The Influence of Indonesia's Macroeconomic Conditions on Performance of Insurance Companies During the COVID-19 Pandemic

Review of Integrative Business & Economics Research

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ABSTRACT

The COVID-19 pandemic is a global crisis that has significantly influenced the global financial system, impacting economies worldwide, including Indonesia. In 2020, the gross domestic product (GDP) in Indonesia was observed to experience a decline from Rp15,833.9 trillion in 2019 to Rp15,434.2 trillion. Therefore, the present study aims to examine the relationship between the macroeconomic conditions of Indonesia and performance of its insurance sector, particularly in the context of the COVID-19 pandemic. In order to achieve the stated objective, data compiled before and after pandemic was analyzed. This was carried out to examine the shifts in financial performance within the country's insurance companies. A literature review was also conducted to refine the framework adopted during the study, and linear regression was used as the primary analytical tool. Accordingly, the secondary data was sourced from the Indonesian Financial Services Authority, which was used to compare significant metrics from the pre and post-pandemic periods. Through this analysis, the present study anticipates making a substantial contribution to the existing scholarly understanding of insurance companies within the specific context of Indonesia, a developing nation. This setting provides a unique perspective on how macroeconomic conditions influence the insurance sector's performance, with potential implications for other developing countries.

Keywords: macroeconomic, general insurance, life insurance, insurance companies performance.

Received 19 April 2024 | Revised 16 November 2024 | Accepted 12 January 2025.

1. INTRODUCTION

The COVID-19 pandemic is a global crisis that has dramatically impacted the global economy, reshaping how people live and interact within respective communities. The

ISSN: 2304-1013 (Online); 2304-1269 (CDROM); 2414-6722 (Print)

rapid spread of this virus severely disrupted economic activities by hindering the production, distribution, and marketing of goods and services worldwide (Ellyawati & Kusumatriawan, 2023). In Indonesia, pandemic endured for over two years and this led the economy into recession and caused turbulence across nearly all sectors, including insurance. However, despite these challenges, pandemic was observed to also spur positive developments within insurance companies. As a result of this crisis, more people have come to recognize the essential role of insurance, particularly health insurance, in ensuring financial security. The crisis has also accelerated digital transformation efforts within insurance sector of Indonesia. This study aims to explore the impact of pandemic on performance of both the life and general insurance companies. As stated in a previous study, healthy insurance companies play a very important role in ensuring the stability of financial markets and the broader financial system (Rothstein, 2011).

As stated in a previous investigation, individuals and businesses can enhance respective financial stability by transferring risks to insurance and reinsurance companies (Lee & Chang, 2015). To further elucidate the importance of insurance, Beck and Webb (2003) and Arena (2006) suggested that countries with growing insurance companies experienced positive impacts on production factors, savings, and investment capital accumulation. In the broader macroeconomic landscape, premiums paid to life insurance companies were observed to contribute significantly to the financial capital of the economy. According to previous studies, due to the long-term premium payments for life insurance, the sector serves as a crucial financial resource for investment activities (Zainudin et al., 2018) and plays a role in driving long-term economic growth (Ghosh, 2015; Khurshed & Ghosh, 2013).

This study aims to analyze the influence of macroeconomic conditions of Indonesia on insurance companies performance during the -COVID-19 pandemic. To achieve this objective, factor analysis approaches were used to compare companies performance during pandemic. The independent variables under consideration include exchange rate, GDP, inflation, and interest rate. While the dependent variable is the solvency of insurance companies, which provided insight into the stability of the entire sector. In this article, the author uses company size as a control variable to determine insurance companies' sensitivity to changes in macroeconomic conditions.

As stated in a previous study, financial performance is very important for the growth and success of all companies (Yulianti et al., 2024), as it provides detailed overviews of the financial health of the companies over a given period. This metric serves as a fundamental benchmark of success, guiding decision-making and reflecting the effectiveness of management and employee performance in running the organization (Walker, 2016). By analyzing financial performance, the effectiveness of management and employee performance in managing companies can be examined and evaluated (Toman, 2014). According to Robert and Dowling (2002), financial performance is not only a measure of the profitability of companies but also functions as a control mechanism (Agrawal, 2020). Strong financial performance has also been observed to possess the capability to build stakeholder confidence and enhance the reputation of companies. To further emphasize the importance of this metric, Dietz & Walker (2017) reported that a good reputation enables companies to enjoy various benefits, including lower operational costs, greater pricing competitiveness, and a competitive edge that attracts stakeholders.

In the capitalist system, insurance plays an essential role. Covering operational risks and allowing firm to redirect financial investments to other industries (Peleckienė et al., 2019). As a financial institution, insurance companies manage various risks, predicting losses within certain limits (Keegan, 2005). These perspectives emphasize

ISSN: 2304-1013 (Online); 2304-1269 (CDROM); 2414-6722 (Print)

insurance as a business aimed at helping individuals and companies mitigate potential risks by safeguarding both life and assets through various insurance products.

Economic instability, which often results from global economic fluctuations, typically and significantly impacts the financial stability of a country. High levels of variability and uncertainty in the financial market, as well as external factors such as climate change, political shifts, natural disasters, pandemics, and economic fluctuations, have all been observed to contribute to increased business risks (Yukhumenko, 2020). Insurance companies play an important role in managing these risks by offering protection. Based on this understanding, inferences have been made that a healthy insurance companies is essential to enhancing financial market stability (Rothstein, 2011). Insurance coverage goes beyond compensating for physical losses to provide peace of mind by promising financial recovery through premium payments (Dewi, 2019). Therefore, policyholders generally depend on insurance companies to maintain strong financial performance, ensuring respective ability to cover potential claims and support long-term financial stability (Cummins *et al*., 2021).

In macroeconomic context, premiums paid to life insurance companies have been reported to form a significant component of the financial capital of a country (Zainudin *et al*., 2018). This capital is not only financial but also economic, as life insurance typically includes long-term premium payments, establishing it as an important resource for investment activities that are aimed at fostering long-term economic growth (Ghosh, 2013). The crucial role of insurance sector in economic development is further underscored by (Hudson *et al.* (2016), who conducted cross-country analyses on the impact of insurance sector across 15 European nations. Ward & Zurbruegg (2000) also reported, through a study conducted on OECD member countries, that a significant but causal relationship existed between economic and insurance sector growth.

In general, when the currency exchange rate of a country declines, imported goods become more expensive, which often reduces the real value of assets for the general population due to rising prices. This shift can prompt consumers to seek more liquid, short-term investments as a buffer against economic volatility. In this case, life insurance, which requires long-term commitments, may seem less appealing to consumers dealing with exchange-rate-induced periods of economic instability (Charmichael, 2002).

Countries with higher incomes tend to purchase more *life* and *nonlife* insurance than those with lower incomes. When income levels are low, people typically have fewer opportunities to afford insurance, and this leads to fewer assets being protected. However, in more developed economies, formal security mechanisms, such as insurance companies, play a prominent role. This is evidenced by the analysis of several empirical studies by Njegomir & Stojić (2010a), Ward and Zurbruegg (2000), Web *et al.* (2002), and Kugler and Ofoghi (2005), who suggested that the demand in the life insurance sector is strongly influenced by GDP growth. Dissimilar to these studies, Carmichael (2002) has consistently shown that the income elasticity of insurance demand was greater than national income. This implies that insurance premiums tend to grow faster than the entire income of a country. Skipper (2001) also reported that insurance income elasticity surpassed per capita income elasticity, reflecting a more general and swift rise in premium income compared to national income.

Inflation plays a very important role in insurance penetration. This is evidenced by the fact that higher inflation can amplify general uncertainty, prompting consumers to favor short-term, liquid investments over long-term commitments such as life insurance. Typically, the tendency originates from the perception that inflation reduces the nominal value of investments in life insurance policies, making individuals and

ISSN: 2304-1013 (Online); 2304-1269 (CDROM); 2414-6722 (Print)

companies less inclined to invest during times of high inflation Carmichael (2002). Based on this understanding, an inference can be made that as inflation increases within a country, the demand for life insurance typically declines.

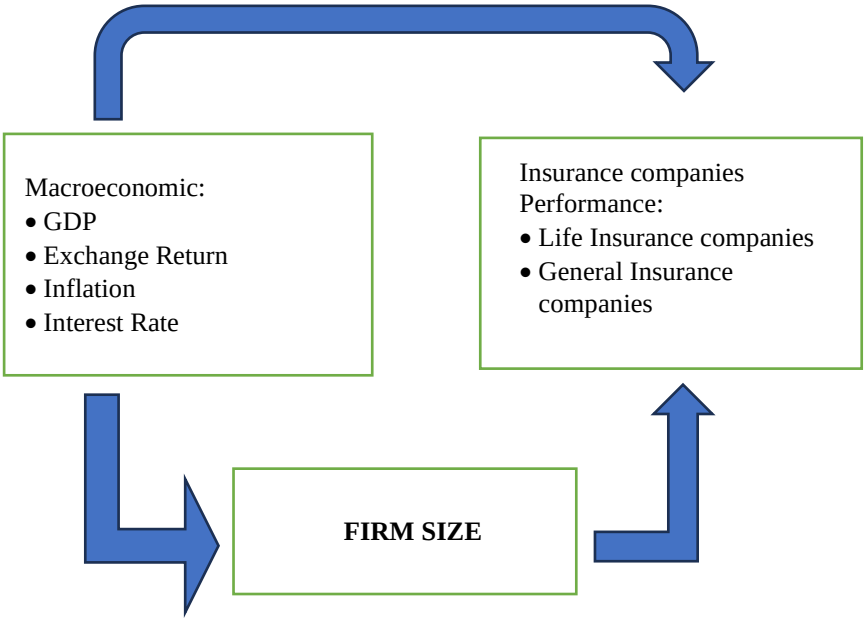

Figure 1. Conceptual Framework

Based on the conceptual framework of this study, as presented in Figure 1, the following hypotheses were formulated:

H1. The exchange rate negatively affects performance of insurance companies.

H2. GDP positively affects performance of insurance companies

H3. Inflation negatively affects insurance companies' performance.

H4. Interest Rate positively affects performance of insurance companies.

H5. Firm size controls the effect of the Exchange rate on performance of insurance companies

H6. Firm size controls the effect of GDP on performance of insurance companies

H7. Firm size controls the effect of Inflation on insurance companies' performance

H8. Firm size controls the effect of interest rates on insurance companies' performance

2. METHODS

This study aims to evaluate the impact of macroeconomic shifts in Indonesia, prompted by the COVID-19 pandemic, on performance of the Indonesian insurance companies. The investigation was conducted using data obtained from the Scopus database alongside statistical reports from the Indonesian Financial Services Authority (OJK) compiled within the period from 2017 to 2022. Accordingly, through descriptive analysis, each factor influencing companies performance was examined, and the secondary data provided by OJK Indonesia was used to enrich the analytical results. During the course of this study, performance of general insurance and life insurance

ISSN: 2304-1013 (Online); 2304-1269 (CDROM); 2414-6722 (Print)

companies was analyzed across three periods namely before (2018), during (2017, 2018, 2019), and after pandemic (2020, 2021, and 2022).

The estimation results relied on panel data regression analysis, which combined time series and cross-sectional data for a more comprehensive view. This methodology adopted a monthly panel dataset from 2017 to 2022. Table 1 provides details on the operationalization of the variables in question. Key factors examined include insurance companies performance, measured through the solvency ratio, and firm size, which was controlled for using the natural logarithm of total assets. The study further examines macroeconomic indicators, specifically GDP growth, inflation, exchange rate growth, and interest rates, as dependent variables.

Table 1 Operationalization of Variables

Variable	Indicator	Formula	Reference
Macroeconomic (X)	GDP Growth (X_1)	$\frac{GDP_t - GDP_{t-1}}{GDP_{t-1}}$	(Ghosh, 2015; Khurshed & Ghosh, 2013), (Ward & Zurbruegg, 2000).
	Exchanger Rate Growth (X_2)	$\frac{ER_t - ER_{t-1}}{ER_{t-1}}$	(Charmichael, 2002).
	Inflation (X_3)	Inflation Data	Kugler and Ofoghi (2005)
	Interest Rate (X_4)	BI Rate Data	Caparole et al. 2017
Performance Insurance Companies (Y)	DER	$\frac{Debt}{Equity} x100\%$	(Zinyoro & Aziakpono, 2024)
Firm Size (C)	Asset	*Ln Asset*	(Laskar et al., 2022)

Macroeconomic indicators were assessed using the beta coefficient (ß), which was derived by regressing the performance of each company against indicators of macroeconomic risk sources (Iramani, 2008). The beta coefficient (ß) was obtained with the following regression equation:

$$\text{Profitability} = a + b_i X_t + e$$

$$\textit{Solvency}\ (y_{it}) = ß_0 + ß_1(b\textit{GDP}) + ß_2(b\textit{INF}) + ß_3(b\text{ER}) + ß_4(b\text{IR}) + \varepsilon_{it}$$

a: Constant coefficient

b: Beta coefficient or sensitivity of insurance companies performance to macroeconomic risk factor indicators.

X_t: Macroeconomic risk factor indicators

e: error

3. RESULTS

3.1 General Insurance

The results of descriptive statistics for general insurance in Indonesia are shown in Table 2. The descriptive statistical test indicates that performance is proxied by DER. DER has a standard deviation of 31093009945. The firm size variable proxied by Ln-total asset has a standard deviation 31093009945. The exchange rate has a standard deviation

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of 342.88405. Inflation has a standard deviation of 152744794.8. GDP has a standard deviation of 1886008841. The Interest rate has a standard deviation of 220.35287.

Table 2 Descriptive Statistic

	N	Minimum	Maximum	Mean	Std. Deviation
Exchange Rate	72	9361.00	11499.00	10069.1806	342.88405
Inflation	72	1.18	425549033.0	183904414.7	152744794.8
GDP	72	-7997552915	223624.00	-772536482	1886008841
Interest Rate	72	4.00	575.00	212.7222	220.35287
DER	72	25051157	145612838	6329487726	31093009945
Ln-tptal asset	72	19.808379	20.222576	20.08522066	.094111800
Valid N (Iistwise)	72				

Table 3 Results of Hypothesis General Insurance

Hipotesis	Uns-std B	Coeff std.Error	Std Coeff Beta	Sig	Results
H1	-346231.981	640904.563	-0.059	0.591	Insignificant
H2	0.099	0.095	0.129	0.005	Significant
H3	-2.561	1.248	-0.271	0.044	Significant
H4	1291048.973	771535.613	0.197	0.039	Significant
R^2 = 0.836; F = 9.604; p = < 0.05					
H5	-433231.981	640904.563	-0.229	0.638	Insignificant
H6	0.579	0.195	0.479	0.020	Significant
H7	-4.772	2.248	-4.42	0.043	Significant
H8	1731048.973	781535.613	0.456	0.032	Significant
R^2 = 0.716; F = 5.560; p = < 0.05					

The results of the hypothesis are presented in Table 3. The calculation results for the exchange rate showed insignificant (b = -0.059; p = 0.591). Regarding GDP, the calculation results showed a significant value with a positive effect (b = 0.129; p = 0.005). Concerning inflation, the significance value (b = -0.271; p = 0.044) is partially significant, with a negative effect on general insurance performance. The interest rate significantly positively affected general insurance performance (b = 0.197; p = 0.039). Firm size does not control the effect of the Exchange rate on the performance of General Insurance (b = -0.229; p = 0.638); Firm size controls the effect of GDP on the performance of General Insurance (b = 0.479; p = 0.020); Firm size controls the effect of Inflation on General Insurance performance (b = -4.42; p = 0.043). Firm size controls the effect of interest rates on General Insurance performance (b = 0.456; p = 0.032).

3.2 Life Insurance

The results of descriptive statistics for Life insurance in Indonesia are shown in Table 4. The descriptive statistical test indicates that performance proxied by DER has a standard deviation of 3318346382. The firm size as a control variable proxied by Ln-total asset has a standard deviation of 0.153899362. The exchange rate has a standard deviation of 246.36368. Inflation has a standard deviation of 153335146.1. GDP has a standard deviation of 1901787655. The Interest rate has a standard deviation of 221.13676.

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Table 4 Descriptive Statistic

	N	Minimum	Maximum	Mean	Std. Deviation
ßExchange Rate	72	9261.00	11499.00	10010.8472	246.36368
ßInflation	72	1.33	425549033.0	184598859.1	153335146.1
ßGDP	72	-7997552915	28632.00	-776705896	1901787655
ßInterest Rate	72	4.00	575.00	213.6667	221.13676
DER	72	39657510	53326831	4698071249	3318346382
Ln-total asset	72	18.624770	19.101816	18.87257143	.153899362
Valid N (Iistwise)	72				

Table 5 Results of Hypothesis Life Insurance

Hipotesis	Uns-std B	Coeff std.Error	Std Coeff Beta	Sig	Results
H1.	-526231.981	440904.563	-0.059	0.691	Insignificant
H2	0.199	0.095	0.229	0.004	Significant
H3	-3.561	1.248	-0.371	0.004	Significant
H4	1431048.973	771535.613	0.297	0.029	Significant
R^2 = 0.686; F = 10.604; p = < 0.05					
H5	-253231.981	640904.563	-0.229	0.339	Insignificant
H6	0.679	0.195	0.679	0.010	Significant
H7	-3.882	1.248	-0.392	0.023	Significant
H8	1891048.973	711535.613	0.576	0.022	Significant
R^2 = 0.626; F = 4.360; p = < 0.05					

The results of the hypothesis are presented in Table 5. The calculation results for the exchange rate showed insignificant (b = -0.059; p = 0.691). In terms of GDP, the calculation results show a significance value (b = 0.229; p = 0.004). Regarding inflation, the Coefficients output shows a significance with a negative effect (b = -0.371; p = 0.004). The interest rate significantly positively affected life insurance insurance performance (b = 0.297; p = 0.029). Firm size does not control the effect of the exchange rate on the performance of life Insurance (b = -0.229; p = 0.339); Firm size controls the effect of GDP on the performance of life Insurance (b = 0.479; p = 0.010); Firm size controls the effect of Inflation on life insurance performance (b = -0.392; p = 0.023). Firm size controls the effect of interest rates on life Insurance performance (b = 0.576; p = 0.022).

4. DISCUSSION

The first issue regarding the macro risk variable relates to GDP. National insurance markets have evolved to reflect the unique environment of each country, where the economic structure, along with social and cultural factors, influences insurance demand and supply (Skipper, 2008). Insurance demand is closely related to the GDP of a country, with Skipper (2008) and Charmichael (2002) emphasizing that the growth elasticity of income for insurance companies outpaced national income growth. This trend implies that premium income in insurance sector grows faster than the GDP of a country. However, this is not in line with empirical results by earlier investigators, such as Njegomir & Stojić (2010b), who argued that insurance companies was largely

ISSN: 2304-1013 (Online); 2304-1269 (CDROM); 2414-6722 (Print)

procyclical. This is evidenced by the fact that in line with a country's economic development, performance of insurance companies tends to reflect economic cycles. When economic growth slows, disposable income drops, thereby reducing the financial flow into insurance sector (Wang et al., 2019).

The second issue observed during the study claims that insurance companies are less exposed to macroeconomic conditions (GDP, inflation, exchange rate, and interest rate) compared to banks. Dissimilar to banks, which are interconnected through the interbank market and payment systems, insurance companies typically have more long-term liabilities and operate somewhat independently of short-term economic fluctuations (Njegomir & Stojić, 2010a; Triche & Walden, 2018), (Bell & Keller, 2009; Caporale et al., 2017; Davies et al., 2003; J. C. Trichet, 2005). This notion has led some investigators to conclude that insurance companies were relatively insulated from systemic macroeconomic risks capable of causing liquidity shortages or insolvency. However, Tricket (2005), Mühlnickel & Weiß (2015a), and Mühlnickel & Weiß (2015b) challenged this view, arguing that insurance companies were indeed susceptible to economic shocks. For instance, factors such as high marginal consumption, rising unemployment, and inflation were observed to influence the GDP and broader macroeconomic conditions of a country. These conditions could typically reduce demand for insurance, thereby exposing insurance industry to risk.

The insurance industry is heterogeneous, comprising two subsets: non-life and life insurance. Non-life insurance generally has short-term contracts, while life insurance has long-term contracts (Balcilar et al., 2020; Flores et al., 2021). Segregating life and non-life insurance is fundamental within the insurance industry as an insurance company must manage a pool of risks where similar exposures from insurers are aggregated. To handle losses, companies must allocate the premiums from clients in a robust portfolio of investments (Berends et al., 2013). Thus, the guaranteed assets to face losses in non-life insurance may focus on a short-term view, whereas factors related to life insurance may focus on long-term investments. Economic policies can impact the insurance market, especially when considering the investments to compose the guarantee assets portfolio. Monetary and fiscal policies, for example, affect interest rates, which are used as an index of public bonds.

In general insurance, The exchange rate partially did not affect general insurance performance proxied by DER. This result is in line with a previous study suggesting that a declining exchange rate raised the cost of imported goods and reduced the purchasing power of consumers for non-essential products (Charmichael, 2002). Regarding GDP, the calculation results showed a significant value. This signified that GDP had a partially significant positive effect on general insurance performance. These results are consistent with the report of (Dragotă et al., 2023), who emphasized a significant positive relationship between GDP, total and gross non-life insurance premiums. Higher income levels increase consumer affordability, leading to a rise in insurance product consumption and premiums. inflation, shows a partially significant, with a negative effect on general insurance performance. As discussed by (J.-C. Trichet, 2005) and Mühlnickel & Weiß (2015a), high marginal consumption, high unemployment, and inflation negatively influence the GDP of any country, thereby affecting macroeconomic conditions. These conditions, in turn, reduce demand for insurance products and increase the risk of insolvency for insurance companies. The interest rate significantly positively affected general insurance performance. The interest rate is one of the main factors for insurance companies; it reflects the return on investment funds the company will obtain. the higher the interest rate, the more profitable the insurance company will be, benefiting

ISSN: 2304-1013 (Online); 2304-1269 (CDROM); 2414-6722 (Print)

the policyholder (customer). Firm size does not control the effect of the Exchange rate on the performance of General Insurance. Firm size controls the effect of GDP on the performance of General Insurance. Firm size controls the effect of Inflation on General Insurance performance. Firm size controls the effect of interest rates on General Insurance performance.

In life insurance, The exchange rate partially did not affect general insurance performance proxied by DER. This implies that the exchange rate insignificantly affected the performance of insurance companies on a partial basis. Specifically, the impact of this factor on performance. Accordingly, this is not in line with Fabozzi and Modigliani (2003), who define this metric as the value of one currency relative to another, commonly used in transactions including foreign investments, international trade, and tourism. A decline in a country's exchange rate often leads to higher import costs and a reduction in the actual value of assets due to rising general prices, prompting consumers to favor more liquid, short-term investments. In terms of GDP, the calculation results show a significant value. Based on this result, an inference was made that GDP had a partially significant positive effect on life insurance performance. According to Kugler & Ofoghi, (2005), GDP growth directly influences demand within the life insurance companies. Regarding inflation, the Coefficients output shows a significance with a negative effect. Based on observation, high inflation rates can reduce demand for insurance, as consumers perceive that rising inflation erodes the nominal value of life insurance policy investments. This result is in line with the exploration by Charmichael (2002), who elucidated that inflation affected insurance penetration rates by increasing general uncertainty. During periods of high inflation and economic volatility, consumers prioritize liquid, short-term investments over long-term commitments such as life. The interest rate significantly positively affected life insurance insurance performance. Life insurance companies are affected by the setting of interest rates because they sell long-term products whose present value depends on interest rates. The author also believes that life insurance companies are susceptible to this interest rates through policyholder behavior, which can change along with interest rates. holding illiquid, long-term assets to maturity can save insurers portfolio adjustment costs and allow them to acquire illiquid assets premium; however, a prolonged low interest rate environment could pose reinvestment risks and solvency issues (Möhlmann, 2021). Firm size does not control the effect of the exchange rate on the performance of life Insurance. Firm size controls the effect of GDP on the performance of life Insurance. Firm size controls the effect of Inflation on life insurance performance. Firm size controls the effect of interest rates on life Insurance performance.

5. CONCLUSION

In conclusion, it was observed a thriving insurance sector would invariably play an important role in ensuring the stability of the economy of a country. Typically, a strong insurance company provides a safety net, allowing individuals, companies, and government institutions to transfer certain risks, effectively shielding economic agents from potential bankruptcy and systemic risks that could lead to financial losses, recession, or even crisis. This study examined the correlation between performance of insurance sector and key macroeconomic indicators, with a primary focus on GDP, inflation, and exchange rates and interest rate as independent variables, and the financial performance of insurance companies as the dependent variable.

ISSN: 2304-1013 (Online); 2304-1269 (CDROM); 2414-6722 (Print)

The results, based on panel data analysis, showed that these sensitivity macroeconomic variables (GDP, Inflation, and Interest rates) significantly influenced the performance of insurance companies. For instance, GDP was observed to possess a positive relationship with company's performance, suggesting that economic growth positively influenced the insurance sector. Meanwhile, inflation showed a negative relationship, implying that fluctuations in these factors adversely impacted the performance of companies in Indonesia. Meanwhile, the exchange rate produces an insignificant relationship with general and life insurance performance. Insurance companies usually have diversified investment portfolios, including various instruments such as government bonds, shares, or property. If a company has a dominant proportion of investments in local currency, the impact of exchange rate changes will be minor.

This research also shows that company size can control the influence of GDP, interest rates, and inflation on the performance of life and general insurance companies. Insurance companies with large company sizes benefit from more excellent market capabilities, more professional human resources, and superior capital capabilities. However, company size cannot control the impact of exchange rates on life and general insurance performance. This is due to the nature of Indonesia's insurance industry market, which focuses on the domestic market, exposure, and stability of industry regulations that reduce direct exposure to the exchange rate.

These results suggest that insurance companies must establish complex and adaptive risk management systems to navigate macroeconomic uncertainties effectively. By closely monitoring GDP, inflation, and interest rates, companies can proactively address risks and seize novel opportunities. Accordingly, considering the heavy influence of macroeconomic conditions on insurance companies, it becomes important to continuously revise and adapt risk management strategies. This includes implementing strategies to mitigate the impact of GDP fluctuations, inflation spikes, and interest rate volatility on the insurance market. The significance of these risk management strategies is underscored by the recent global shifts, such as the COVID-19 pandemic and geopolitical conflicts, which emphasized the necessity for insurance companies to be resilient and responsive to evolving economic landscapes.

ACKNOWLEDGMENT

The author would like to acknowledge and thank the entire writing team for the continuous support and insight, specifically the Doctor of Management at Universitas Padjadjaran. Additionally, the author is grateful to the editor and anonymous reviewers for their helpful comments and suggestions.

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