05, the model chosen is Fixed Effect Model.

Table 2. Chow Test

Model	Effects Test	Statistic	Probability
ROA	Cross-section F	2.745937	0.0001*
	Cross-section Chi-square	92.315039	0.0000*
ROE	Cross-section F	6.800690	0.0000*
	Cross-section Chi-square	167.667227	0.0000*

Source: Prepared by author (2021).

The results of the Hausman test of the ROA and ROE models with a probability value > 0.05, the random effect model is selected.

Table 3. Hausman Test

Model	Test Summary	Chi-Sq. Statistic	Probability
ROA	Cross-section random	0.000000	1.0000*
ROE	Cross-section random	0.000000	1.0000*

Source: Prepared by author (2021).

The results of the langrange multiplier of ROA and ROE models shows the significance value of Breusch-Pagan <0.05, the random effect model is selected.

Table 4. Lagrange Multiplier Test

Model	Null (no rand. effect) Alternative	Cross-section One-sided	Both
ROA	Breusch-Pagan	12.19869 (0.0005)*	12.19894 (0.0005)*
ROE	Breusch-Pagan	61.14094 (0.0000)*	61.43666 (0.0000)*

Source: Prepared by author (2021).

Based on the three stages model testing approach, the most appropriate model of panel regression's is ***Random Effect Model.***

Panel data regression analysis

Based on table 5 and table 6 the analysis of the model approach, a random effect model was obtained, but the results were the same as the common effects model. The claims expense ratio and risk-based-capital variables have a significant effect on ROA. Probability value of claim ratio 0.0429 < α 0.05 and t-statistic 2.044065 > t-table 1.96. Probability value of risk-based-capital ratio (RBC) 0.0250 < α 0.05 and t-statistic 2.267518 > t-table 1.96. Meanwhile, the premium growth rate, GDP and inflation have no significant effect on ROA. The claim expense ratio variable has a significant effect on ROE. Probability value of claim ratio 0.0201 < α 0.05 and t-statistic 2.352691 > t-

table 1.96. While the claims growth rate, risk-based-capital, GDP and inflation have no significant effect on ROE.

Claim ratio has a significant positive effect on ROA. Insurance companies receive premiums then invest in stocks, bonds, real estate or mortgages, and make payments to the client (Brigham & Houston, 2020). Claim ratio has a significant positive effect on ROE. The higher the claim, the higher the risk of the company, a high amount of assets and capital investment is required to ensure the fulfillment of the client's claim payment obligations (Putra, 2017). The company's ability to pay claims should be in accordance with the percentage of recorded premium income. The higher the profitability of the insurance company, the greater the ability to pay claims (Tarsono et al., 2020).

Premium growth rate has no significant effect on ROA and ROE. The increase in premium growth does not affect the use of assets to generate profit (Tarsono et al., 2020). Revenue growth has no significant effect on ROA profitability. Good risk management is the main key for insurance companies to generate stable revenue growth. Asset growth has no effect on ROA, the selection of an inappropriate business strategy causes premium and non-premium income to be not maximal like investment returns, not all companies with large assets are able to generate premium income equal to the number of assets owned (Putra, 2017). The ratio of net premium growth has a negative effect on the probability of financial distress of insurance companies (Harjadi & Sihombing, 2020).

Recording more premiums will reduce the probability of insurance company defaults. Companies with higher gross recorded premiums will not only have cash inflows in the short term but also potential claims in the long term. The rapid growth of recorded gross premiums may also have led to problems with pricing errors such as selling more policies at lower prices and an increased probability of insurance company defaults. Finally, highly leveraged firms are less likely to survive a recession and therefore usually have a higher probability of default (Caporale et al., 2017).

Risk-based-capital (RBC) has a significant positive effect on ROA. The higher the RBC value above 120%, the company has sufficient assets and liabilities to maintain the company's solvency. The ability of insurance companies to manage wealth and bonds depends on the level of risk faced by the company (Tarsono et al., 2020). The higher the risk-based minimum capital the company has a fairly good bankruptcy guarantee. Allocations on low-risk and low-return investments increase the value of solvency calculations, allocation of claim reserves reduces investment management funding resulting in a decrease in income, high share reinsurance results in the amount of premium given to reinsurers reducing income (Putra, 2017). Risk-based capital has a negative effect on the probability of financial distress (Harjadi & Sihombing, 2020).

Risk-based-capital has no significant effect on ROE. RBC in the general insurance industry is more exposed to assets and underwriting results (Cummins & Phillips, 2009), in addition to general insurance companies in this study are insurance companies registered with the OJK and most of them have not become public companies so there is no investment in issued shares, investment is limited to assets. In contrast to the study conducted by Soekarno & Azhari (2009) to measure the performance of the Joint Venture general insurance industry which has become a public company, the most influential ratio predicting the company's profitability is ROE and the ratio that has the most influence on solvency is RBC, company managers must pay attention to equity efficiency shareholders so that the company gets the maximum return from shareholder investment (Soekarno & Azhari, 2009).

The external factors GDP and inflation have no significant effect on ROA and ROE. The default probability of the general insurance industry varies over time and the default probability of a bankrupt company is more unstable than that of a surviving company. A high probability of default is usually found in the event of a disaster such as a flood. This shows that, unlike other financial institutions, insurance companies

are relatively stable but highly sensitive to natural disasters (Caporale et al., 2017). The high probability of default as during the financial crisis suggests that the insurance and banking industries may be closely correlated. Regulators should consider these interactions and be aware of the domino effect in difficult times.

Batool & Sahi (2017) comparing the financial performance of general insurance companies in the USA and UK, the external factor, GDP in the two sample groups, has no significant effect on ROA and ROE. For USA and UK insurance companies, the external GDP factor is positively correlated with ROA and ROE, the high GDP creates a competitive advantage and secures insurance companies in the USA and UK. Otherwise, a significant relationship proves that the financial performance of insurance companies spreads and increases the income per capita (Meher & Zewudu, 2020).

The study conducted by Frameswari et al. (2017) in the ASEAN countries used in the research sample (one of which is Indonesia) shows that overall the banking sector has a tendency to financial fragility compared to the insurance sector. Macroeconomic variables such as GDP affect financial fragility, a negative growth conditions in the financial system of a sector, especially banking. This condition can arise according to the economic cycle or occur during a financial crisis (Frameswari et al., 2017).

Insurance companies are generally very vulnerable when natural disasters occur. The probability of default is spread across different business lines such as Accident & Health insurance, Household, Property, Motorbike, Transportation and Third Party Liability insurance is the riskiest business because it is highly likely to be affected by disasters such as floods, earthquakes. However, the probability of default from all business lines has something in common, namely an upward trend in difficult times except for Accidents & Health and Others which are less correlated with financial markets (Caporale et al., 2017).

A number of studies recommend to reduce underwriting risk through reinsurance. It reduces the quantum debt capital on the company's capital structure and

the allocation of premiums on investment returns will encourage good financial performance. Managers are expected to constantly generate profits and perform cost efficiencies through economies of scale and maximize revenue by collecting premiums on financial services to insurance policyholders (Meher & Zewudu, 2020). Mukherjee, et al., (2020) suggests that the phenomenon of inefficient corporate resource management will lead to a significant possibility for reinsurance companies to experience financial distress.

CONCLUSION

The claim expense ratio variable has a significant effect on ROA and ROE. The higher the profit generated by the insurance company is directly proportional to the effectiveness of asset and capital management, the insurance company will be able to fulfill the obligation to pay claims according to premium income. The premium growth rate has no significant effect on ROA and ROE. Rapid premium growth also indicates a higher risk or probability of default. Choosing the right business strategy will reduce risk and help to increase insurance company's premium growth. Risk-based-capital has a significant effect on ROA. The higher the risk borne by the general insurance company, the required investment in assets is quite high for liabilities so as to be able to maintain solvency. Risk-based-capital has no significant effect on ROE. In this study, the sample are private general insurance companies that has not published its shares so that the equity comes from the company's own funding. GDP and inflation have no significant effect on ROA and ROE. Macroeconomic variables such as GDP and inflation will affect the company's profitability, especially in times of crisis or natural disaster conditions, so that insurance companies are expected to implement business strategies and cost efficiency through economies of scale.

General insurance companies has a diverse line of business and exposed to natural disasters or crises. Management

should has a strategic plan for assets management, product marketing, control premiums flows and claim recorded. Companies could mitigate the risks by reinsurance.

Suggestion for future research is to classify general insurance companies based on the number or type of product lines. The broader range of product line of a general insurance company, the greater the assets and capital required, the higher the risk faced. By classifying the data sampling of insurance companies, it will help minimize bias on observations results.

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