

ENHANCING FINANCIAL RESILLIANCE: A STUDY OF FINANCIAL RATIOS TO PREDICT FINANCIAL DISTRESS IN INDONESIAN LIFE INSURANCE FIRMS DURING COVID-19 ERA

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Abstract: The Covid-19 phenomenon and a series of insurance default events increase the risk of bankruptcy. Financial distress analysis becomes a crucial study to prevent bankruptcy. This research was conducted to present empirical evidence of the influence of premium growth ratio, liquidity ratio, risk-based capital, investment adequacy ratio, technical reserve growth ratio, and investment income ratio against financial distress prediction in life insurance companies listed on the Indonesian Insurance Directory for the years 2019-2021. The study employed a quantitative approach with logistic regression and 120 observation samples. The conclusions drawn from this research indicate that the premium growth ratio, liquidity ratio, and risk-based capital significantly have a negative impact on the prediction of financial distress, whereas the investment adequacy ratio and growth of technical reserves ratio have a positive impact. However, this research could not provide empirical evidence of the influence investment income in predicting financial distress. The results of this study contribute to insurance companies in managing their financial health by identifying risk factors based on financial ratios and taking appropriate preventive measures. Stakeholders can also enhance supervision on financial health indicators and consider establishing limits for the investment adequacy ratio to maintain stability in the insurance industry.

Keywords: bankruptcy, Covid-19, financial distress, financial health ratio, insurance

Abstrak: Fenomena Covid-19 dan serangkaian kejadian gagal bayar asuransi meningkatkan risiko kebangkrutan. Analisis kesulitan keuangan menjadi kajian yang penting dilakukan untuk mencegah terjadinya kebangkrutan. Penelitian ini dilakukann untuk menyajikan bukti empiris pengaruh rasio pertumbuhan premi, rasio likuiditas, risk based capital, rasio kecukupan investasi, rasio pertumbuhan cadangan teknis, dan rasio perimbangan hasil investasi dengan pendapatan premi terhadap prediksi financial distress pada perusahaan asuransi jiwa yang terdaftar dalam Direktori Perasuransian Indonesia tahun 2019-2021. Penelitian ini menggunakan pendekatan kuantitatif dengan regresi logistik dan 120 sampel observasi. Kesimpulan yang diambil dari penelitian ini menunjukkan bahwa rasio pertumbuhan premi, rasio likuiditas, dan risk based capital secara signifikan berpengaruh negatif terhadap prediksi financial distress, sedangkan rasio kecukupan investasi dan rasio pertumbuhan cadangan teknis berpengaruh positif. Namun, penelitian ini tidak dapat memberikan bukti empiris pengaruh rasio perimbangan hasil investasi dengan pendapatan premi dalam memprediksi financial distress. Hasil penelitian ini memberikan kontribusi bagi perusahaan asuransi dalam mengelola kesehatan keuangan mereka dengan mengidentifikasi faktor risiko berdasarkan rasio keuangan dan mengambil langkah preventif yang tepat. pemangku kepentingan juga dapat meningkatkan pengawasan terhadap indikator kesehatan keuangan dan mempertimbangkan menentukan batasan nilai rasio kecukupan investasi untuk menjaga stabilitas industri asuransi.

Kata kunci: kebangkrutan, Covid-19, kesulitan keuangan, rasio kesehatan keuangan, asuransi

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INTRODUCTION

The insurance industry, being a service-oriented sector, plays a crucial role in transferring risk from clients to insurance service providers (Suryanto, 2020). Like any other business, it strives to maximize long-term value amidst fierce competition. However, the Covid-19 pandemic has posed significant challenges, including mobility restrictions for insurance marketers and a decrease in the number of agents (Beritasatu, 2022a). Additionally, the solvency or risk-based capital has been impacted, indicating a decrease in the value of assets during the pandemic (Beritasatu, 2022b).

The pandemic has also had an impact on the industry's gross premium receipts, specifically in the life insurance sector. In 2019, there was a decline of 1.3%, and in 2020, the decline further deepened to 4.3%. This decline stands in contrast to the general and social insurance sectors, which have continued to experience growth since 2018. The declining conditions of gross premium growth since 2018 indicate that the life insurance industry is not only facing new challenges but also classic obstacles that existed before the emergence of the pandemic.

Several prominent cases in the life insurance industry further emphasize the challenges faced by insurance companies. One such case is Jiwasraya insurance's inability to fulfill JS Saving Plan client claims due to low liquidity, highlighting the importance of managing liabilities in comparison to available assets. This case first emerged in 2018 (BBC, 2019). Additionally, during the Covid era, Kresna and Wanaartha Life insurance encountered liquidity problems in their investment portfolios, impacting customer claim settlements (Kompas, 2022).

Various phenomena and conditions previously discussed indicate that the life insurance industry has a higher potential for financial distress compared to other insurance sectors. This risk has been exacerbated by recent instances of payment defaults in life insurance, leading to increased reputational risk and a loss of customer trust in life insurance products. Consequently, this elevates the risk of financial distress.

Miswaty and Novitasari (2023) explains that companies exhibiting negative operating income and an inability to maintain financial stability indicate signs of financial distress, which may lead to bankruptcy. Nilasari (2021)

argued that a company's financial condition and performance during a specific period can be reflected in its financial statements, which serve as a primary source of information for various parties. Financial ratio analysis is one method of assessing financial performance. Companies facing financial distress can be identified through poor financial ratios (Saputri & Asrori, 2019).

The growth rate of premiums serves as a significant ratio for evaluating the performance of insurance companies in attracting new customers and retaining existing ones. Several prior studies have explored the association between premium growth rate and financial distress. Harjadi & Sihombing (2020) and Kristanti et al. (2021) revealed a negative relationship, indicating that higher premium growth enhances the company's resilience. Conversely, Tarsono et al. (2020) and Torno & Tiu (2014) reported a positive relationship. On the other hand, Dewi & Mahfudz (2017) and Zamachsyari & Amanah (2016) demonstrated that substantial premium growth does not necessarily imply financial instability.

Likewise, financial distress can also be assessed using the liquidity indicator. Santosa et al. (2020) states that liquidity depicts a company's safety by showcasing its ability to meet high liabilities and avoid financial distress. Previous studies (Abdu, 2022; Moch et al. 2019; Nugrahanti et al. 2020; Taswin & Suhendra, 2022; Zamachsyari & Amanah, 2016) support this argument. However, contrasting findings are present in other studies stating that high liquidity does not significantly affect higher financial distress (Kristanti et al. 2021; Maysaroh et al. 2022; Restianti & Agustina, 2018).

In terms of the Risk-Based Capital (RBC) approach, which is mandated by the OJK to assess the sufficiency of capital to cover risks, research conducted by Harjadi and Sihombing (2020) and Kristanti et al. (2021) shows that high RBC significantly reduces the potential for financial distress. Conversely, other studies suggest that RBC is not a significant predictor of financial distress, as seen in the works of Dewi & Mahfudz (2017), Nilasari (2021), and Zamachsyari & Amanah (2016).

The relationship between premium growth, liquidity, and risk-based capital with financial distress exhibits inconsistent results and may vary across different studies. Therefore, this research aims to strengthen

existing findings. Additionally, there are specific financial ratios for the insurance industry outlined in the latest OJK regulations, namely SEOJK of 2021, which still have limited empirical evidence. These ratios include the technical reserve growth ratio, investment adequacy ratio, and investment income ratio. While these ratios serve as measures of insurance risk, their significance and implications for predicting financial distress, particularly in the life insurance industry, have not been comprehensively investigated.

To address these gaps in the existing literature and offer more robust evidence on the impact of financial ratios on financial distress in the Indonesian life insurance sector, this research employs a quantitative approach using logistic regression. Through comprehensive examination, this study aims to provide valuable insights and practical implications for insurers and policymakers, contributing to better risk management, financial planning, and decision-making for insurance companies. Ultimately, this research aims to enhance the stability and resilience of the insurance industry in Indonesia.

METHODS

This study is a quantitative research that examines the influence of financial health ratios in predicting financial distress. The study utilizes secondary data obtained from financial reports on the official website of the company. The sample used consists of life insurance companies registered in the Indonesian insurance directory. The criteria used in sample selection were as follows: the companies that were registered in the Indonesian insurance directory throughout the research period, specifically focusing on conventional insurance companies and excluding those in the Sharia sector due to differences in business models and types of accounts used for financial ratios. Additionally, only companies that published periodic financial reports during the observation period were included, while companies with extreme values were excluded from the study. Details on the sample selection procedure available in Table 1

The dependent variable in this study is financial distress, which is categorized as 0 if the company has non-negative net income for at least 2 consecutive years

(indicating non-financial distress) and 1 if the company has negative net income for at least 2 consecutive years (indicating financial distress). This categorization is based on previous research conducted by (Antikasari & Djuminah, 2017; Dewi & Mahfudz, 2017).

The independent variables in this study are financial ratios that serve as indicators of financial health. These ratios are based on OJK circulars (Table 2). This study incorporates company size as a control variable, offering insights into its performance and risks (Dewi & Mahfudz, 2017; Nilasari, 2021). In this study, the natural logarithm (Ln) of total assets is utilized (Nugrahanti et al. 2020).

The use of the logistic regression model was a suitable choice for this research, considering the categorical nature of the dependent variable, which is the occurrence of financial distress. Logistic regression is specifically designed to handle binary outcomes, making it an appropriate method to predict the likelihood of financial distress (0 for no distress and 1 for distress). The logistic regression model transforms predictor variables into probabilities using the logit function. By doing so, it generates odds ratios as a logarithmic expression of the probability, ranging between 0 and 1, where the maximum odds ratio is 1, indicating the occurrence of financial distress. This allows for a clear interpretation of the results and facilitates understanding of the impact of each predictor on the likelihood of financial distress. The research employed odds ratios or probabilities in interpreting the results of the logistic regression analysis. These probabilities indicate the relationship between the predictor variables (premium growth ratio, liquidity ratio, risk-based capital, investment adequacy ratio, technical reserves growth ratio, and investment income ratio) and the probability of financial distress. A significant odds ratio greater than 1 indicates a positive impact on the probability of financial distress, while an odds ratio less than 1 signifies a negative effect. Before hypothesis testing, the research also conducted descriptive statistics to gain insights into the characteristics of the data. Additionally, an overall model fit test was conducted to assess the compatibility of the hypothesized model with the data. This test helps ensure that the logistic regression model adequately fits the observed data and is a crucial step in validating the model's accuracy and reliability in predicting financial distress.

Table 1. Tabulation of research data

Sample Criteria	Criteria
Life Insurance Company Period 2019-2021	60
Sharia Life Insurance Company	(7)
The company did not publish consecutive financial reports during 2019-2021	(9)
Number of companies	44
The amount of research data in the observation period	132
Data outliers	(12)
Total Observations	120

Table 2. Research independent variables

Variable	Calculation	Literature
Premium Growth Ratio (PGR)	Increase (decrease) in net premium / net premium in the previous year x 100%	(Dewi & Mahfudz, 2017; OJK, 2021a)
Liquidity Ratio (LIQ)	Current assets / current liabilities x 100%	(OJK, 2021a; Saputri & Asrori, 2019)
Risk Based Capital (RBC)	Allowable assets – liabilities / risk based minimum capital x 100%	(Harjadi & Sihombing, 2020; OJK, 2016)
Technical Reserve Growth Ratio (TRGR)	Increase (decrease) in technical reserves / technical reserves in the previous year x 100%	(Media Asuransi, 2021; OJK, 2021b)
Investment Adequacy Ratio (IAR)	Investments + cash and banks / own retention technical reserves + debtown retention claim payable and payable to the insured x 100%	(OJK, 2021a; Ridwan et al. 2022)
Investment Income Ratio (IIR)	Net investment income / net premium income x 100%	(OJK, 2021c)

$$\ln(p/1-p) = \alpha + \beta_1 \text{PGR} + \beta_2 \text{LIQ} + \beta_3 \text{RBC} + \beta_4 \text{TRGR} + \beta_5 \text{IAR} + \beta_6 \text{IIR} + \beta_7 \text{SIZE}$$

Note: $\ln(p/1-p)$ (prediction of financial distress); α (constant); β_0 (regression coefficient).

Premium Growth Ratio and Financial Distress Prediction

Premiums serve as the main source of income for insurance firms (Suryanto, 2020). The growth of premiums is an essential aspect in generating profits, as an increasing premium condition signals the company's development and strong financial performance (Awaliyah & Barnas, 2020). However, drastic increases should still be approached with caution, as they can also impact future risks (Dewi & Mahfudz, 2017). Negative premium growth can disrupt an insurance firm's ability to provide coverage to policyholders (OJK, 2021b). When a company demonstrates a high capacity to generate profits, it tends to avoid potential financial distress. This is supported by previous research conducted by Harjadi & Sihombing (2020), Kristanti et al. (2021), Ulfan et al. (2018) claim load ratio, cost management ratio, liquidity ratio and premium growth ratio to financial solvency of

sharia life insurance company in Indonesia period 2012 - 2016. The data used are secondary data obtained from the website of Asosiasi Asuransi Syariah Indonesia (AASI), Based on the aforementioned discussion, the following hypotheses are formulated:

H1: Premium growth ratio negatively affects the prediction of financial distress

Liquidity Ratio and Financial Distress Prediction

Liquidity can provide a signal of a company's ability to fulfill its obligations (Sumani, 2020). The current ratio serves as one of the indicators of liquidity, as it compares the amount of current assets to current liabilities (Santosa et al. 2020). Companies that lack sufficient liquidity may face difficulties in financing their operational activities, leading to an increased potential for financial distress. This condition is supported by previous research conducted by Antikasari & Djuminah (2017), Nugrahanti et al. (2020), Saputri & Asrori (2019), Taswin & Suhendra (2022), Zamachsyari & Amanah (2016). Therefore, the following hypothesis is formulated based on the aforementioned discussion: H2: Liquidity ratio negatively affects the prediction of financial distress

Risk Based Capital and Prediction of Financial Distress

Risk-based capital is a measurement of the solvency of an insurance company that compares its capital to the risks it faces, including credit risk, liquidity risk, market risk, insurance risk, and operational risk. Signals can be obtained from a high RBC value, indicating that the company has sufficient capital to cover various risks. A high RBC reflects good risk management practices, as the company has strong policies and procedures in place to identify, measure, and control the risks it faces. OJK (2016) sets the ratio limit at 120%, supporting the urgency of this ratio as one of the indicators of the health of an insurance company to avoid financial distress. This condition is supported by research conducted by Harjadi & Sihombing (2020), Ridwan et al. (2022) Risk-Based Capital Ratio (RBC, William & Colline (2022). Based on the aforementioned discussion, the following hypothesis is formulated:

H3: Risk based capital negatively affects the predictions of financial distress

Technical Reserve Growth Ratio and Financial Distress Prediction

Technical reserve is an estimation of the amount of money set aside by the company to meet anticipated obligations arising from risk coverage, including provisions for premiums, claims, unearned premiums, investment-related products, and potential disaster losses (OJK, 2016). The growth of technical reserves can serve as a signal of the company's growing obligations resulting from insurance transactions. A higher ratio of technical reserve growth provides an indication of the increasing liabilities of the company in terms of claims that need to be covered, thereby increasing the risk for the insurance company as well (Farooq et al. 2023; Khaliq et al. 2014; Manggarini, 2023). This condition raises the possibility of financial distress. Based on the aforementioned discussion, the following hypothesis is formulated:

H4: Technical reserve growth ratio positively affects the prediction of financial distress

Investment Adequacy Ratio and Prediction of Financial Distress

A high Investment Adequacy Ratio (IAR) indicates that the company has sufficient cash and a well-performing

investment portfolio to cover the liabilities arising from insurance transactions, especially those retained by the insurance company. Companies with a high IAR signal that they have high-quality investment assets and are prepared to meet future obligations. OJK (2016) also sets the minimum threshold for this ratio at 100%. Research conducted Ridwan et al. (2022) and Taswin & Suhendra (2022) supports this argument, the following hypothesis is formulated:

H5: Investment adequacy ratio negatively affects the predictions of financial distress

Investment income ratio and Financial Distress Prediction

Investment income ratio indicates the efficiency of an insurance company by examining how well the company's investment income compares to the premium income paid by policyholders. Investment income serves as a source of revenue with relatively low risk. Research conducted by Ridwan et al. (2022) Risk-Based Capital Ratio (RBC and Sayidah & Assagaf (2020) supports the idea that companies with high investment income are more likely to avoid financial distress. In contrast to investment income, premium income is a more risky source of revenue. An insurance company is considered healthy and profitable not only because of the amount of premium income but also because the company must ensure that the premiums received are greater than the claims made against the policies, known as underwriting profit Suryanto (2020). Based on the aforementioned discussion, the following hypothesis is formulated:

H6: Investment income ratio negatively affects the prediction of financial distress

The research framework, as shown in Figure 1, indicates that the insurance industry has experienced a decline, particularly during the pandemic era, as evidenced by the decrease in gross premiums, the amount of risk-based capital, and the number of agents. There have also been several cases of default, indicating that life insurance companies are at risk of financial distress. Financial ratios were chosen as the factors to be tested due to inconsistent results and the latest ratios set as benchmarks by the OJK (Financial Services Authority) with limited empirical evidence. This study is guided by the signaling theory and logistic regression to provide managerial benefits through empirical evidence of financial ratios.

RESULTS

Descriptive statistics of the variables in this research are presented in Table 3. Generally, the LIQ, RBC, IAR, and SIZE variables exhibit homogeneous data, while the PGR, TRGR, and IIR variables demonstrate heterogeneous and varied data, as indicated by their standard deviation exceeding the mean. The liquidity level of the companies is categorized as satisfactory, surpassing the rule of thumb of 200%. The adequacy ratio of investment and risk-based capital also exceeds the OJK requirements of 100% and 120%, respectively.

The results of the -2 log likelihood test in Table 4 indicate a decrease of 54.287, suggesting that the addition of independent variables has improved the research model and made it more fitting to the data. The results of the Hosmer and Lemeshow test in Table 5 show a significance value of 0.535, which is greater

than 5%, indicating no difference between the model and observed data. With the fulfillment of this test, the model is considered suitable and can be applied for further analysis. The classification test in Table 6 reveals that the formed regression model is able to classify the estimated variables with an accuracy of 86.7%.

Table 7 shows that the Nagelkerke R Square value obtained from the regression model in this study is 0.549. This indicates that 54.9% of the dependent variable, which is the likelihood of financial distress, can be explained by the existing independent variables. The remaining 46.1% is attributed to other factors outside the variables under investigation. The Omnibus test of the model in Table 8, with a significance value below 0.05, provides the interpretation that the independent variables collectively have a simultaneous influence on the dependent variable.

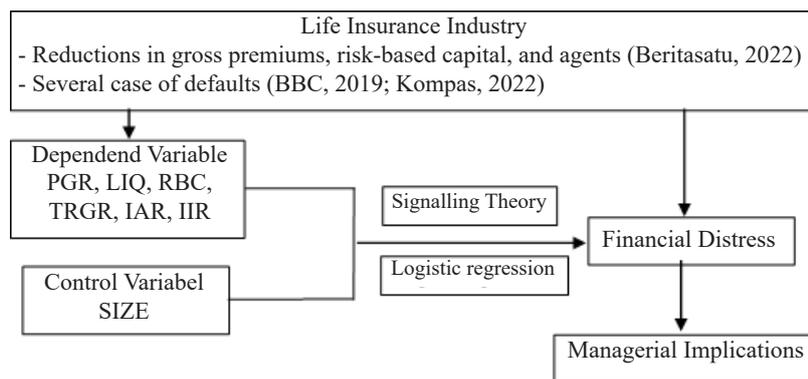


Figure 1. Research framework

Table 3. Statistical descriptive results

Var	N	Min	Max	Mean	Standard Deviation
PGR	120	-98.68	1801.72	31.1350	178.27381
LIQ	120	30.94	1311.00	260.0813	199.25383
RBC	120	-326.00	2659.00	614.7926	504.30971
TRGR	120	-59.64	615.97	21.7077	77.61624
IAR	120	33.19	1397.00	265.5712	249.70875
IIR	120	-106.47	850.00	27.9839	87.53747
SIZE	120	11.97	18.09	15.2977	1.64469

Table 4. Maximum likelihood method

Block	-2 Log Likelihood
Block 0	130.385
Block 1	76.098

Table 5. Hosmer and Lemeshow Test

Step	Chi-square	Df	Sig.
1	7.011	8	.535

Table 6. Classification table

Observed	Predicted		
	Non Distress	Distress	Percentage Correct
Non Distress	87	5	94.6
Distress	11	17	60.7
Overall Percentage			86.7

Table 7. Determination coefficient test

-2 Logs Likelihood	Cox & Snell R Square	Nagelkerke R Square
76,098	.364	.549

Table 8. Omnibus Test of Model (F test)

Chi-square	Df	Sig.
54,287	7	.000

$$\ln(p/1-p) = 9,621 - 0,24PGR - 0,07LIQ - 0,05RBC + 0,39TRGR + 0,006 IAR - 0,05IIR - 0.573 SIZE$$

The results (Table 9) showed that the PGR variable had a negative and significant impact, with an odds ratio of 0.997 and a significance of 0.021. Similarly, the LIQ variable was found to be negatively and significantly associated with financial distress prediction, having an odds ratio of 0.993 and a significance of 0.13. The RBC variable also showed a negative and significant relationship, with an odds ratio of 0.995 and a significance of 0.003. On the other hand, the TRGR variable had a positive and significant association, with an odds ratio of 1.039 and a significance of 0.16. Additionally, the IAR variable demonstrated a positive and significant link to financial distress prediction, with an odds ratio of 1.006 and a significance of 0.11. However, the IIR variable did not significantly affect the potential occurrence of financial distress, with an odds ratio of 0.995 and a significance of 0.561. Lastly, the control variable SIZE significantly affected financial distress, with an odds ratio of 0.564 and a significance of 0.012.

Relationship between premium growth ratio (PGR) and prediction of financial distress

Premium growth ratio shows a significant and negative relationship with the likelihood of financial distress, affirming H1 and consistent with prior studies (Harjadi & Sihombing, 2020; Kristanti et al. 2021). This negative association suggests that companies expanding their business while effectively managing risks experience premium growth that aligns with increased

profitability. Successful strategies in determining premium amounts to cover assumed risks and improve financial performance act as positive signals to external stakeholders, indicating the company's strong condition (Awaliyah & Barnas, 2020; William & Colline, 2022). This finding indicates that well-managed companies with substantial premium growth are better prepared to handle adverse events and economic downturns. The increased premium revenue provides financial resources to maintain liquidity, meet obligations, and withstand uncertainties. Moreover, higher premium revenue allows companies to engage in more investment transactions, enhancing cash and investment assets, and ultimately improving overall profitability. As a result, companies experiencing significant premium growth are less susceptible to financial distress, making them more attractive to investors and providing a competitive edge in the market.

Relationship between liquidity ratio (LIQ) and predictions of financial distress

Liquidity ratio has a significant and negative relationship with the likelihood of financial distress, supporting H2 and consistent with prior research (Abdu, 2022; Antikasari & Djuminah, 2017; Khaliq et al. 2014; Moch et al. 2019; Nugrahanti et al. 2020; Saputri & Asrori, 2019; Taswin & Suhendra, 2022; Zamachsyari & Amanah, 2016). The study's results align with the hypothesis that liquidity, as proxied by the current ratio, reflects a company's ability to meet short-term obligations by assessing whether current assets can cover current liabilities (Santosa et al. 2020). A higher current ratio indicates that a company holds sufficient

cash reserves, allowing for flexibility in dealing with unexpected conditions without disrupting cash flow. In contrast, companies with low liquidity may encounter constraints in operational activities, particularly in fulfilling overdue claims, thus increasing the likelihood of facing financial distress. Therefore, maintaining adequate liquidity levels is crucial for insurance companies to ensure their ability to handle short-term obligations and navigate uncertainties effectively, safeguarding their financial stability and resilience in the face of potential risks.

Relationship between risk based capital (RBC) and prediction of financial distress

Risk-based capital has a significant and negative relationship with the prediction of financial distress, supporting H3 and consistent with previous research (Harjadi & Sihombing, 2020; Kristanti et al. 2021; Taswin & Suhendra, 2022). Companies with higher RBC levels have sufficient assets to cover obligations and various risks associated with insurance operational activities, indicating effective asset management capabilities (Ridwan et al. 2022; William & Colline, 2022). This condition reflects the company's robust procedures in identifying, measuring, and controlling risks, enhancing policyholders' and investors' confidence in its risk handling ability. Furthermore, a high RBC ratio serves as a signal of compliance with regulations, thereby increasing trust from supervisory authorities, strengthening a positive reputation among investors and insurance users, and reducing the risk of bankruptcy. A high RBC ratio also supports the company's stability. By having adequate capital levels

according to the risks faced, insurance companies are better equipped to withstand economic pressures or unforeseen risks.

Relationship between the technical reserves growth ratio (TRGR) and the prediction of financial distress

The partial results reveal a significant and positive relationship between the ratio of growth in technical reserves and the prediction of financial distress, supporting H4. The increase in technical reserves raises the risk for insurance companies as it corresponds to an escalation in funds required to guarantee future claim obligations, signaling a rise in the company's liabilities. Prior studies (Farooq et al. 2023; Khaliq et al. 2014; Manggarini, 2023) have established that companies facing higher increases in liabilities are at a heightened risk of encountering financial distress. Furthermore, relatively high technical reserves may indicate an uneven business portfolio over the year, leading to a higher proportion of unearned premium reserves. In essence, this implies that such elevated technical reserves do not benefit the company, as its technical obligations exceed its investments. These findings emphasize the importance of prudent risk management and portfolio diversification for insurance companies. While technical reserves serve as crucial safety buffers for handling future claims, excessively high reserves without corresponding investment returns can strain a company's financial position. Insurance firms need to strike a balance between prudent reserve levels and profitable investments to ensure sustained financial stability and minimize the risk of financial distress in the face of uncertain market conditions.

Table 9. Wald test (t test)

Var	B	S.E.	Wald	Df	Sig.	Exp(B)
PGR	-.024	.010	5.294	1	.021	.977
LIQ	-.007	.003	6.149	1	.013	.993
RBC	-.005	.002	8.620	1	.003	.995
TRGR	.039	.016	5.818	1	.016	1.039
IAR	.006	.002	6.501	1	.011	1.006
IIR	-.005	.009	.337	1	.561	.995
SIZE	-.573	.228	6.327	1	.012	.564
Constant	9.621	3.506	7.531	1	.006	15079.248

Relationship between investment adequacy ratio (IAR) and prediction of financial distress

The partial results show that the investment adequacy ratio has a significant and positive relationship with the prediction of financial distress, contradicting H5. These findings are not aligned with the research conducted by Ridwan et al. (2022) and Taswin & Suhendra (2022) Risk-Based Capital Ratio (RBC. Empirical evidence reveals that companies such as PT China Life Insurance, PT FWD Insurance Indonesia, and PT Tokio Marine Life Insurance Indonesia, which have experienced consecutive losses for 2 or even 3 years, have high investment adequacy ratios above 1000%. On the other hand, companies like PT Asuransi Jiwa Reliance, PT Asuransi Jiwa Taspen, and PT Capital Life Indonesia, which have good profits, have investment adequacy ratios ranging from 100% to 300%. This indicates that companies that do not experience financial distress have investment adequacy ratios that meet the minimum requirement set by the Financial Services Authority (OJK), which is at least 100%, but the magnitude is not excessively high.

This phenomenon is suspected to occur because the investment adequacy ratio compares the size of investment assets and cash to technical reserves. Technical reserves are indeed liabilities of insurance companies, but these liabilities arise from insurance transactions, specifically the sale of policies. Technical reserves represent funds reserved to fulfill future obligations and claims (Wong, 2022). Therefore, the magnitude of technical reserves also indicates that the company is engaged in operational activities because it is capable of selling premiums. Companies experiencing financial distress are presumed to have fewer insurance transactions, resulting in smaller technical reserves. However, cash and investment assets, which constitute capital, maintain a fixed amount as the OJK sets minimum capital requirements for insurance companies. As a result, companies with a high probability of financial distress actually have high investment adequacy ratios because they engage in fewer insurance transactions, leading to a lack of premium and claim reserves for the future. The results shows that a good company has a IAR of at least 100%, indicating that investments and cash amounts are sufficient to cover liabilities for policyholders but not excessively high, which suggests that the company does not have excessive liabilities to policyholders.

This implies that the company is not actively engaged in insurance transactions, which can serve as input for regulators to consider the ideal threshold.

Relationship between Investment income ratio (IIR) and predictions of financial distress

The partial correlation analysis reveals that the investment income ratio does not significantly affect the likelihood of financial distress, leading to the rejection of H6. The study findings indicate that a high investment income ratio compared to premium income cannot serve as a reliable predictor of financial distress. A high investment income ratio signifies that the company generates substantial investment returns in comparison to its premium income (Mishura & Ragulina, 2016). OJK stipulates the proportion and types of investment portfolio assets that insurance companies can select for their investments, ensuring a well-diversified investment portfolio. Therefore, even if the investment income ratio is low due to modest investment returns, the company's financial performance remains robust, reducing the likelihood of potential financial distress. Effective insurance underwriting processes also play a role, as they decrease reliance on investment income and emphasize premium income to facilitate operations and meet obligations. Consequently, the magnitude of investment income has minimal impact on the company's ability to function and fulfill its responsibilities. This underscores the importance of a comprehensive risk management approach that takes into account various financial indicators to ensure the long-term stability and sustainability of insurance companies.

Managerial Implications

The company management must consistently maintain the stability of financial ratio variables that significantly influence the possibility of financial distress. They need to ensure that premium income and technical reserves grow steadily, but not excessively aggressive, to avoid uncontrollable risks. Moreover, the management should consider a balanced growth strategy by focusing on profitable market segments. Additionally, the company should ensure adequate reserves of liquidity and capital that can be utilized during emergencies or when facing potential risks and increased claims. Careful management of investments is also crucial, ensuring that investments align with the company's risk profile.

Furthermore, diversification of investment portfolios and regular monitoring of investment performance are of utmost importance to minimize the risk of financial distress.

Investors and company owners should pay attention to mandatory financial health indicators, particularly the Risk-Based Capital (RBC) and Investment Adequacy Ratio (IAR). Companies must submit Financial Recovery Plans (RPK) with additional capital injections if facing liquidity issues, enabling better financial recovery preparation for potential distress. Regulators, like OJK, should consider this research for decision-making, especially regarding the IAR, an essential indicator. Notably, distressed companies tend to have very high IAR, contrary to the expectation of high IAR for financially healthy firms. Thus, regulators should reevaluate policies to ensure adherence to healthy financial standards and risk management practices.

Theoretical implications reveal the influence of premium growth, liquidity, risk-based capital, technical reserve growth, and investment adequacy on financial distress. The study supports the signal theory, demonstrating that financial ratios can signal insurance company financial health, guiding stakeholders like regulators and investors in monitoring insurers' financial well-being. Consequently, managing and monitoring financial ratios play a crucial role in preventive measures and maintaining insurance industry stability.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Based on the observations conducted, it can be concluded that premiums growth ratio, liquidity ratio, and risk-based capital negatively impact the likelihood of financial distress, while the technical reserve growth ratio and investment adequacy ratio have a positive influence on predicting financial distress. However, the investment income ratio does not significantly affect the likelihood of financial distress. This study confirms that the growth of premiums, liquidity ratio, risk-based capital, and technical reserve growth ratio are reliable indicators of insurance company health, but it does not establish the Investment income ratio as a determinant of financial distress. To utilize the investment adequacy ratio effectively, its application should be reevaluated by defining a suitable range of values. Leveraging

the insights from this study, insurance companies can improve their financial health management, and stakeholders can foster industry stability through effective oversight. Implementing proactive measures and informed decision-making will be crucial for navigating uncertainties and mitigating bankruptcy risks, particularly during and after challenging periods like the Covid-19 pandemic.

Recommendations

Further research should incorporate or conduct comparative studies with other insurance industries and carry out comparative analyses in non-pandemic years to assess consistency. Additionally, extending the observation period in future research is recommended. The current method of measuring financial distress by relying on two consecutive years of losses has its limitations; hence, exploring alternative measures to predict financial distress is warranted. Furthermore, future studies can explore the impact of other financial health indicators, such as risk levels or financial ratios with limited empirical evidence. Additionally, investigating external factors, such as interest rates, mortality rates, and changes in insurance regulations, is also a viable avenue for further exploration.

For regulators, the research findings provide valuable insights to inform policymaking and decision-making regarding financial health indicators. Regulators should consider establishing minimum thresholds and ideal ratios as guidelines for financial health indicators in the insurance sector, similar to the approach adopted by NAIC in the United States, especially for the Investment Adequacy Ratio (IAR), as empirical evidence indicates that excessively high values indicate companies may experience distress. This approach will enhance regulatory oversight and ensure the stability and health of insurance companies.

For insurance companies, these findings emphasize the importance of maintaining financial ratio stability as indicators of company health, particularly those that have been proven to have a significant impact and are used to take preventive actions in managing financial risks and preventing bankruptcy. The results of this research can also serve as considerations for companies to reevaluate their policies and business strategies. Companies can adapt policies that are suitable for market conditions and consider changes in strategies that support long-term financial health.

For the public, it is crucial to pay attention to empirically proven financial health indicators that have a significant impact on financial distress. This will facilitate making informed decisions, identifying insurance companies in good condition and less likely to face financial difficulties.

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