

The Effect of Early Warning System (EWS) and Risk-Based Capital (RBC) On Profitability and Stock Price (Study on Insurance Companies on the Indonesia Stock Exchange)

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Abstract

Insurance is a form of community financial management that anticipates future risks. The growing number of insurance companies in Indonesia certainly provides ample opportunities for people to choose insurance products. Insurance companies must also pay attention to financial performance in carrying out their operational activities. Early Warning System (EWS) and Risk-Based Capital (RBC) values are ratios that describe the financial condition of insurance companies. Good financial performance will show that finances are in stable condition, including the acquisition of profitability. The study examines the effect of EWS and RBC values on profitability. In addition, related to financial performance will have an impact on stock prices. So, this study also examines the effect of EWS and RBC values on stock prices. This research uses a quantitative approach. Researchers conducted tests through the SPSS application and path analysis on path analysis. The sample in this study amounted to 11 insurance companies in the 2019-2023 financial period. The results showed that the EWS value had no significant effect on the profits of insurance companies listed on the Indonesia Stock Exchange (IDX). Then the RBC value also has no significant effect on the profits of insurance companies listed on the IDX. For other dependent variables, namely stock prices. Partially, the EWS value has a positive effect on the share price of insurance companies listed on the IDX. However, the RBC value does not affect the share price of insurance companies listed on the IDX. Profit variables have an influence on stock prices, the higher the profit followed by an increase in stock prices. However, earnings cannot mediate the effect of EWS value and RBC value on stock prices.

Keywords: EWS, RBC, Profitability, Share Price, Insurance.

Introduction

Many people already understand the importance of having insurance to support healthy personal finances. This awareness has not been followed by the ownership of insurance that suits the needs of the family (Siregar, 2023). This can be seen from the small ratio of the amount of funds in the insurance industry to the Gross Domestic Product (GDP) or the insurance penetration rate. People's hesitation to use personal insurance is caused by confusion about where to start in completing protection needs. Even now, they are still at the stage of considering buying insurance according to their needs (Putra, 2020).

Insurance is one of the main foundations of healthy finance. When delaying insurance, can trigger finances to be exposed to the risk of loss that can actually be managed and minimized (Laturrakhami, 2020). Often people delay insurance because they feel they have adequate savings to anticipate emergencies that require financial support. But what needs to be considered is how adequate the cash savings are to cover large unexpected expenses.

Cash as an *emergency fund* is very important, but its value is relatively limited. Emergency funds usually have nominal limitations. Generally, *emergency funds* act more as a *security blanket* to support the fulfillment of emergency needs only (Widagdo, 2018). However, to help anticipate

For larger unexpected financial needs, more than just an emergency fund is needed. Insurance can be the main safety net that acts to protect finances from greater financial risks (Sukoco, 2020).

Insurance can reduce financial risk, this is because it helps to protect against financial risks that can occur due to unexpected events such as accidents, natural disasters, or serious illness. Insurance will provide peace of mind. This is because it has adequate financial protection in the event of financial risk (Abdullah, 2020). Insurance can also fulfill some contracts such as mortgages or rental contracts that require buyers to have

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certain insurance. In some cases, having insurance is also a social responsibility. Especially if a person has financial responsibilities toward other people such as a spouse or children (Nurhayati, 2022).

Awareness of social security is not only the responsibility of the government, but every individual also must actively participate in shaping social security policies by exercising their right to vote. In this way, all parties

can play an important role as agents of change in encouraging a society that prioritizes and values social security for the welfare of all citizens (Ronaldo, 2020).

Table 1. Increase and Decrease of RBC in *Early Warning System* 2019-2023

Variables	2019	2020	2021	2022	2023	Increase/Decrease			
						2019-2020	2020-2021	2021-2022	2022-2023
X1	4,006	4,041	3,129	3,431	4,111	35	-912	302	680
X2	1,178	1,825	1,542	2,257	2,616	447	-238	715	369
Y1	1,446	1,919	1,102	2,026	2,465	473	-817	924	439
Y2	3,581	3,265	4,092	4,862	5,942	-316	827	770	1080

Based on the data above, it shows that the *Early Warning System* in 2019-2022 increased by 35 but the stock price decreased by 316, as well as in 2021-2022. The *Risk-Based Capital* (RBC) variable in 2020-2021 has decreased but the share price has increased.

Insurance companies in Indonesia today continue to develop themselves in order to gain a place in the community. One of them is through joining the stock issuer. Some insurance companies are included in the stock index in Indonesia.

In general, a stock index is a statistical measure that reflects the overall price movement of a set of stocks selected based on certain criteria and methodology and evaluated regularly. One of the stock indices in Indonesia is the Indonesia Stock Exchange (IDX) (Saputra, 2020). The Stock Exchange is a party that organizes and provides systems and/or facilities, to bring together offers to sell and buy securities from parties who want to trade these securities.

The latest data shows that there are currently 12 insurance companies joining the IDX, including MSIG Life Insurance Indonesia, Lippo General Insurance, Assurance of Bina Dana Artha, Assurance Harta Aman Pratama, Assurance Multi Artha Guna, Assurance Bintang, Assurance of Dayin Mitra, Assurance of Jasa Tania, Assurance of Maximus Graha Persada, Victoria Insurance Indonesia, Assurance Tugu Pratama Indonesia and Assurance Ramayana.

The financial performance of insurance companies will also show a good existence among the public. In insurance companies, financial performance is calculated through the *Early Warning System* (EWS) financial ratio, which is an accurate assessment method to assess the financial performance of insurance companies. Then also uses the *Risk Based Capital* (RBC) ratio which is a method of measuring risk and evaluating the finances of an insurance company (Ali, 2021).

Good financial performance can certainly illustrate the company's financial condition is also in a stable condition. Even insurance companies also have profited from the activities they carry out. According to Candra (2023), *early warning system* variables projected by the liquidity ratio do not affect company profitability. While risk-based capital has a positive effect on company profitability.

According to Suwarni (2023) from the results of research on insurance companies listed on the IDX in 2015-2019, it can be concluded that *risk-based capital* significantly affects finances.

Performance. This is evidenced by the probability value of the t-test result of 0.0251 which is smaller than 0.05. Meanwhile, the *early warning system* ratio proxied by the claim expense ratio, commission ratio, and own retention ratio does not have a significant effect on financial performance. According to Prayogi (2023) based on the F test, liquidity, claim expense ratio, and premium growth have a positive and significant effect on *risk-based capital*. According to Rustamunadi (2021), the test results show that the liquidity ratio, claim expense ratio, and underwriting ratio variables simultaneously have a significant effect on *risk-based capital*.

Several previous studies have discussed insurance companies. Including research that discusses stock prices. According to Yudistira (2020), ROA has a positive and significant effect on stock prices. ROE has a negative and significant effect on stock prices. NIM has a negative and insignificant effect on stock prices. BOPO has a negative and insignificant effect on stock prices. The inflation rate has a negative and insignificant effect on stock prices. BI Rate has a positive and insignificant effect on stock prices. Simultaneously ROA, ROE, NIM, BOPO, Inflation Rate, and BI Rate have a significant effect on stock prices.

According to Umar (2020), *Return on Asset* and *Return on Equity* partially have no significant effect on Stock Price. But *Earning Per Share* partially has a significant effect on Stock Price. However, *Return on Asset*, *Return on Equity*, and *Earning Per Share* simultaneously have a significant effect on Stock Prices. According to Wawo (2020), The results showed that financial distress with the Smijewski model harmed stock prices at 10% alpha. This implies that companies experiencing financial distress will affect the decline in stock prices and vice versa. This study will examine the effect of EWS and RBC on earnings and stock prices. In addition, it also knows the contribution of profit in mediating EWS and RBC to stock prices. The research object of this research is insurance companies listed on the Indonesia Stock Exchange (IDX).

Materials and Methods

Early Warning System (EWS)

One of the tools that can be used to analyze financial statements and process them into useful information is to use the *Early Warning System* (EWS) calculation. The *early warning system* is a benchmark for calculations from the NAIC (*National Association of Insurance Commissioners*) or the United States Insurance Business Agency in measuring financial performance and assessing the health level of insurance companies (Toni, 2021). This *early warning system* can provide an early warning of the possibility of financial and operating difficulties for insurance companies in the future. Other countries outside the United States that apply this system make slight modifications to the ratios used to suit their needs.

In some countries, EWS calculations are used to help *insurance commissioners* measure financial performance and assess the health of insurance companies by detecting *impending insolvency* early, identifying companies that require closer monitoring and immediate attention, and *grading* insurance companies (Akbar, 2023). Since the analysis results from EWS can provide *early warning*, the system can also be used by insurance companies to analyze their company's performance.

The EWS ratio consists of several financial ratios that can provide an overview of the financial performance of life insurance companies. Some of these financial ratios include financial health ratios, investment ratios, liquidity ratios, and leverage ratios (Kariyoto, 2017). The financial health ratio is a ratio that measures the company's ability to pay claims using its assets. Meanwhile, the investment ratio is used to measure the effectiveness of investment management by insurance companies. The liquidity ratio is used to measure the company's ability to meet its financial obligations in the short term. Meanwhile, the leverage ratio is used to measure the level of debt used by insurance companies (Muslih, 2023).

Risk-Based Capital (RBC)

Risk-Based Capital (RBC) can be used as one method of analyzing the performance of insurance companies, in addition to the EWS ratio. This method measures the level of solvency of Insurance companies face the risk of losses that may occur due to an imbalance between the management of wealth and liabilities (Maulamin, 2021). Based on the Financial Services Authority Regulation Number 71 /POJK.05/2016

concerning the Financial Health of Insurance Companies and Reinsurance Companies, every insurance company is required to set a target solvency level or *Risk-Based Capital* of at least 120% of the Risk-Based Minimum Capital annually. (Abdurahim, 2021). This is intended to ensure that insurance companies have sufficient financial capacity to face existing risks and fulfill their financial obligations to customers.

Risk-based capital is a method of measuring risk and evaluating the finances of an insurance company. RBC can be used to assess the ability of a company to face financial risks and see how much capital is needed to overcome these risks (Nitisusastro, 2015). The purpose of RBC is to ensure that the insurance company has sufficient capital to fulfill its obligations to policyholders in the event of a claim. A high RBC value means that the company is healthy and able to survive in the long term. Conversely, a low RBC value can threaten the company's business continuity and indicate a high risk of bankruptcy (Darmawan, 2020).

RBC calculates the amount of capital needed to cope with risks and considers several factors, such as the type of risk, the amount of assets held, and the company's ability to manage these risks (Syahwildan, 2022). A high RBC value indicates that the insurance company has enough financial strength to survive in the long term, even in difficult market conditions. Conversely, a low RBC value indicates that the insurance company has a higher risk of bankruptcy, and limited availability of funds to cope with unexpected financial risks.

In the insurance industry, companies must comply with the RBC requirements set by the regulator. If the company does not meet the RBC requirements, the regulator may order the company to increase its capital or even impose sanctions to revoke the business license. Therefore, RBC is crucial for insurance companies to maintain their financial health and fulfill obligations to policyholders.

Profitability Ratio

The profitability ratio is a comparison to determine the company's ability to earn a *profit (profit)* from revenue (*earning*) related to sales, assets, and equity-based on certain measurements (Silitonga, 2022). Profitability as one of the references in measuring the amount of profit is so important to find out whether the company has run its business efficiently. The efficiency of a new business can be known after comparing the profit earned with the assets or capital that generate that profit (Lestari, 2019).

Profit is the excess of revenue over the amount of costs incurred to obtain that revenue or profit, in other words, profit is the net income or reward from the company's activities. (Efendi, 2022). Profit in another sense is net income or rewards from company activities, from the production process to marketing that has been reduced by the costs of the company's operating activities. This excess income is also written in the profit and loss statement. (Darwis, 2022).

In the accounting system, profit is revenue minus costs mandated by the accounting framework, while profit in economics is revenue minus the opportunity cost of the assets used (Maulita, 2022). Every business needs to achieve profit to make a profit. The purpose of calculating profit is to determine the financial benefits of a transaction or business activity. Profit is a calculation that is usually found in the income statement.

Share Price

Shares are proof of ownership of a company. By owning shares, it becomes a part owner of the company, so it is entitled to a share of the profits obtained by the company (Nuzula, 2020). The share price is the value of a share that reflects the wealth of the company that issued the shares, where changes and fluctuations are largely determined by the forces of supply and demand for the shares themselves that occur on the exchange (Askurun, 2022).

In economic theory, the rise and fall of stock prices is commonplace because it is driven by the forces of supply and demand. If demand is high, the price will rise, conversely, if supply is high, the price will fall (Rantaningtyas, 2021). The first reason why stock prices go up and down is the company's financial performance. Positive financial performance or good growth can push up stock prices. Meanwhile, the company's poor financial performance has an impact on the decline in stock value (Maulida, 2021).

The share price is the price set to a company for other parties who want to have share ownership rights. The value of the share price changes every time. The amount of stock price value is influenced by the demand and supply that occurs between sellers and buyers of shares. (Dewi, 2020).

Research Methods

Type of Research

This research uses a quantitative type. In general, quantitative research is research that uses an objective approach to collecting data analyzing it, and using statistical testing (Hermawan and Yusran, 2017). This research is included in causality because it looks for relationships between variables. Causal research aims to determine the causal relationship between the independent variable and the dependent variable (Santoso and Madiistriyatno, 2017).

Population and Sample

The population in this study are insurance companies listed on the Indonesia Stock Exchange (IDX) stock index. There are 12 companies listed, but researchers focus on insurance companies that *go public*. So that the total insurance companies used by researchers are 11 insurance companies, including MSIG Life Insurance Indonesia, Lippo General Insurance, Bina Dana Artha Insurance, Harta Aman Pratama Insurance, Multi Artha Guna Insurance, Bintang Insurance, Dayin Mitra Insurance, Tania Services Insurance, Maximus Graha Persada Insurance, Victoria Insurance Indonesia and Tugu Pratama Indonesia Insurance.

The samples used in this study came from the financial statements of each of the 11 insurance companies during the 2019-2023 period. So that the total data collected on each variable is:

- 1) EWS data: 55
- 2) RBC data: 55
- 3) Profitability (Profit) data: 55
- 4) Share Price Data: 55

Data Acquisition Method

Data is obtained secondarily or data has been presented. The data obtained in this study came from the financial statements of each of the 11 insurance companies. Researchers accessed the website of each insurance company. Then document the financial statements during the 2019-2023 period. Documented data related to EWS variables, RBC variables, profitability variables, and stock price variables.

Data Analysis

Researchers conducted data analysis through statistical testing of SPSS applications and path analysis. The research conducted several types of tests including:

Classical Assumption Test

Multicollinearity Test

This test is used to see the relationship/correlation between each variable.

Normality Test

This test aims to determine whether the confounding variables in the regression model have a normal

distribution or not.

Heteroscedasticity Test

This test aims to test whether the regression model does not occur in the same variant of residuals from one observation to another.

Auto relation Test

This test aims to determine whether, in the linear regression model, there is a correlation between confounding errors in period t and confounding errors period t-1.

Regression Test

Regression testing is used with the aim of knowing the magnitude of the influence of the independent variable (X) on the dependent variable (Y).

Structural Equation Model Test

Testing the validity of the model in path analysis is very necessary in order to know whether a valid analysis has been carried out.

Hypothesis Test

Partial testing to determine whether the independent variable partially (individually) has a significant effect on the dependent variable. Then the coefficient of determination test is used to explain how much the independent variables contribute simultaneously to the dependent variable.

Results and Discussion

Result

Structural Equation Test

Testing the validity of the model in path analysis is very necessary to know whether a valid analysis has been carried out. To test the validity of the model in path analysis two indicators need to be seen, namely the coefficient of total determination (R_m^2). The interpretation of the coefficient of determination (R_m^2) in this case, is the same as the interpretation of the coefficient of determination (R^2) in Regression analysis.

$$R_m^2 = 1 - P_{e1}^2 - P_{e2}^2 - \dots - P_{en}^2$$

$$P = e1 = \sqrt{1 - R^2} = \sqrt{1 - 0,088} = 0,955$$

$$P = e2 = 1 - 0,219 = 0,884$$

$$Rm^2 = 1 - (0,955)^2 \cdot (0,884)^2$$

$$= 1 - (0,912) \cdot (0,781)$$

$$= 1 - 0,712$$

$$= 0,288$$

The total coefficient of determination of 0.288 indicates that the independent variables contained in the regression model can explain about 28.8% of the variation that occurs in the dependent variable. In other words, information from 28.8% of the existing data can be explained and predicted by this regression model. However, the remaining 71.2% is a variation that cannot be explained by the independent variables in this model. This variation could be caused by other factors not included in the model, including sales, assets, equity, and macroeconomic conditions.

Path Test

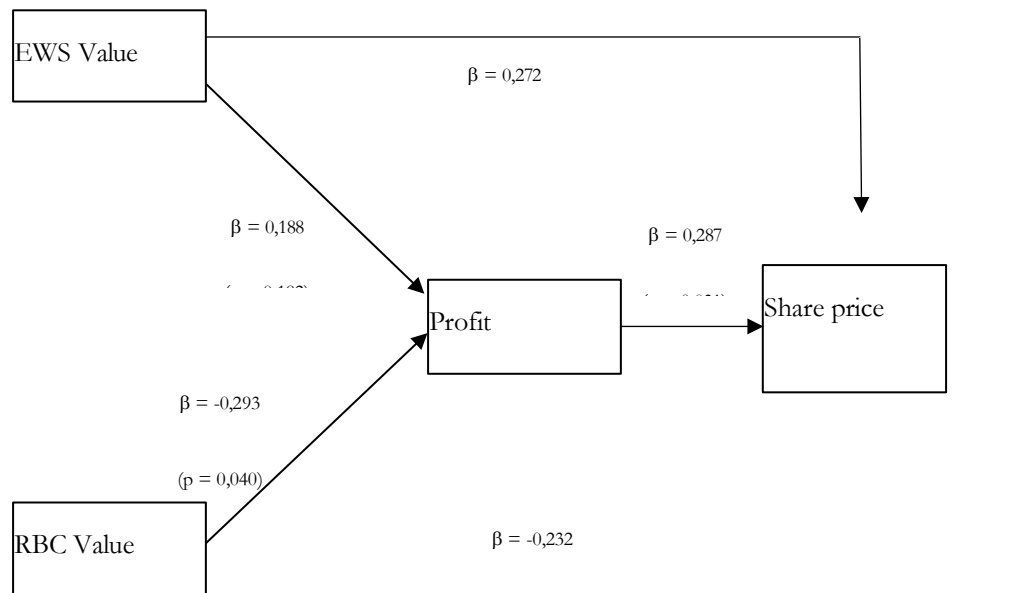


Figure 1. Path analysis

Source: Secondary data processed, 2023.

Discussion

Effect of EWS Value and RBC Value on Profit

Partially, the value of EWS has no significant effect on profit with a value of 5% a *p-value* of 0.182, and a regression coefficient value of 0.188. This means that the value of EWS does not affect profit, the high and low value of EWS has no impact on profit. The beta coefficient value of the EWS value is 0.188 the *t* value is 1.354 and the *p-value* of 0.182 is greater than the *p-value* = 0.05 ($\alpha = 5\%$), which means that the EWS value does not affect profit.

The results above are not in line with the research of Fadrul (2019) that the *Early Warning System* (EWS) variable proxied by the claim expense ratio has an influence and a significant effect on the financial performance of General Insurance companies of the Indonesia Stock Exchange for the 2014-2018 period.

Partially, the RBC value has no significant effect on profit with a value of of 5% with a *p-value* of 0.040

and a regression coefficient value of -0.293. This means that the RBC value does not affect profit, the high and low RBC value has no impact on profit. The beta coefficient value of the RBC value of -0.293 the t value of -2.108 and the *p-value* of 0.040 are smaller than $p = 0.05$ ($\alpha = 5\%$), which means that the RBC value does not affect profit.

The above results are in line with the research of Fadrul (2019) that the *Risk-Based Capital* (RBC) variable does not affect the financial performance of General Insurance companies on the Indonesia Stock Exchange for the 2014-2018 period. However, it is not in line with the research results of Pradnyani (2020) that determinantly the *risk-based capital* variable together with the ratio of own retention, and investment returns have a positive effect on financial performance.

According to Supriyono (2019), *risk-based capital* has a negative influence on profitability at PT. Assurance Takaful Umum and PT. Assurance Takaful Keluarga. Meanwhile, based on correlation analysis, it is found that *risk-based capital* and profitability have a strong level of relationship for ROA and moderate for ROE. ROA and ROE ratios are types of profitability ratios, so they are related to profit.

The coefficient of determination in this study is obtained from the *summary model*, where the *R-squared* is 0.88 or 8.8% and the influence of other variables is 91.2%. This shows that the contribution of the influence of the EWS value variable and the RBC value on the profit variable is 8.8%, while 91.2% of the profit variable is influenced by other variables. So it can be seen that the contribution of the influence of the two X variables is very small on profit.

Effect of EWS Value and RBC Value on Share Price

Partially, the effect of EWS value on stock price is significant at α level of 5% with a p-value of 0.044 and a regression coefficient value of 0.272. This means that the EWS value has a positive effect on stock prices, the higher the EWS value has an impact on increasing stock prices. The beta coefficient value of the EWS value of 0.272 the t value of 2.063 and the *p-value* of 0.044 is smaller than the p -value = 0.05 ($\alpha = 5\%$), which means that the EWS value affects stock prices.

The above results are in line with research (Siahaan, 2020) that the EWS ratio is proxied by the claim load ratio, liquidity ratio, abs ratio, and premium growth. The results show that the claim expense ratio, liquidity ratio, *agents balance to surplus* ratio, and premium growth ratio simultaneously have a significant effect on stock prices.

Partially, the RBC value has no significant effect on stock prices at α level of 5% with a p-value of 0.092 and a regression coefficient value of -0.232. This means that the RBC value has no effect on stock prices, the high and low RBC values have no impact on stock prices. Through the beta coefficient value of the RBC value of -0.232 the t value of -1.717 and the *p-value* of

0.092 is greater than $p = 0.05$ ($\alpha = 5\%$), which means that the RBC value does not affect stock prices.

The above results are not in line with the research of Pamungkas (2019) that the *risk-based capital* ratio affects the share price of insurance companies that *went public* on the Indonesia Stock Exchange in 2008-2015. According to Ayu (2020) the effect of RBC and EWS together on *Financial Solvency*, *F count* 117.370 with 31.6 which means that *Financial Solvency* is influenced by RBC and EWS. Meanwhile, based on the results of tests conducted between RBC and EWS together with profit growth, the *Fcount* value is 7,333 with 80.2, which means that *Financial Solvency* is influenced by RBC and EWS.

According to Andriani (2022), stock prices are influenced by factors other than EWS and RBC, namely the number of investors. An increase in the number of investors will certainly affect the price of the shares. In general, the increasing number of investors will increase demand for shares. Through this, when the demand for shares in the community increases, the issuer will increase its share price.

Effect of Earnings on Share Price

Partially, earnings have a positive effect on stock prices at α level of 5% with a p-value of 0.031 and a regression coefficient of 0.287. This means that earnings influence stock prices, the higher earnings are followed by an increase in stock prices. The beta coefficient value of earnings of 0.287 the t value of 2.217 and the *p-value* of 0.031 is smaller than $p = 0.05$ ($\alpha = 5\%$), which means that earnings affect stock prices.

The above results are in line with research (Paradiba, 2015) that operating net income has a significant effect on stock prices in *food and beverage* companies listed on the Indonesia Stock Exchange (IDX). The correlation coefficient (R) value of 0.510 indicates the correlation or relationship between the independent variable and the dependent variable. This result is also supported by research by Putri (2017) that simultaneously net income, operating cash flow, investment cash flow, and funding cash flow have a significant effect on the share price of companies listed on the LQ 45 index of the Indonesia Stock Exchange. Partially net income has a significant effect on stock prices in a positive direction.

According to Kharisma (2020) net income has a positive and significant effect on stock prices. This shows an indication that net income is more widely used by investors in assessing the performance of manufacturing companies. For manufacturing companies, net profit affects the share price because the higher the profit generated, the higher the share price obtained, and the higher the net profit generated, the higher the share price obtained.

The Effect of EWS Value and RBC Value on Share Price Through Earnings

EWS value has no influence on profit with a significance value of 0.182, while profit has an influence on stock price with a significance value of 0.031. EWS value has an influence on stock price with a significance value of 0.044 the indirect effect of EWS value is 0.054 and the total effect is 0.326. This shows that earnings are unable to mediate the effect of EWS value on stock price.

Earnings cannot mediate the effect of EWS value on stock price. This is because the significance value between the value of EWS and earnings does not show a significant effect (significance value of 0.182) and the value of the indirect effect is smaller than the direct effect ($0.054 < 0.272$).

RBC value has no influence on profit with a significance value of 0.040, while profit has an influence on stock price with a significance value of 0.031. RBC value has no effect on stock price with a significance value of 0.092 an indirect effect of -0.084 and a total effect of -0.316. This shows that earnings are not able to mediate the effect of RBC value on stock price.

Earnings cannot mediate the effect of RBC value on stock price. This is because the significance value between the RBC value and the stock price does not show a significant effect (significance value of 0.092) and the indirect effect value is smaller than the direct effect ($0.084 < 0.232$).

Conclusions

Based on the results of the study, the following research conclusions were obtained:

- a. Partially, the value of EWS has no significant effect on the profit of insurance companies listed on the IDX. Then partially also the RBC value has no significant effect on the profit of insurance companies listed on the IDX. The contribution of the influence of the EWS value variable and the RBC value on the profit variable is 8.8% while 91.2% of the profit variable is influenced by other variables.
- b. Partially, the value of EWS has a positive effect on the share price of insurance companies listed on the IDX. Then the RBC value does not affect the share price of insurance companies listed on the IDX.

c. Earnings have an influence on stock prices, the higher the earnings followed by an increase in stock prices.

d. Earnings cannot mediate the effect of EWS value on stock price. This is because the significance value between EWS value and earnings does not show a significant effect. Earnings also cannot mediate the effect of RBC value on stock price. This is because the significance value between the RBC value and the stock price does not show a significant effect.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest regarding the research, authorship, and/or publication of this article.

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