

Alternative Ratio as Early Warning System Ratio to Examined Life Insurance Companies in Indonesia

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Abstract

This study analyzes the claims expense ratio, liquidity ratio, premium growth, and management cost ratio, which is the ratio of the Early Warning System to the financial performance of Sharia life insurance companies. The sample of this study comprises 15 Sharia life insurance companies registered with the Indonesian Financial Services Authority. Using panel data regression, the results of this study show that the ratio of management costs, liquidity, and inflation affects the performance of Sharia life insurance companies. Meanwhile, the claim expense ratio, premium growth ratio, and gross domestic product did not affect the performance of Sharia life insurance companies. The implications of this study are expected to provide additional insight for managers in formulating policies related to the performance of Islamic life insurance. Further, investors can use this study to consider their investment policies. This study adds to the literature on Islamic life insurance performance.

Keywords: Sharia Life Insurance, Risk Management, Early Warning System Ratio, Performance

INTRODUCTION

In Indonesia, Sharia insurance has grown rapidly. The competition in the Sharia Insurance business in Indonesia is growing with new players, both from life insurance and general insurance, with Sharia principles. Similarly, many Sharia reinsurance companies have shifted from Sharia business units to full-fledged companies through spin-off activities. Sharia insurance first operated in Indonesia in 1994, marked by the establishment of the sharia-based insurance company PT Syariah Takaful Indonesia (STI) with a base capital of Rp 25 billion and paid-up capital of Rp 9 billion. PT STI has two subsidiaries, PT Asuransi Takaful Keluarga (ATK) and PT Asuransi

Takaful Umum (ATU). The existence of takaful insurance in Indonesia is quite late. In Luxembourg, Geneva, the Takaful Insurance of Bahamas has been around since 1983.

Meanwhile, in Muslim-majority countries, it has been approximately much longer. For example, Sudan in 1979, Saudi Arabia in 1979, Bahrain in 1983, Malaysia in 1984, and Brunei Darussalam in 1992 (Allianz, 2016).

From the beginning of the existence of Sharia insurance companies in Indonesia until 2019, the number experienced growth (Karim Consulting, 2017), but from 2020 to 2021, the existence of Sharia insurance decreased. Table of the development of Sharia insurance companies in the form of full Sharia companies and Sharia business units in Indonesia from 2017-2021.

Table 1. Sharia Insurance Companies in Indonesia Period 2017-2021

No	Companies	2017	2018	2019	2020	2021
1	Life Insurance Companies	30	30	23	23	23
2	General Insurance Companies	30	29	24	21	19
3	Reinsurance Companies	3	3	3	3	3

Source: (Otoritas Jasa Keuangan, 2017-2021)

The number of assets in the Sharia insurance industry in Indonesia is also increasing; however, from 2020 to 2021, the assets of Sharia insurance will decrease. This was because of the COVID-19 pandemic at the end of 2019. With the end of the COVID-19 pandemic, the growth of Islamic insurance is likely to increase. Moreover, according to Sharia insurance observer Erwin Noekman, the terms of estimated assets can grow larger. (Laucereno 2017). Moreover, the number of players will increase, along with a surge of capital owners who want to increase the class of Sharia Business Units into a full-fledged company of Sharia Insurance. The growth in the number of insurance industry assets over the past five years is presented in Table 2 below.

Table 2. Asset Growth of Sharia Insurance Companies Period 2017-2021

(In million Rupiah)

No	Perusahaan	2017	2018	2019	2020	2021
1	Life Insurance Companies	33,188	34,276	37,887	36,166	34,970
2	General Insurance Companies	5,621	5,459	5,817	6,019	6,616
3	Reinsurance Companies	1,721	1,863	2,091	2,098	1,964

Source: (Otoritas Jasa Keuangan, 2017-2021)

Globalisation is rising, and intense competition increases companies' risk. Business bankruptcy can lead to huge losses for all parties such as creditors, investors, auditors, financial institutions, shareholders, employees, and customers. Such business failures inevitably affect all enterprises. When a business with financial problems cannot pay its financial obligations, the

enterprise is in a state of financial distress. Eventually, if the problem cannot be addressed, the business can become bankrupt and be forced to close. At the end of 2019, Jiwasraya Insurance, a State-Owned Enterprise, failed to pay customers' claims. The same is true for insurance companies in Indonesia, namely Bakrie Life Insurance, Bumi Asih Jaya Insurance, and Bumiputera Life Insurance 1912. All insurers that experience problems are life insurance companies (Muamar, 2019). Knowing the factors that contribute to a business's success is essential to achieving success. Therefore, risk management is integral to a company's success, especially for companies engaged in the financial industry, including insurance.

Banks (2004b) defines *risk* as the uncertainty related to future results or events. Chapman and Ward (1997) stated that risk management could be how companies differentiate themselves to measure, prioritise, and moderate the impact of unfavourable instability (Mohammed and Knapkova 2016). Thus, risk management is a systematic approach to coping with the negative consequences of any specific phenomenon. An approach that defines risk only from a lower perspective can lead to risk avoidance (Mohammed & Knapkova, 2016). Risk management strongly affects major shareholders investing more within a company, which is a funding strategy for the company to provide better business opportunities. This ultimately results in long-lasting competitive advantage. Thus, ineffective risk management results in additional costs and lower revenue for both the company and shareholders. (Andersen 2008). Banks pointed out that with risk management, managers can increase a company's value by continuously improving its profitability (Banks, 2004). This follows the results of Andersen (2008) and Mohammed and Knapkova (2016), who prove that a company's performance is positively related to total management risk.

Insurance companies are high-risk businesses because they have risks associated with every client in the enterprise and the risk of the insurance company itself. Thus, insurance companies should be able to manage these risks, namely the risks of their clients and the company itself. Therefore, the insurance company must be able to detect its condition before it fails. Insurance companies' risk management procedures and overall management quality are crucial for protecting their solvency and adequate financial resources. In addition, an effective risk management process should cover all critical elements of the business cycle and, more importantly, manage the company's risks (Zhara, 2014). The same was conveyed by Amaya and Memba (2015), who stated that insurance companies protect people against insured events by paying a specified amount of money. It allows people to protect themselves from financial losses that require risk management and financial performance analysis (Wamiori 2017). Moreover, a company can use an early warning system to detect financial distress and bankruptcy risk factors.

In risk management insurance, companies can pay attention to the financial ratio, known as the Early Warning System created by the National Association of Insurance Commissioners (NAIC), the supervisory body of insurance businesses in the United States. The Early Warning System is a financial ratio used to detect whether the insurance company is in good health (in risky conditions). Many previous studies have analysed the effect of the Early Warning System ratio on a company's performance (Hasbi and Suryawardani (2013); Suwiralim et al., and Fathoni (2014); Utami and Khoiruddin (2016); Ulfan, Sutriswanto, and Apriyanto (2018)).

From the above exposure, this study analyzes how the Early Warning System's financial ratio affects the performance of Sharia insurance companies. This study is conducted on Sharia life insurance because the number of Sharia life insurance assets in Indonesia is higher than that of general insurance and Sharia reinsurance. In addition, there has also been a failure to pay claim customers to life insurance companies. The Early Warning System ratios used in this study are claim expenses, management costs, liquidity, and premium growth. In addition, this research will include macroeconomic variables, namely inflation and Gross Domestic Product, as control variables because Inflation and Gross Domestic Product affect the ability of the population to spend their income, including the decision to participate in Sharia life insurance. This study adds macroeconomic variables, namely inflation and gross domestic product. These variables are important aspects outside the company under study, whereas previous studies have not included macroeconomic variables.

This study analyzes the claims expense ratio, liquidity ratio, premium growth, and management cost ratio, which is the ratio of the Early Warning System to the financial performance of Sharia life insurance companies. Furthermore, the results of this study are expected to be standard early warning systems for the risk management of Sharia life insurance companies.

LITERATURE REVIEW

Shariah Insurance

The term insurance in Indonesia is derived from the Dutch word, *assurantie*, which later became "insurance" in Indonesian. However, the term *assurantie* itself is not a native Dutch term but is derived from Latin *assecurare*, which means "to convince people". The word was later known in French as an *assurance*. Similarly, the terms *assurateur*, meaning "insurer", and *geassureerde*, meaning "insured", both come from the Dutch monastery. While in English, the term "coverage" can be translated into insurance and assurance (Siamat 2005).

Definition of insurance under Law No. 2 of 1992 on insurance business Chapter I, Article 1: Insurance or coverage is an agreement between two insurers reminding the insured by receiving

insurance premiums; providing reimbursement to the insured for loss, damage, or loss of expected profits or legal liability to a third party who may be insured; arising from an uncertain event; or providing payment based on the life of an insured person (Anon n.d.).

According to the Fatwa of the National Sharia Council of the Indonesian Ulama Council (DSN-MUI) Fatwa DSN, No.21/DSN-MUI/X/2001, Sharia insurance is an exertion to protect each other and offer assistance to a few individuals or parties through speculation within the frame of resources or *tabarru* which gives a design of return to bargain with certainty risks through agreements or alliances by Sharia principles (Majelis Ulama Indonesia 2001).

In Arabic, insurance is known as *takaful* or *Tadhamun*, meaning to bear each other. This insurance is also referred to as *at Ta'min* derived from the word *amine*, which means safe, peaceful, and quiet. It is named *at Ta'min* because the person who carried out this transaction (especially the participants) felt safe and not too afraid of the danger struck by it (Puspitasari 2015).

Sharia insurance is an effort to secure each other and offer assistance among a few individuals through ventures in *tabarru* agreements to bargain with certain risks through understanding (exchanges) that do not contain *maysir* (gambling), *gharar* (gambling), *riba*, *z'hubun* (persecution), *risywah* (bribes), illicit goods, and sin (Nurhasanah 2015). *Takaful*, the sense of *muamalah* based on Sula (2004), shares risks between fellow humans. This means that there are fellow insurance owners who do not experience the risk of being risk-bearers for others who experience a disaster. Hence, *takaful* could be a shared obligation between Moslems, which aims to help and guarantee other Muslims in terms of *maslahah* (Hasan, 2014). From some of the above understandings, Sharia insurance is a risk-management adjustment that meets Sharia provisions. Please help several people involving the participants and operators of the Sharia insurance companies.

Performance

According to Neely, Gregory, and Platts (2005), performance measurement refers to measuring the efficiency and effectiveness of actions. According to Lebas (1995), performance measurement refers to the transfer of the complex reality of performance in organised symbols that can be connected and conveyed in the same situation. According to Koufopoulos, Zoumbos, and Argyropoulou (2008), performance measurement in current business management plays a more important role than quantification and accounting. It is consistent with the opinions of Bititci, Carrie, and McDevitt (1997), which described performance management as a process in which the organisation manages its performance to tailor its company's functional strategies and objectives. The company's performance is reflected in the financial statements reported by the company.

According to Demirbag et al. (2006), performance measurement is essential for effective management of each company. Improved processes were not possible without measurement of the results. Therefore, organisations need measurements to identify the degree to which the use of organisational resources impacts business performance. The company's performance dimensions were clustered into two groups: financial performance and strategy performance. Financial performance measures a company's profitability performance. The financial performance of the company is evaluated through return on assets, return on assets, EBTIDA margin, return on investment, net come/revenues, Return On Equity, and Economic Value Added (EVA), return on equity, economic value added (EVA) (Murugesan Selvam, Jayapal Gayathri, Vinayagamoorthi Vasanth 2016), return on equity (ROE), and return on assets (ROA). These are common measures of profitability.

Jumingan (2011) states that financial performance is an overview of a company's financial condition in a specific position concerning the collection and dispersion of funds, which is usually measured by capital adequacy indicators, liquidity, and profitability of the company.

Risk Management and Financial Performance

Effective risk management improves financial performance. Banks pointed out that with risk management, managers can increase a company's value by continuously improving its profitability (Banks, 2004). This company is necessary to manage risk to avoid financial failure and bankruptcy of the company, as well as Sharia insurance companies.

Babbal and Santomero (1996) found evidence that insurers should assess their risks and devise ways to manage them effectively. They further suggest that insurers accept and manage the unique risks that are part of their services at the corporate level.

Appropriate risk management is imperative for insurance companies to avoid financial loss and bankruptcy. This is in line with Jolly's contribution that preventing losses through precautions is a key element in reducing risk and its consequences, and is a key driver of the company's profitability. Insurance companies' efficiency in risk management will, for the most part, influence their financial performance. Gold asserted that insurers cannot survive with increased loss and cost ratios. (Kokobe & Gemechu, 2016).

Pagano (2001) asserts that risk management is important to the insurance agency's function in creating value for shareholders and customers. Generally, a company's operations are vulnerable to risk, and if the risk is not managed, then the company's financial performance will be at stake. Companies with efficient risk management structures outperform their competitors as they prepare well for risk. Banks further urged the company to actively maintain and manage some level of risk

if it was going to increase its market value or if the probability of financial hardship would be lowered (Banks 2004).

Several studies have been conducted on good risk management and improved financial performance. Among them, Mohsen J, Arezoo AC (2011); Mua J, Gang P, Douglas L (2009); and Quon, Zéghal, and Maingot (2012) states that there is a positive and significant relationship between total management risk and the company's performance. Smith (1995) and Schroeck (2002) disclosed that prudent risk management practices reduce volatility in the institution's financial performance, namely, operating income, stock returns, the company's market value, return per share, and return on equity. Schroeck (2002) also pointed out that best practices through careful risk management result in increased revenue.

Gordon LA, Loeb MP (2009) and K. Gupta (2011) examined the risk relationship between management and company performance. They argue that a company's management relationships and performance continue. Performance includes environmental uncertainty, industry competition, company complexity, company size, and board monitoring. Their research has significantly contributed to risk management and financial performance. However, their study was primarily aimed at developing countries. Meanwhile, developing countries get little attention from various literature on this issue, that is also the majority of research done in the banking industry

A study by Mohsen J, Arezoo AC (2011) titled: "Effective risk management company's performance: Investment in innovations intellectual capital using a practical behavioural approach" This study focused on the ability of risk management response on market control factors to facilitate consistency of profitability to improve the company's performance. Empirical research has investigated the relationship between total risk management and company performance. The average 6-year performance level is ROA and ROI ratio as dependent variables, and all risk management, innovation, and market-book ratio as free variables, as well as company size and financial leverage, are considered as control variables. The results showed a positive and significant relationship between total risk management and company performance in the research sample.

Quon, Zeghal, and Maingot (2012) titled, "Enterprise Risk Management Business Performance During the Financial Crisis. Problems Perspectives in Management." The results showed that more research is needed to investigate the relationship between Enterprise Risk Management and company performance in a much larger sample and for a longer period.

Mua J, Gang P, Douglas L (2009) use a sample of Chinese companies, examining the influence of risk management strategies on the performance of new product development. Their findings suggest that risk management strategies focused on technology, organisation, and

marketing factors, individually and interactively, improve the performance of new product development.

Gordon and Loeb (2009) examine the relationship between a company's risk management and performance. They show that the relationship depends on five company-specific factors: environmental uncertainty, industry competition, company complexity, company size, and board of directors. The results indicate that companies must pay attention to the contextual variables around them to implement enterprise risk management.

Gupta (2011) researches risk management in Indian companies and explores whether to adopt a unified approach to risk management. He pointed out that while effective risk management can improve the organisation's performance, the company does not have sufficient infrastructure to implement extensive corporate risk management. Gupta concluded that, in changing risk perceptions, it is necessary to build a culture of risk in the business segment and incentives for implementing risk management.

Mohammed and Knapkova (2016) conducted research titled *The Impact of Total Risk Management on Company performance*. A study conducted during 2009-2014 using 12 companies listed on the Prague stock exchange proved a positive and significant relationship between total risk management and the company's performance. They stated that the company should view risk management not only from a diversified approach, but also as the main factor for the sustainability of its profits and to improve its overall performance.

Early Warning System

An early warning system (EWS) is a monitoring and reporting system that warns of possible problems, risks, and opportunities before significantly impacting a company's financial statements. The EWS measures a company's financial performance, assesses its financial risks, and identifies possible bankruptcy. EWS allow management to monitor and manage risks by anticipating and preventing potential problems. All financial EWS ratios rely on accurate financial statements. Balance sheets and income tables can be used to assess the financial correctness of early warning systems (Ozgulbas 2011).

According to Salustra, The Early Warning System (EWS) is a ratio used to analyse and regulate the health and performance levels of life insurance companies by detecting earlier than future financial deficiencies to determine the priorities of the measures of improvement for the company, which are made specifically for insurance companies. In many countries, EWS calculations assist insurance supervision by measuring financial performance, assessing insurance companies' health levels, identifying companies that need more rigorous and immediate monitoring, and determining insurance companies' level (grading) (Satria 2012).

Several previous studies have analysed the effect of the Ratio of Early Warning System on the performance of the company, including research conducted by Suwiralim, Haryetti, and Fathoni (2014), who conducted research on the Effect of Ratio Analysis – Ratio of Early Warning System (EWS) to The Share Price of Insurance Companies Listed On the Indonesia Stock Exchange (2009-2012). The Early Warning System ratios used in this study are liquidity, claim load, agents' Balance To Surplus, and Premium Growth. The results show that liquidity and premium growth ratios significantly positively affect the share prices of insurance companies that listened to the IDX. Meanwhile, the Ratio of Claim Expenses and Agent's Balance To Surplus does not affect the share price of insurance companies listed in the IDX (Suwiralim et al. 2014).

This study links the effect of the Ratio of the Early Warning System to Financial Solvency. The Early Warning System ratios used in this study are the aggregate ratio of surplus, the management cost ratio, and the premium ratio of receivables. The results prove that all three ratios of the Early Warning System adhere to the solvency rate of Sharia insurance companies. Therefore, the early warning system can be used as a supporting tool in the assessment of a company's performance, in this case, by measuring the extent of the insurance company's ability to anticipate management by detecting potential or possibilities and threats that may occur before affecting the financial condition and performance of the company, so that it can be improved as early as possible (Hasbi and Suryawardani 2013).

Ulfan, et al. (2018) researched the Effect of Early Warning System Ratio on the Financial Solvency of Sharia Life Insurance Companies in Indonesia. In this study, the ratio of the early warning system is the surplus change ratio, claim expense ratio, management cost ratio, liquidity ratio, and premium-to-financial solvency growth ratio. The results of this study prove that the ratio of early warning systems consisting of the ratio of claim expenses and the liquidity ratio influences the financial solvency of Sharia life insurance companies in Indonesia. In this study, the ratio of surplus changes, management cost ratio, and premium growth ratio do not affect the financial solvency of Sharia life insurance companies in Indonesia. The claim expense ratio in this study was the most dominant ratio of the effect on the financial solvency of Sharia life insurance companies in Indonesia from 2012 to-2016, compared to other early warning system ratios.

Utami and Khoiruddin (2016) researched the effect of the early warning system financial ratio on the solvency rate of the Sharia Life Insurance Company Syariah Jiwa Period 2010-2013. The early warning system ratios used in this study are the Liquidity Ratio, Retention Ratio, Load Ratio, and Company size. The results show that load ratio has a significant effect on the solvency rate of Sharia life insurance companies. The liquidity ratio, retention ratio, and company size do not affect the level of solvency of the company.

Research Rusmita, Sukmaningrum, and Amani (2017) who researched the health of Sharia insurance companies in Indonesia and sharia insurance companies in Malaysia using the Early Warning System during the period 2013-2015. The study used secondary data and quantitative methods and a sample of three Sharia insurance companies in Indonesia and eight insurance companies in Malaysia. The Early Warning System ratios used are the surplus change ratio, underwriting ratio, loss ratio incurred, commission ratio, management ratio, investment return ratio, premium growth ratio, and retention ratio. This study decrypts the ratios of the early warning systems used in this study. The results show that the level of health in Sharia insurance companies in Malaysia is better than that of Sharia insurance companies in Indonesia in terms of underwriting ratio performance, Claim Expense Ratio, Surplus Growth Ratio, and Self-Retention Ratio.

Tornoa and Tiub (2014) conducted research aimed at determining the vulnerability of survival and failure of non-life insurance companies in the Philippines to determine the factors that affect their survival and failure. Based on the results of the study, the variables that affect the survival of non-life insurance companies are company size, losses paid due to typhoons and floods, leverage, degrees of diversification, equity growth, and capital compliance.

Sumartono and Harianto (2018) conducted a study analysed the impact of early warning system variables (EWS) predicted by asset liquidity ratio, claims expense ratio, retention, and risk capital (RBC) on corporate financial performance insurance. The population used in this study comprises all insurance companies listed on the Indonesian Stock Exchange (IDX) for the period 2011-2016, up to 12 companies. Purposive sampling was used in this study. Multiple linear regression was used for the data analysis. The results prove that early warning system (EWS) variables projected through asset liquidity ratios to influence performance expense claim ratio do not affect financial performance, retention does not affect financial performance, and variable risk based on capital (RBC) affects financial performance.

Agustiranda, Yuliani, and Bakar (2019) conducted research aimed at looking at the effect of Premium Income, Claim Payment, and Risk-Based Capital on Profit Growth on insurance companies listed on the Indonesia Stock Exchange in 2012-2016. This study is a quantitative research that uses Purposive Sampling techniques. The data collection in this study was conducted using a documentary sourced from financial report data reported on the Indonesia Stock Exchange. The data analysis tool used in this study employs classic assumptions and hypothetical tests (partial t-test and F-test simultaneously). The results showed that Premium Income and Risk-Based Capital had a significant impact on Profit Growth, while Claim Payments did not have a significant impact on Profit Growth.

From some of the above studies, it can be concluded that the Ratio of Early Warning Systems is one of the financial ratios that has become a benchmark in measuring the financial performance and assessing the health level of insurance companies to provide preparation in the face of threats that may affect the financial condition and performance of insurance companies in particular. Based on previous research, the ratio of claim load, liquidity, premium growth ratio, and cost ratio do not show consistent results against the theory. Therefore, this research will analyse these ratios and reduce these inconsistent results, using macroeconomic variables as variable controls.

The following hypotheses were developed in this study.

- H1 : The ratio of claim expenses has a negative and significant effect on life insurance companies' performance.
- H2 : The liquidity ratio has a positive and significant effect on life insurance companies' performance.
- H3 : The management cost ratio has a negative and significant effect on life insurance companies' performance.
- H4 : The premium growth ratio has a positive and significant effect on life insurance companies' performance.

METHOD

This research is field research which uses sequential exploratory strategies. Creswell (2010) stated that the sequential exploratory strategy involved collecting and analysing qualitative data in the first stage, followed by the collection and analysis of quantitative data in the second phase based on the first results. By nature, this study is a correlation, namely, research that explains the position of the variables studied as well as the relationship between one variable and another variable that affects each other (Sugiyono 2008).

The population is the total number of analytical units with suspected characteristics (Effendi, 2014). This study uses all Sharia life insurance companies in Indonesia as the population. According to Sugiyono (2008), samples are part of the number and characteristics of the population. The sampling technique in this study is nonprobability sampling, which is a sampling technique that does not provide the same opportunities for each element or member of the population for selecting into a sample. The sample in this study is a Sharia life insurance company registered with the Financial Services Authority, and has a complete financial report required in this study.

Secondary data were used as data sources. Secondary data sources were research data sources indirectly obtained by researchers through intermediary media, obtained, and recorded by others. Secondary data were obtained from the financial statements of the Sharia insurance companies.

The operational definitions used in this study are as follows:

1. Dependent Variables.

The dependent variables are variable types that are described or affected by independent variables. The dependent variable in this study was the financial performance of Sharia insurance companies, as measured by Return on Equity (ROE) (Kokobe & Gemechu, 2019). Return on equity is a ratio that describes the ability of a company's equity to generate profits. This ratio is chosen as a proxy for profitability. This study prefers the ROE proxy over ROA because it describes a company's strength in generating profits.

2. Independent Variables.

An independent variable is a type of variable that describes or affects other variables. The independent variables used in this study are the claim load, liquidity, premium growth, and management cost ratios.

3. Control variables

The control variables in this study were inflation and Gross Domestic Product. The data were obtained from Badan Pusat Statistik, Indonesia. The mathematical models used in this study are as follows:

$$\text{Firm Performance} = \alpha + \beta_1 \text{Claim Load Ratio} + \beta_2 \text{Liquidity} + \beta_3 \text{Premium Growth} + \beta_4 \text{Management Cost} + \beta_5 \text{Inflation} + \beta_6 \text{GDP} + \varepsilon$$

The analysis tool used to examine the relationship between risk management techniques and the financial performance of Sharia insurance is a data panel regression, because the research used data pooling. The sample selection technique in this study involves screening insurance companies registered with the Financial Services Authority (Otoritas Jasa Keuangan or OJK). The process obtained as many as 19 Sharia business units and five pure Sharia insurance companies, so the sum of the company is 24. But of the 24 companies, which meet the research criteria as many as 15 companies. The screening process for the sample data is presented in Appendix 1. Using purposive sampling techniques, the sample in this study has 15 Sharia insurance as follows:

Table 3. Sample

NO	Companies	NO	Companies
1	PT AIA Financial	9	PT BNI Life Insurance
2	PT Asuransi Jiwa Allianz Life Indonesia	10	PT Panin Daichi Life
3	PT Asuransi Jiwa Bringin Jiwa Sejahtera	11	PT Prudential Life Assurance
4	PT Asuransi Jiwa Central Asia Raya	12	PT Sun Life Financial Indonesia
5	PT Asuransi Jiwa Manulife Indonesia	13	PT Tokio Marine Life Insurance Indonesia
6	PT Asuransi Jiwa Sinar Mas MSIG	14	PT Great Eastern Life Indonesia
7	PT Avrist Assurance	15	PT Asuransi Takaful Keluarga
8	PT Axa Financial Indonesia		

RESULT

The statistical descriptions of the research data are as follows: ROE has a mean of 0,09455863, claim expense ratio of 0,8454773; liquidity ratio of 2,821753, premium growth ratio of 0,1190826, management cost ratio of 0.8090026, inflation of 0,0270429, and GDP ratio of 10.200.000. Each standard deviation is as follows: ROE of 0,2062051; claim expenses ratio of 0,5658955; liquidity ratio of 2,117679; premium growth of 0,5110617; management cost ratio of 1,340289; inflation of 0,0079554; and GDP of 747.842,9.

Table 4. Statistical Descriptive of Data Research

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
ROE	105	0.0945863	0.2062051	-0.6954	0.6969311
CE	105	0.8454773	0.5658955	-0.09	3.4572
Liquidity	105	2.821753	2.117679	0.0854279	10.42
PP	105	0.1190826	0.5110617	-1.89156	2.398
MC	105	0.8090026	1.340289	0.9855072	6.883
Inflasi	105	0.0270429	0.0079554	0.0123	0.0361
GDP	105	10,200,000	747842.9	8982517	11,100,000

The regression data panel has three approach models: common effects, fixed effects, and random effects. The following are the results of the panel data estimation using ordinary least squares on the three approach models:

Table 5. Regression Panel Data Test Panel Regression Tabulation

	CEM	FEM	REM
CE	-0.313 (-1.09)	-0.0186 (-0.16)	-0.17 (-1.50)
Liquidity	0.213 -1.58	0.517*** -4.57	0.372*** -4.01
PP	0.153 -0.42	-0.0564 (-0.17)	0.0295 -0.09
MC	0.275*** -3.44	0.257* -2.67	0.263*** -3.64
Inflasi	-50.53* (-2.32)	-57.75* (-2.34)	-53.69* (-2.25)

GDP	-2.53 (-1.16)	-2.169 (-1.21)	-2.327 (-1.25)
_cons	39.87 -1.12	34.1 -1.16	36.6 -1.19
N	105	105	105

t statistics in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Based on the results of the analysis shown in Table 5, it is known that in the estimation approach model using the common effect, the ratio of management cost and inflation ratio negatively affects the performance of Sharia life insurance companies at significance levels of 1% and 10%, respectively. The claim expense ratio, liquidity ratio, premium growth ratio, management cost ratio, and gross domestic product ratio did not affect the performance of Sharia life insurance companies.

The results of the estimation with the fixed effect approach model show that the ratio of liquidity, management cost ratio, and inflation ratio have negatively affected the performance of Sharia life insurance companies at significance levels of 1%, 10%, and 10%, respectively. Meanwhile, the claim expense ratio, premium growth ratio, and gross domestic product do not affect the performance of Sharia life insurance companies.

At the time of estimation with the random effect approach model, the ratio of liquidity, management cost ratio, and inflation ratio have negatively affected the performance of Sharia life insurance companies at significance levels of 1%, 10%, and 10%, respectively. Meanwhile, claim expenses, the premium growth ratio, and gross domestic product do not affect the performance of Sharia life insurance companies. These results were the same as those obtained at the time tested using the fixed-effect approach model.

To choose the most appropriate approach from the three models above, a model estimation test was conducted using the Chow and Housman tests. The Chow test shows the results for probability. F-test result was less than 0.05 (in Table 6). This means that the chosen approach is a fixed-effect model.

Table 6. Chow Test Results

F(14,84)	=	3,17
Prob. > F	=	0.0005

Hausman test shows the results of Prob. $\text{Chi}^2 > 0.0427$ (Table 7). This means that Prob. Chi^2 showed significant results at the 5% level. Based on the results of the Hausman test, the fixed-effects model is the right approach.

Tabel 7. Hausman Test Results

$$\text{Prob. Chi2} = 0.0427$$

After the Chow test and Hausman test can be determined, the most appropriate model is the fixed-effect model. Based on the fixed effects approach model, it is known that liquidity, ratio, management cost ratio, and inflation ratio negatively affect the performance of Sharia life insurance companies.

The panel data regression shows a probability F-value of 0.5%. and the coefficient of determination is 17.45%. This means that the financial ratio as the Early Warning System Ratio in this study affects the performance of Sharia life insurance companies in Indonesia by 17.45%.

It is necessary to test econometric assumptions to ascertain whether the estimated parameters that have been obtained have the necessary properties, such as being unbiased, consistent, and adequate. These tests include normality, multicollinearity, and heteroscedasticity (Ekananda, 2018).

The results of the normality test of the residual data using the skewness/kurtosis method yielded a probability value of 0.5099. This means that the value is greater than 0.05, indicating that the data are normally distributed (Table 8).

Tabel 8

Skewness/Kurtosis tests for Normality					
Variable	Obs	Pr(Skewness)	Pr(Kurtosis)	adj chi2(2)	Prob>chi2
ras	105	0.2852	0.8267	1.35	0.5099

The classic linear regression assumption assumes that variants of disturbance elements or error variants are not constant for any observation of independent and research variables. Breusch-Pagan tests were conducted to detect the presence or absence of symptoms of heteroskedasticity. From the analysis results in Table 9, it can be seen that the probability of F is statistically shows the number 0.7951, which is insignificant. Thus, the research model is free from heteroskedasticity symptoms.

Table 8. Heteroskedasticity Test

Chi2 (1)	=	0.07
Prob>chi2	=	0.7951

Multicollinearity testing was used to determine whether there was a linear relationship between the independent variables. A good regression model would be the absence of a linear relationship. The testing method used in this study examined the value of the inflation factor (VIF).

Generally, multicollinearity problems can occur if the VIF is greater than 10. The results of the analysis are shown in Table 9, where each explanatory variable had a VIF of less than 10. This means that the research model is free from multicollinearity (Gujaroti 2004).

Table 9. Multicollinearity Test

Variable	VIF	1/VIF
Inflasi	19.86	0.050352
LN_PDB	14.98	0.066762
LN_LIKUIDI~S	2.38	0.420642
RBM	1.79	0.558196
LN_RBK	1.29	0.777950
PP	1.18	0.846468
Mean VIF	6.91	

DISCUSSION

Based on the results of the data processing with regression panel data, as described above, it is clear that the ratio of claim load, liquidity ratio, premium growth ratio, management cost ratio, inflation, and gross domestic product contributed to an ROE volatility of 17.45%. Thus, it can be concluded that the financial ratios adopted as early warning system ratios in this study affected the performance of Sharia life insurance in Indonesia. This finding is in accordance with the results of Hasbi and Suryawardani (2013), Suwiralim et al. (2014), and Sumartono and Harianto (2018). The results of this study indicate that the Early Warning System ratio is a financial ratio can be applied to predict the performance of Sharia insurance companies. Thus, every company can anticipate its performance contingency by focusing on these ratios. Furthermore, financial distress and bankruptcy can be prevented early on. In addition to these ratios implemented for the company, it can also be used for customers as information before becoming a customer in a particular Sharia life insurance company.

The claim expense ratio indicates the claim that occurred to the company. The claim Expenses does not affects the financial performance of Sharia life insurance, The results of this study are in accordance with the research results of Putri, Wahyudi, and Muharam (2015) and Sumartono and Harianto (2018) which show that the claim expense ratio shows the company's ability to pay claim expenses through income, this indicates that the claims expense ratio will increase the confidence of policyholders and have an impact on the company's income. as seen in financial performance. The higher the losses that will arise due to the influence on the company's financial performance and the impact on profitability, the lower the financial performance; thus, the value of expenses is low and financial performance is low. Thus, the ratio has no effect on

financial performance. This study also consistent to Suwiralim, Haryetti, and Fathoni (2014a) and Wanda Agustiranda, Yuliani (2019).

The liquidity Ratio measures the ability of a company to fulfil its obligations with assets owned by Sharia life insurance companies. In this study, the liquidity ratio has a positive and significant effect on the performance of Sharia life insurance companies at the significance level 1%. Thus, the second hypothesis is supported. The liquidity ratio has positive affected on performance of sharia life insurance companies is consistent with the study of (Utami and Khoiruddin 2016a)Utami and Khoiruddin (2016a).

The management cost ratio measures the administrative and general costs or management costs incurred in a company's business activities and indicates the level of efficiency of the company's operations. Smaller management costs show that the company's running is becoming more efficient. In this study, management costs positively influence the performance of Sharia life insurance companies. The management cost ratio coefficient is 0.257. This means that if the management fee ratio rises by one point, then the performance of Sharia life insurance companies will increase by 0.257 points. Thus, hypothesis is not supported. High management costs mean that the insurance policies (premium) obtained are also higher, so the financial performance of Islamic insurance companies will be better. Kiptoo, Kariuki, and Ocharo (2021) finds evidence that proper management of the firm's operations results in reduced operating costs, which in turn results in an increase in net premiums and has a positive impact on firm performance. Therefore, insurance companies must implement appropriate operations management strategies to reduce costs and improve financial performance so that they do not fail or go bankrupt.

The premium growth ratio is an indicator of a company's future development. The increasing premium growth ratio will be profitable because it adds revenue to the company, which, in turn, will attract investors. The growth ratio measures a company's ability to maintain its position in economic growth and in the industries or markets in which it operates. The premium growth ratio in this study has no significant effect on the performance of Sharia insurance companies in Indonesia. Thus, hypothesis is not supported. This is because the average premium growth in Sharia life insurance companies is relatively small, at only about 1.02E+07. There are even companies with a negative premium growth. It is smaller than the average claim burden, which is an element of the costs borne by Sharia life insurance companies. The results of this study are consistent with those reported by Kirmizi and Agus (2011).

The macroeconomic variables used as control variables in this study were inflation and gross domestic product. Inflation has a negative and significant effect on Sharia life insurance performance. This means that the higher the inflation rate, the lower is the performance of Sharia

life insurance. This is acceptable because life insurance is not a primary need, so when inflation occurs, people will prioritise meeting primary needs first and then other needs, then the demand for life insurance will decrease with increasing inflation.

Gross domestic product does not significantly affect the performance of Sharia life insurance. This is because the participants of Sharia life insurance tend to be in the middle to upper class so that changes in gross domestic product that are not too significant will not affect the participation of insurance participants, so that it will not have an impact on the financial performance of Sharia life insurance companies. In addition, during the research period, the gross domestic product was relatively small and tended to be stable.

CONCLUSION

The Early Warning System in this study was applied as a risk-management technique in Sharia life insurance companies. An Early Warning System is used to detect the financial performance, financial risk, and potential bankruptcy of the company, which will be helpful for managers to provide opportunities for management to avoid or reduce potential problems so that the company can gain business profits. Early Warning Systems are typically based on financial reports. The results of this study prove that an early warning system affects the performance of Sharia life insurance companies.

From the results of this study, it is known that the ratio of management costs to liquidity and inflation, which is one of the control variables, affects the performance of Sharia life insurance companies. The claim expense ratio, premium growth ratio, and control variables in the gross domestic product do not affect the performance of Sharia life insurance companies.

Managers must weigh the additional capital obtained from premium growth and all the costs incurred by the company, such as management costs. Thus, the management fee ratio, liquidity ratio, and inflation must be considered by Islamic life insurance companies as early warning system ratios because these three ratios have been proven to affect the performance of Islamic life insurance companies. Companies must carefully budget their cash flows. Thus, Sharia life insurance companies' claims and liquidity burdens can be saved to avoid financial distress.

This research is expected to provide additional insights for managers in formulating policies related to the performance of Sharia life insurance. Moreover, investors can use it to consider investment policies. This study adds to the literature on Islamic life insurance. In future research, we expect to consider more diverse financial ratios, such as leverage, underwriting costs, and operating costs. It may also be applied to examine the effect of financial ratios as an early warning system for general Islamic insurance. Inflation and GDP during the monetary crisis are interesting

topics for further research on macroeconomic variables. In particular, monetary crises are caused by health and non-health disasters.

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