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FAKTOR – FAKTOR YANG MEMENGARUHI RASIO PROFITABILITAS PERUSAHAAN ASURANSI UMUM DI BURSA EFEK INDONESIA TAHUN 2018 – 2022 MENGGUNAKAN REGRESI PANEL

Factors Affecting The Profitability Ratio Of General Insurance Companies On The Indonesia Stock Exchange For The Years 2018 – 2022 Using Panel Regression

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Abstrak

Analisis kinerja keuangan memberikan gambaran hasil bisnis perusahaan pada suatu periode. Penelitian ini bertujuan mengetahui faktor-faktor yang memengaruhi *Return on Assets* (ROA) dan Return on Equity (ROE) perusahaan asuransi umum di Bursa Efek Indonesia (BEI) dari 2018 hingga 2022 dengan regresi panel. Data diambil dari idx.co.id dan emiten.kontan.co.id. Penelitian ini menghasilkan dua model, dengan Variabel bebas dan terikat yang berbeda, yang menunjukkan pengaruh signifikan Variabel terhadap ROA dan ROE. Persamaan model ROA yang didapat adalah $ROA_{i,t} = \alpha_i + 0.0053(CR)_{i,t} + 0.0118(TATO)_{i,t} - 0.0068(DER)_{i,t} + 0.0001(EPS)_{i,t}$. Sedangkan, persamaan model ROE adalah, $ROE_{i,t} = \alpha_i + 0.0030(CR)_{i,t} - 0.0137(TATO)_{i,t} + 0.1999(DAR)_{i,t} + 0.2016(NPM)_{i,t}$. Dalam persamaan ROA menunjukkan hanya Variabel EPS yang signifikan secara parsial. Sementara itu, dalam persamaan ROE menunjukkan Variabel DAR dan NPM signifikan secara parsial dalam memengaruhi ROE.

Kata Kunci: *Fixed effect model*, regresi panel, ROA, ROE.

Abstract

Financial performance analysis can provide insights into a company's business outcomes over a given period. This research aims to identify factors influencing the Return on Assets (ROA) and Return on Equity (ROE) of general insurance companies listed on the Indonesia Stock Exchange (IDX) from 2018 to 2022 using panel regression. Data were collected from idx.co.id and emiten.kontan.co.id. This research produced two models, which show each with different independent and dependent variables, revealing significant effects of the variables on ROA and ROE. The ROA model equation is $ROA_{i,t} = \alpha_i + 0.0053(CR)_{i,t} + 0.0118(TATO)_{i,t} - 0.0068(DER)_{i,t} + 0.0001(EPS)_{i,t}$. *Meanwhile, the ROE model equation is* $ROE_{i,t} = \alpha_i + 0.0030(CR)_{i,t} - 0.0137(TATO)_{i,t} + 0.1999(DAR)_{i,t} + 0.2016(NPM)_{i,t}$. *The ROA equation shows only the EPS variable is partially significant. Meanwhile, the ROE equation shows only DAR and NPM variables are partially significant in influencing ROE.*

Keywords: fixed effect model, panel regression, ROA, ROE.

1. INTRODUCTION

Insurance companies are financial sector businesses that provide protection services against future risks to customers. One type of insurance product is general insurance, which focuses on non-life losses such as vehicle accidents, theft, violence, fire, and property damage. The increasing awareness of future uncertainties encourages people to use general insurance services [1]. Additionally, the general insurance sub-sector companies have experienced growth each year due to this increased awareness. Consequently, the performance of general insurance companies needs to be improved as it impacts the company's value and stock, reflecting investor prosperity [2].

Financial performance analysis can provide insights into a company's business outcomes over a given period. Financial performance can be obtained from the analysis and evaluation of financial statements to assess the company's health [3]. Generally, profitability ratios are often used to evaluate a company's financial performance. This serves as the basis for investors' decisions to invest.

This study uses two dependent variables, namely Return On Assets (ROA) and Return On Equity (ROE), to assess the company's financial performance in generating profit. This is supported by the studies of Renaldy [4], Pasaribu and Ritonga [5], and Lestari dan Sulastri [6] which concluded that ROA and ROE variables partially influence profit growth.

The ROA variable will be measured using Current Ratio (CR), Total Asset Turnover (TATO), Debt to Equity Ratio (DER), and Earnings per Share (EPS) as independent variables. This study is based on previous research by Wedyaningsih, Nurlaela, and Titisari [7]; Ulzanah and Murtaqi [8]; Laela and Hendratno [9]; Wanny, Jenni, Yeni, Merrisa, Erlin, and Nasution [10]; Joana and Pitaloka [11]. Significant variables from previous studies are combined to examine their influence on the ROA variable.

To measure the ROE variable, Current Ratio (CR), Total Asset Turnover (TATO), Debt to Assets Ratio (DAR), and Net Profit Margin (NPM) will be used as independent variables. This selection is based on relevant previous studies such as those conducted by Sri [12]; Aminatuzzahra [13]; Pongrangga, Dzulkirom, and Saifi [14]; Wiyono, Kusumawardhani, and Heriawan [15]; and Henny [16], which also support the selection of these variables. Additionally, other studies by Wahyuni, Andriani, and Martadinata used the panel regression method, which showed that the panel regression method is effective in identifying factors influencing profitability ratios [3].

Based on the background above, this study aims to identify the factors affecting ROA and ROE of general insurance companies listed on the Indonesia Stock Exchange (IDX) using panel regression methods. The panel regression method is used as it allows for the analysis of data involving both cross-sectional and time-series data, which fits the panel data framework of this study [17]. Data from 2018 to 2022 were collected from the websites idx.co.id and emiten.kontan.co.id. This study is titled "Factors Affecting the Profitability Ratio of General Insurance Companies on the Indonesia Stock Exchange for the Years 2018 - 2022 Using Panel Regression."

2. RESEARCH METHODOLOGY

2.1. Data Sources and Research Variables

The data used are the financial reports of general insurance companies available on the Indonesia Stock Exchange website (www.idx.co.id) for the years 2020-2022 and the

Emiten Kontan website (https://emiten.kontan.co.id/) for the years 2018-2019, totaling 280 data points. The variables used are as follows:

1. Dependent Variable: Return On Assets (ROA)
   The ROA variable is assumed to have a positive value and is influenced by four independent variables: Current Ratio (CR), Total Assets Turnover (TATO), Debt to Equity Ratio (DER), and Earnings per Share (EPS).
2. Dependent Variable: Return On Equity (ROE)
   The ROE variable is assumed to have a positive value and is influenced by four independent variables: Current Ratio (CR), Total Assets Turnover (TATO), Debt to Assets Ratio (DAR), and Net Profit Margin (NPM).

2.2. Research Stages

1. Collect and input financial ratio data into Excel from the annual reports of general insurance companies for the years 2018-2022.
2. Identify the independent and dependent variables to be used and create estimation models (CEM, FEM, and REM) using the R application.
3. Conduct the Chow test to determine the appropriate model between CEM and FEM.
4. Conduct the Hausman test to select the appropriate model between REM and FEM. If FEM is selected, then FEM is the best model.
5. If FEM is not selected, conduct the Lagrange-Multiplier test to choose the best model between CEM and REM.
6. The best model obtained will be tested for classical assumptions. If the model does not meet the classical assumptions, data transformation and variable identification steps and model formation will be repeated.
7. If the model meets the classical assumptions, parameter estimation tests (T-test and F-test) will be conducted to see the effect of the variables. If the F-test shows no significant factors, the research is considered complete. The obtained results will then be analyzed and interpreted.

3. RESULTS AND DISCUSSION

3.1. Data Exploration

Data exploration aims to provide an initial overview of the research data. The data analyzed are the financial ratios of general insurance companies listed on the Indonesia Stock Exchange (IDX) for the years 2018-2022.

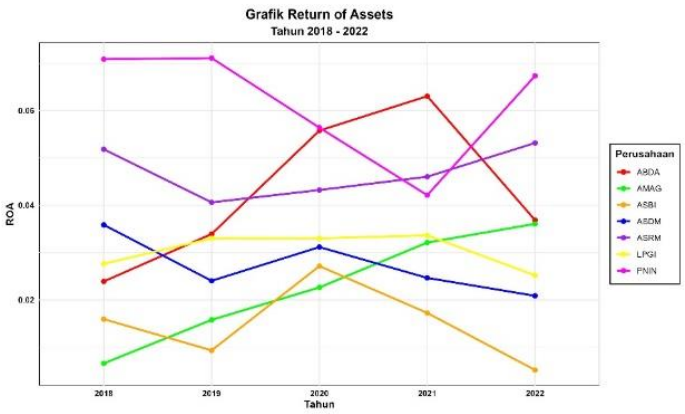

Figure 1. ROA Graph of General Insurance Companies for 2018 – 2022

Based on **Figure 1**, the graphs of ASDM and ASBI companies show similar patterns; their ROA values decreased in 2018-2019 but increased in 2020. However, the increase in ASBI's ROA was more significant in 2020 compared to ASDM. Additionally, both companies' ROA values decreased again in 2021-2022. For the ABDA company, its ROA value increased from 2018 to 2021 but decreased significantly in 2022. Moreover, the ROA value for the LPGI company rose in 2019 and remained stable from 2018 to 2021, but it decreased again in 2022. The ROA value for the ASRM company decreased in 2019 and increased from 2020 to 2022. Additionally, PNIN's ROA increased due to a rise in net profit from 2018 to 2019, then decreased from 2019 to 2021, and increased again in 2022. Meanwhile, AMAG's ROA graph is better than other companies because of the stable increase in ROA every year. From 2018 to 2022, AMAG's ROA value increased, which was due to the annual increase in the company's investment returns.

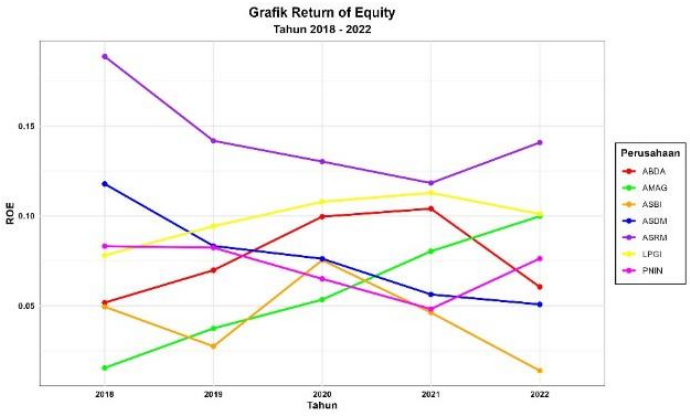

Figure 2. ROE Graph of General Insurance Companies for 2018-2022

Based on **Figure 2**, several companies have similar patterns. The ASRM and PNIN companies show similar patterns, with ROE values decreasing from 2018 to 2021 and increasing in 2022. For the ASDM company, the ROE value decreased every year, with the largest decline in 2019. Moreover, LPGI and ABDA companies also show similar ROE patterns, with both companies' ROE values increasing from 2018 to 2021 but decreasing in 2022. However, ABDA's ROE increase was higher than LPGI's. Furthermore, AMAG has a better graph than other companies due to the stable increase in ROE from 2018 to 2022, driven by consistent growth in net profit from the company's investments each year. Meanwhile, ASBI's ROE value tends to be significantly fluctuating. In 2018-2019, ASBI's ROE value decreased due to a decline in net profit caused by high net claim expenses and premium reserve formation. In 2019-2020, ASBI's ROE value increased significantly due to a substantial rise in investment returns. However, in 2021-2022, ASBI's ROE value decreased again due to a drop in net profit, driven by a decline in the company's investment returns.

3.2. Estimation of Panel Data Regression Models

In this study, the model testing will use three approaches which is the common effect model, the fixed effect model, and the random effect model. The results of the tests are as follows:

1. Common Effect Model

In the common effect model, the value of α is constant for each individual and period, with the ROA model obtained from testing in the R application as follows:

Table 1. Coefficients of Common Effect Model ROA

Variable	(Intercept)	CR	TATO	DER	EPS
Coefficients	0.03158	0.00493	0.02862	-0.01379	0.00003

Therefore, the ROA model equation for the common effect model is as follows:

$$ROA_{it} = 0.03158 + 0.00493(CR)_{it} + 0.02862(TATO)_{it} - 0.01379(DER)_{it} + 0.00003(EPS)_{it} \quad (1)$$

Meanwhile, the model obtained for the ROE variable is as follows:

Table 2. Coefficients of Common Effect Model ROE

Variable	(Intercept)	CR	TATO	DAR	NPM
Coefficients	-0.08435	0.00824	0.11185	0.15475	0.17532

Therefore, the ROE model equation for the common effect model is as follows:

$$ROE_{it} = -0.08435 + 0.00824(CR)_{it} + 0.11185(TATO)_{it} + 0.15475(DAR)_{it} + 0.17532\,(NPM)_{it} \quad (2)$$

2. Fixed Effect Model

Fixed effect model assumes that there are different effects among individuals. The ROA model obtained from testing in the R application is as follows.

Table 3. Coefficients Fixed Effect Model ROA

Variable	CR	TATO	DER	EPS
Coefficients	0.00530	0.01179	-0.00676	0.00013

Therefore, the model equation for the fixed effect model is as follows:

$$ROA_{it} = \propto_i + 0.00530(CR)_{it} + 0.01179(TATO)_{it} - 0.00676(DER)_{it} + 0.00013(EPS)_{it} \quad (3)$$

Meanwhile, the model obtained for the ROE variable is as follows:

Table 4. Coefficients of Fixed Effect Model ROE

Variable	CR	TATO	DAR	NPM
Coefficients	0.00295	-0.01366	0.19985	0.20161

Therefore, the model equation for the fixed effect model is as follows:

$$ROE_{it} = \propto_i + 0.00295(CR)_{it} - 0.01366(TATO)_{it} + 0.19985(DAR)_{it} + 0.20161(NPM)_{it} \quad (4)$$

3. Random Effect Model

In the random effect model, the intercept differences are combined by the error terms of each unit. The ROA model obtained from testing is as follows.

Table 5. Coefficients Random Effect Model ROA

Variable	(Intercept)	CR	TATO	DER	EPS
Coefficients	0.02937	0.00431	0.01760	-0.01119	0.00005

Therefore, the model equation for the random effect model is as follows:

$$ROA_{it} = 0.02937 + 0.00431(CR)_{it} + 0.01760(TATO)_{it} - 0.01119(DER)_{it} + 0.00005(EPS)_{it} \quad (5)$$

Meanwhile, the model obtained for the ROE variable is as follows:

Table 6. Coefficients of Random Effect Model ROE

Variable	(Intercept)	CR	TATO	DAR	NPM
Coefficients	-0.08435	0.00824	0.11185	0.15475	0.17532

Therefore, the model equation for the random effect model is as follows:

$$ROE_{it} = -0.08435 + 0.00824(CR)_{it} + 0.11185\ (TATO)_{it} + 0.15475(DAR)_{it} + 0.17532\ (NPM)_{it} \quad (6)$$

3.3. Selection of the Best Panel Data Regression Model

The model selection to determine the best estimation model from the common effect model, fixed effect model, and random effect model was obtained using the R application. The significance level (α) used is 0.05.

1. Chow Test

Table 7. Chow Test Results for ROA and ROE Models

Dependent Model	F-Statistic	p-value
ROA	7.7585	0.000103
ROE	3.8859	0.007499

Based on **Table 7**, with a 95% confidence level, the p-values for ROA and ROE are 0.000103 and 0.007499, respectively, both less than 0.05. Therefore, the fixed effect model is better than the common effect model for both models.

2. Hausman Test

Table 8. Hausman Test Results for ROA and ROE Models

Dependent Model	*chi-square* statistic	p-value
ROA	75.834	0.00000
ROE	72.825	0.00000

Based on **Table 8**, with a 95% confidence level, the p-values for ROA and ROE are 0.00000 and 0.00000, respectively, both less than the significance level (α) of 5%. Therefore, the conclusion is that the fixed effect model is the best model in this study.

3.4. Classical Assumption Tests

Classical assumption tests are conducted to ensure that the regression model is good, unbiased, and consistent. The classical assumption tests are performed on the selected fixed effect model.

1. Normality Test

Normality test is to find out if the tested sample comes from the population which has a normal distribution. To detect whether the sample has a normal distribution residual, it can be tested with Jarque-bera test.

Table 9. Jarque-Bera Normality Test Results for ROA and ROE Models

Dependent Model	X-squared	p-value
ROA	0.41409	0.813
ROE	1.3565	0.5075

With the above results, based on the Jarque-Bera test, the p-values for ROA and ROE are 0.813 and 0.5075, respectively, both greater than the significance level (0.05). Therefore, it can be concluded that the residuals of both models are normally distributed.

2. Multicollinearity Test

This test aims to test whether there is a correlation between variables. A good regression model should not contain a correlation between independent variables. Multicollinearity testing is carried out by looking at the Variance Inflation Factor (VIF) value. If the VIF value < 10, then it can It was decided that the model had no problems with Multicollinearity.

Table 10. VIF Test Results for ROA and ROE Models

Dependent Model	CR	TATO	DER	EPS
ROA	2.643245	2.285438	1.597903	1.743432
ROE	2.605123	1.489654	4.733616	6.165835

With the above VIF values, it can be seen that none of the VIF values exceed 10, indicating no multicollinearity issues in the fixed effect models obtained from the previous two tests.

3. Heteroscedasticity Test

This test is used to test whether there is a similarity of residual variants in one observation with another is called homoscedasticity, but if different will be called heteroskedasticity. The good regression model is a model of homoscedasticity.

Table 11. Breusch-Pagan Test Results for ROA and ROE Models

Dependent Model	BP	p-value
ROA	1.9749	0.7404
ROE	3.2449	0.5177

Based on the Breusch-Pagan test results, the p-values for the ROA and ROE models are 0.7404 and 0.5177, respectively, both greater than the significance level of 5%. Therefore, it can be concluded that there is no heteroscedasticity problem in the fixed effect.

4. Autocorrelation Test

A good model is free from autocorrelation. Manner detecting it by the Lagrange-Multiplier test or the BreuschGodfrey test on the below:

Table 12. Breusch-Godfrey Test Results for ROA and ROE Models

Dependent Model	p-value
ROA	0.1073
ROE	0.8053

Based on the **Table 12**, the p-values for the ROA and ROE models are 0.1073 and 0.8053, respectively, which are greater than the 5% significance level. Therefore, it can be concluded that the fixed effect model does not exhibit autocorrelation among the observations for both models.

3.5. Parameter Estimation Test

The parameter estimation test is conducted to determine whether the regression model is appropriate to use. In this study, the parameter estimation test for the ROA and ROE models is as follows:

1. F-Test

This test examines whether there is a significant simultaneous influence between the independent variables and the dependent variable.

Table 13. F-Test Results for ROA and ROE Models

Dependent Model	F-Statistic	p-value
ROA	7.46949	0.00049
ROE	4.96242	0.00625

With p-values of 0.00049 and 0.00625 for the ROA and ROE models, respectively, which are less than the 5% significance level, H_0 is rejected. Therefore, it can be concluded that all independent variables collectively influence the ROA and ROE models.

2. T-Test

This test determines the individual influence of each independent variable on the dependent variable.

Table 14. T-Test Results for ROA Model

Variable	T-Value	p-value	significance
CR	1.0319	0.3124	Not Significant
TATO	0.9011	0.3770	Not Significant
DER	-1.5779	0.1277	Not Significant
EPS	5.1442	0.00003	Significant

Based on the results above, it is known that the EPS variable has a p-value of 0.00003, which is less than the 5% significance level, so H_0 is rejected. This indicates that only the EPS variable has a significant effect on the dependent variable ROA.

For the dependent variable ROE, the T-test results are shown below.

Table 15. T-Test Results for ROE Model

Variable	T-Value	p-value	significance
CR	0.2024	0.84131	Not Significant
TATO	-0.3911	0.69915	Not Significant

DAR	2.3309	0.02848	Not Significant
NPM	2.9411	0.00713	Significant

Based on the results above, the DAR and NPM variables have p-values of 0.02848 and 0.00713, respectively, which are less than the 5% significance level, so H_0 is rejected. This indicates that the DAR and NPM variables have a significant effect on the dependent variable ROE.

3.6. Coefficient of Determination

Coefficient of determination is used to see how well the model can explain the variation of the dependent variable. The results of the coefficient of determination for the fixed effect model for the dependent variables ROA and ROE are shown in the table below.

Table 16. Coefficient of Determination for ROA and ROE Models

Dependent Model	R-squared
ROA	0.55204
ROE	0.43771

Based on the **Table 16**, it can be concluded that the R-squared value for the ROA model is 0.55204. This indicates that the independent variables in the model, namely CR, TATO, DER, and EPS, can explain 55.204% of the variation in ROA. Meanwhile, the R-squared value for the ROE model is 0.43771, indicating that the independent variables in the model, namely CR, TATO, DAR, and NPM, can explain 43.771% of the variation in ROE.

3.7. Discussion

Based on the T-test, it is known that the variables CR and TATO have a positive but not significant effect on ROA. This means that the higher the CR and TATO values, the higher the ROA, but the effect is not statistically significant. The DER variable has a negative but not significant relationship with ROA, indicating that if DER increases, ROA decreases, but not significantly. Meanwhile, the EPS variable has a significant positive effect, meaning that an increase in EPS will significantly increase ROA.

Additionally, based on the T-test, it is known that the CR variable has a positive but not significant effect on ROE, while the TATO variable has a negative but not significant effect on ROE. This indicates that changes in CR and TATO do not significantly affect ROE. Meanwhile, the DAR and NPM variables have a significant positive effect on ROE.

The individual effects of the fixed effect model equations for each company in the ROA and ROE models are shown below.

Table 17. Individual Effects in ROA and ROE Models

Company Code	Individual Effect	
	ROA	ROE
ABDA	0.01308	-0.03776
AMAG	0.01989	-0.08975
ASBI	0.01914	-0.09486
ASDM	0.00709	-0.08074
ASRM	0.01379	0.01153
LPGI	-0.04108	-0.04760
PNIN	0.00508	-0.07934

In **Table 17**, the ROA model shows that the intercept value of the company AMAG or Asuransi Multi Artha Guna Tbk. is the largest. This means that the individual effect of the AMAG company in the ROA model is the greatest among the general insurance companies listed on the IDX in 2018-2022. Meanwhile, in the ROE model, the intercept value of the company ASRM or Asuransi Ramayana Tbk. is the largest. This means that the individual effect of the ASRM company in the ROE model is the greatest among the general insurance companies listed on the IDX in 2018-2022.

After obtaining the individual fixed effects for each company, as well as determining the coefficients for the fixed effect model, the next step is to formulate mathematical equations that represent the research model for the ROA and ROE variables. The research model for ROA obtained will be presented in the table below.

Table 17. ROA Model Equations for Each Company

Model Equations
$ROA_{ABDA,t} = 0.01308 + 0.00530(\text{CR})_{ABDA,t} + 0.01179(\text{TATO})_{ABDA,t} - 0.00676(\text{DER})_{ABDA,t} + 0.00013(\text{EPS})_{ABDA,t}$
$ROA_{AMAG,t} = 0.1989 + 0.00530(\text{CR})_{AMAG,t} + 0.01179(\text{TATO})_{AMAG,t} - 0.00676(\text{DER})_{AMAG,t} + 0.00013(\text{EPS})_{AMAG,t}$
$ROA_{ASBI,t} = 0.1914 + 0.00530(\text{CR})_{ASBI,t} + 0.01179(\text{TATO})_{ASBI,t} - 0.00676(\text{DER})_{ASBI,t} + 0.00013(\text{EPS})_{ASBI,t}$
$ROA_{ASDM,t} = 0.00709 + 0.00530(\text{CR})_{ASDM,t} + 0.01179(\text{TATO})_{ASDM,t} - 0.00676(\text{DER})_{ASDM,t} + 0.00013(\text{EPS})_{ASDM,t}$
$ROA_{ASRM,t} = 0.01379 + 0.00530(\text{CR})_{ASRM,t} + 0.01179(\text{TATO})_{ASRM,t} - 0.00676(\text{DER})_{ASRM,t} + 0.00013(\text{EPS})_{ASRM,t}$
$ROA_{LPGI,t} = -0.04108 + 0.00530(\text{CR})_{LPGI,t} + 0.01179(\text{TATO})_{LPGI,t} - 0.00676(\text{DER})_{LPGI,t} + 0.00013(\text{EPS})_{LPGI,t}$
$ROA_{PNIN,t} = 0.00508 + 0.00530(\text{CR})_{PNIN,t} + 0.01179(\text{TATO})_{PNIN,t} - 0.00676(\text{DER})_{PNIN,t} + 0.00013(\text{EPS})_{PNIN,t}$

Besides that, the ROE research model that has been obtained will be presented in the table show:

Table 18. ROE Model Equations for Each Company

Model Equations
$ROE_{ABDA,t} = -0.03776 + 0.00295(\text{CR})_{ABDA,t} - 0.01366(\text{TATO})_{ABDA,t} + 0.19985(\text{DAR})_{ABDA,t} + 0.20161(\text{NPM})_{ABDA,t}$
$ROE_{AMAG,t} = -0.08975 + 0.00295(\text{CR})_{AMAG,t} - 0.01366(\text{TATO})_{AMAG,t} + 0.19985(\text{DAR})_{AMAG,t} + 0.20161(\text{NPM})_{AMAG,t}$
$ROE_{ASBI,t} = -0.09486 + 0.00295(\text{CR})_{ASBI,t} - 0.01366(\text{TATO})_{ASBI,t} + 0.19985(\text{DAR})_{ASBI,t} + 0.20161(\text{NPM})_{ASBI,t}$
$ROE_{ASDM,t} = -0.08074 + 0.00295(\text{CR})_{ASDM,t} - 0.01366(\text{TATO})_{ASDM,t} + 0.19985(\text{DAR})_{ASDM,t} + 0.20161(\text{NPM})_{ASDM,t}$
$ROE_{ASRM,t} = 0.01153 + 0.00295(\text{CR})_{ASRM,t} - 0.01366(\text{TATO})_{ASRM,t} + 0.19985(\text{DAR})_{ASRM,t} + 0.20161(\text{NPM})_{ASRM,t}$
$ROE_{LPGI,t} = -0.04760 + 0.00295(\text{CR})_{LPGI,t} - 0.01366(\text{TATO})_{LPGI,t} + 0.19985(\text{DAR})_{LPGI,t} + 0.20161(\text{NPM})_{LPGI,t}$
$ROE_{PNIN,t} = -0.07934 + 0.00295(\text{CR})_{PNIN,t} - 0.01366(\text{TATO})_{PNIN,t} + 0.19985(\text{DAR})_{PNIN,t} + 0.20161(\text{NPM})_{PNIN,t}$

3.8. Influence of ROA and ROE on the Performance of General Insurance Companies

The study results indicate that the Return on Assets (ROA) and Return on Equity (ROE) variables have significant relationships with several financial factors within general insurance companies. ROA is significantly influenced by EPS, indicating that an increase in earnings per share can enhance the efficiency of asset utilization in generating profits. This is crucial for maximizing net income through better investments and effective cost management to increase EPS value, thereby attracting investor interest. Consequently, companies also need to pay attention to investment risks and inappropriate cost management.

On the other hand, the ROE analysis indicates that Debt to Assets Ratio (DAR) and Net Profit Margin (NPM) have significant impacts. An increase in DAR and NPM indicates that companies better manage their debts relative to assets and have a high net profit margin, which tends to result in better ROE. This means that general insurance companies looking to improve their ROE should focus on efficient debt management and profitability enhancement through better sales strategies and cost control.

Moreover, high ROA and ROE values are positive indicators for investors seeking investment opportunities. Insurance companies with high ROA and ROE demonstrate good performance in managing their assets and equity, making them safer and more promising investment choices. Investors can use this information as a key consideration in investment decisions, as companies that are efficient and effective in generating profits tend to provide better returns for shareholders. However, investors should also consider market and operational risks that can affect the financial performance of general insurance companies. Additionally, increases in these ratios should be monitored and managed well to prevent bankruptcy risks for the companies.

4. CONCLUSION

Based on the data analysis results, the conclusions are as follows:

1. The most suitable equation for the ROA model is the fixed effect model approach. The equation is written as follows:

$$ROA_{it} = \propto_i + 0.00530(CR)_{it} + 0.01179(TATO)_{it} - 0.00676(DER)_{it} + 0.00013(EPS)_{it}$$

2. Simultaneously, the independent variables in the FEM model, namely CR, TATO, DER, and EPS, influence ROA. However, partially, only the EPS variable shows a significant effect on ROA.
3. The most suitable equation for the ROE model is the fixed effect model approach. The equation is written as follows:

$$ROE_{it} = \propto_i + 0.00295(CR)_{it} - 0.01366(TATO)_{it} + 0.19985(DAR)_{it} + 0.20161(NPM)_{it}$$

4. Simultaneously, the independent variables in the FEM model, namely CR, TATO, DAR, and NPM, influence ROE. However, partially, only the DAR and NPM variables show significant effects on ROE.

REFERENCES

[1] Sumiyati, "Praktik Asuransi Dengan Sistem Multi Level Marketing Berdasarkan Undang-Undang Nomor 40 Tahun 2014 Tentang Perasuransian," Jurnal Bina Mulia Hukum, vol. I, no. 2, pp. 206-215, 2016.

[2] W. P. Nugroho and D. P. K. Mahardika, "Pengaruh Ukuran Perusahaan, Struktur Modal, dan Profitabilitas Terhadap Nilai Perusahaan (Studi Pada Perusahaan Asuransi Umum yang Terdaftar di Bursa Efek Indonesia Tahun 2017-2021)," e-Proceeding of Management, vol. X, no. 2, pp. 1501-1510, 2023.

[3] S. Wahyuni, S. Andriani and S. Martadinata, "Analisis Pengaruh Current Ratio, Debt To Equity dan Total Asset Turnover Terhadap Profitabilitas Perusahaan (Studi Pada Perusahaan Manufaktur Yang Terdaftar Di BEI Tahun 2013-2015)," Jurnal Manajemen dan Bisnis, vol. I, no. 2, 2018.

[4] L. Renaldy, "Analisa Pengaruh Return On Asset (ROA) Dan Return On Equity (ROE) Terhadap Pertumbuhan Laba Pt. Bank NTB Syariah (Studi Kasus PTt. Bank NTB Syariah Tahun 2018-2021)," skripsi, 2022.

[5] N. L. Pasaribu and K. Ritonga, "Pengaruh ROA Dan ROE Terhadap Pertumbuhan Laba Pada Sektor Perbankan Di BEI," Akuntansi Prima, vol. V, no. 2, pp. 36-51, 2023.

[6] D. P. Lestari and P. Sulastri, "Pengaruh Return On Asset (ROA), Return On Equity (ROE) Dan Net Profit Margin (NPM) Terhadap Pertumbuhan Laba Pada Perusahaan Makanan dan Minuman Yang Terdaftar di Bursa Efek Indonesia Tahun 2017 – 2019," Dharma Ekonomi, vol. XXVIII, no. 53, pp. 45-55, 2021.

[7] N. Wedyaningsih, S. Nurlaela and K. H. Titisari, "Earning Per Share, Debt To Equity Ratio Dan Current Ratio Terhadap Profitabilitas Perusahaan Sub-Sektor Barang Konsumsi Di Bursa Efek Indonesia," Edunomika, vol. III, no. 1, pp. 97-107, 2019.

[8] A. A. Ulzanah and I. Murtaqi, "The Impact Of Earnings Per Share, Debt To Equity Ratio, And Current Ratio Towards The Profitability Of Companies Listed In LQ45 From 2009 to 2013," Journal of Business and Management , vol. IV, no. 1, pp. 18-27, 2015.

[9] R. H. Laela and Hendratno, "Pengaruh Current Ratio, Debt To Equity Ratio Dan Total Asset Turnover Terhadap Return On Asset," Jurnal Akuntansi, Audit dan Sistem Informasi Akuntansi, vol. III, no. 1, pp. 120-131, 2019.

[10] T. Wanny, Jenni, L. Yeni, Merrisa, Erlin and I. A. Nasution, "Pengaruh TATO, DER dan Current Ratio terhadap ROA pda Perusahaan Property dan Real Estate," Riset dan Jurnal Akuntansi, vol. III, no. 2, pp. 139-152, 2019.

[11] S. Joana and E. Pitaloka, "Pengaruh Earning Per Share Terhadap Return On Asset Serta Dampaknya Terhadap Harga Saham PT. Elnusa Tbk," Widyakala, vol. IV, no. 2, pp. 80-85, 2017.

[12] S. F. Wahyuni, "Peran Kepemilikan Institusional Dalam Memoderasi Pengaruh Current Ratio, Debt To Equity Ratio, Total Asset Turnover Dan Inventory Turnover Terhadap Return On Equity Di Bursa Efek Indonesia," Jurnal Riset Finansial Bisnis, vol. I, no. 2, pp. 147-158, 2017.

[13] Amminatuzzahra, "Analisis Pengaruh Current Ratio, Debt To Equity Ratio, Total Asset Turnover, Net Profit Margin Terhadap ROE," skripsi, 2010.

[14] R. A. Pngrangga, M. Dzulkirom and M. Saifi, "Pengaruh Current Ratio, Total Asset Turnover Dan Debt To Equity Ratio Terhadap Return On Equity (Studi Pada Perusahaan Sub Sektor Property Dan Real Estate Yang Terdaftar Di BEI Periode 2011-2014)," Jurnal Administrasi Bisnis, vol. XXV, no. 2, pp. 1-8, 2015.

[15] G. Wiyono, R. Kusumawardhani and A. Heriawan, "Pengaruh Current Ratio, Debt To Assets Ratio, Total Asset Turnover, Dan Perputaran Kas Terhadap Return On Equity," Jurnal Akuntansi dan Keuangan, vol. XIX, no. 4, pp. 740-745, 2022.

[16] H. Yulsiati, "Pengaruh Debt To Assets Ratio, Debt To Equity Ratio Dan Net Profit Margin Terhadap Return On Equity Pada Perusahaan Property Dan Real Estate Yang Terdaftar Di Bursa Efek Indonesia," Jurnal Akuntanika, vol. I, no. 2, pp. 1-25, 2016.

[17] S. Side, Sukarna and R. Nurfitrah, "Analisis Regresi Panel Pada Pemodelan Tingkat Kematian Bayi di Provinsi Sulawesi Selatan," Journal of Mathematics, Computations, and Statistics, vol. II, no. 2, pp. 115-125, 2019.