



Impact of COVID-19 on The Financial Condition in The Indonesian Life Insurance Industry

Aisyah Jiwo Amanah¹, *Margaretha Tiur Pasuria Lingga SE., MM.²

^{1,2} Swiss German University, Alam Sutera 15143, Indonesia
margaretha.lingga@sgu.ac.id

Abstract. The pandemic of COVID-19 along with the lockdown policy have affected all business sectors around the world, which leads to changes in the economic growth of nations. Thus, this study is conducted to analyze the impact of COVID-19 on the financial condition in the Indonesian life insurance industry from 2018–2021 as the insurance companies have an essential role to the economic development of a country. To accomplish the objective of this study, the panel data method is used to estimate the result of multiple regression analysis, which analyze the relationship between independent variables of Operating Cash Flow (OCF) and Liquidity Ratio (LQR) as well as the dummy variable (COV) towards the dependent variables of Return on Asset (ROA) and Net Investment Income Ratio (NIIR). The findings of this study reported that OCF and LQR simultaneously affect the ROA and NIIR during the pandemic of COVID-19.

Keywords: *Life Insurance, Pandemic of COVID-19, Operating Cash Flow, Liquidity Ratio, Return on Asset, Net Investment Income Ratio.*

¹ *Corresponding Author : Margaretha Tiur Pasuria Lingga

1 Introduction

1.1 Background

The coronavirus diseases 2019 or COVID-19 in Wuhan, China, has spread rapidly to various countries in the world and caused the mortality rate to increase. The World Health Organization (WHO) has announced this coronavirus as the global pandemic on 11 March 2020. To tackle the pandemic of COVID-19, lockdown restrictions have been implemented by several national governments to reduce the possibility of infections to increase [1]. Lockdown had a positive impact on the incidence of COVID-19 in a few countries; however, the long-term lockdown in many countries, particularly developing countries, was not effective due to the various social, psychological, and economic consequences [2]. The lockdown procedure aids in the prevention of the rapid spread of the COVID-19 virus; nonetheless, it has negative financial, health, and societal consequences such as greater unemployment and income losses which negatively impact the wellbeing of individuals [3]. Following other countries, authorities of Indonesia decided to implement the social distancing policy on a larger scale, known as Pembatasan Sosial Berskala Besar (PSBB) in April, 2020, and conduct a rapid test for a limited number of targeted people [4]. The impact of different types and significance levels of mobility changes on attempting to control COVID-19 outbreaks in Indonesia have had different effects on economic growth [5].

On the other hand, the role of the insurance industry is critical for the financial system stability of all economic entities as it is part of the large investors in financial markets and helps to ensure businesses and households from the risk of financial loss due to unexpected situations such as economic and politic instability, illness, mortality, or property damage [5][6]. The insurance industry is categorized into two types: life insurance and non-life insurance. Individuals and beneficiaries with life insurance are insured against the risk of losing income in the case of death. The life insurance industry involves two main businesses, which are investing premiums and offering insurance plans to individuals. Thus, net investment income, fee income, net premiums earned, and realized profits and losses are the four main sources of revenue for insurers [5]. According to Farooq et al. (2021), COVID-19 had a greater negative effect on life insurance than it does on non-life insurance [7]. Due to the pandemic of COVID-19, life insurance was affected by the uncertainty of mortality and morbidity, which could affect the financial cash flow and profitability of the company [8]. This might happen as life insurance claims rise significantly during the pandemic as deaths are increasing. The previous research in Ghana by Babuna et al. (2020), which used qualitative and quantitative interviews, shows that COVID-19 has negatively impacted the financial condition of the insurance industry in terms of profitability as the number of claims paid is higher than the premium earned over the period [9]. Moreover, the pandemic and lockdown situation have had a detrimental impact on the financial performance of life insurance in terms of investment, claim demand, and premium payment [10].

According to the data from the Indonesian Life Insurance Association (AAJI), claims associated with COVID-19 for the period of March 2020 to February 2021

have reached IDR 1.46 trillion [11]. Furthermore, the payment of death benefit reached Rp4.45 trillion in the first quarter of 2021, up 61.8 percent (YoY) from the previous quarter's Rp2.7 trillion as reported by AAJI [12]. Similar to previous research in other countries, the pandemic of COVID-19 has caused the total number of claims paid to increase while the total number of premiums received decreased, which is resulting in lower profits for the insurers. Therefore, this research aims to evaluate the impact of COVID-19 pandemic on the financial condition of the Indonesian life insurance industry. Consequently, life insurance companies in Indonesia are also significantly affected by the pandemic and might be overwhelmed in managing their financial assets as a consequence of excessive claims against them. This study will analyze the impact of the operating cash flow and liquidity ratio as the measurement to determine the financial condition of the life insurance industry on the return on assets (ROA) and net investment income ratio (NIIR) during the pandemic of COVID-19 in Indonesia. This study will use financial data from the Indonesian life insurance industry from 2018–2021, which is registered in the Financial Services Authority (OJK) Indonesia and is a member of AAJI.

1.2 Research Problems

During the COVID-19 pandemic, numerous businesses around the world are experiencing unprecedented and severe volatility in their business operations. As discussed in the research background, the lockdown policy has interrupted business activities in several countries around the world. The pandemic has also increased uncertainty in global markets, which affects the value of equity investments and fixed income. Thus, investors tend to withdraw from the investment product and prefer to secure their money in hand to avoid any loss from the investment during the uncertainty.

The life insurance companies have been affected financially by the pandemic as it plays a role in protecting society from losses. The rapid spread of the virus consequently increases the mortality risk, reduces market prospects to obtain more customers, increases the market volatility, and decreases the premium received as some people are facing unemployment. Consequently, it will lead to a large scale of death claims from the policyholders' families, which may affect the liquidity and the cash flow of the insurers. In addition, the changes in liquidity and cash flow would affect the financial performance of the company. As a result, life insurance companies must develop and implement strategies to ensure their financial situation is in a stable and healthy condition. The objective of this study is to analyze the impact of Operating Cash Flow and Liquidity Ratio of life insurance companies in Indonesia on the Return on Assets and Net Investment Income Ratio during the pandemic of COVID-19.

2 Literature Review

2.1 Life Insurance During Pandemic

Due to the COVID-19 pandemic and lockdown regulation, the performance of life insurance business in India has been disrupted, as the research conducted by Yadav & Suryavanshi (2021) showed a decrease in demand on new policy business and investment, a delay in premium payment, and an increase in demand for claims, which were all triggered by job losses, financial uncertainty, and disease mortality [10]. The uncertainty of mortality and morbidity due to the pandemic of COVID-19 on life insurance remains high and will increase the life insurance claims while the future payments for life contingent annuities fall [8][13].

Research on insurance companies during the COVID-19 pandemic in Ghana documented a decrease in profit and total premiums while the claims are increasing due to the mortality caused by the virus and due to the market volatility that reduced the economic activity [9]. Similarly, the pandemic has had a negative impact on the European insurance industry in which they must balance a significant rise in the number of claims with their solvency stability and capital [14]. A similar impact also occurred in the life insurance industry in Indonesia, in which the claim for mortality increased due to the pandemic. Despite the lockdown policy implemented by the government, COVID-19 cases in Indonesia continue to rise as of June, 2020 [4]. According to data from the AAJI, the premium income of the Indonesian life insurance industry in the first quarter of 2021 increased by 28.5 percent to IDR 57.45 trillion. However, the total claims paid in the first quarter of 2021 also went up 23.54 percent to IDR 47.69 trillion.

2.2 Financial Condition

The firm's financial condition reflects the extent to which financial resources are available to the firm, as well as the feasibility of investing financial resources in operations and the effectiveness of their utilization [16]. The investors, managers, financial institutions, and other users of financial statements usually analyze the condition and performance of a company financially using the financial ratios [17].

The financial performance of a company is determined by its policies and cash flows which is measured by ROA and ROE with the objective to generate cash from operating, financing, and investing activities [18]. Mouelhi (2021) found that operating cash flows is useful in explaining and forecasting the financial health of the company in terms of liquidity, operational efficiency, profitability, and solvency [19]. On the other hand, Gulzar et al. (2019) found that the liquidity, deposits, and asset quality have a negative impact on the performance of the banking sector in Pakistan, which is measured by ROA, as the implications of the global financial crisis in 2007–2008 [20]. The performance of insurance companies could be classified as investment performance measures and profit performance measures, which includes net premium earned, profitability from underwriting activities, net investment income, net premium earned, and the realized gain or loss [5][21]. Therefore, the financial indicators used in this study to examine the financial performance of insurance companies include the net investment income ratio and return on asset.

Operating Cash Flow. Operating cash flow is generated through the cash in and cash out of the company in normal business activities without including the depreciation and interest but including the taxes [22]. A company should be able to manage its cash and cash equivalent effectively as it is an essential element of every business since some profitable firms can go bankrupt if they fail to manage their cash properly, specifically if they operate in high-growth or seasonal sectors (BDBC, 2014). Turcaş (2011) stated that the firm's solvency, flexibility, and financial performance are dependent on its ability to generate positive cash flows from operations [23]. Thus, a deterioration in financial performance might occur if a firm fails to comply with adequate operating cash flow management [18]. However, a negative cash flow in a developing business indicates that the company raised more money by borrowing and selling stock than it paid out to creditors and shareholders over the year [22]. Thus, operating cash flow is essential to maintain the smooth operation of the company in achieving both short-term and long-term objectives.

Liquidity Ratio. Liquidity is an essential element in determining the value of financial performance as it can be defined as the extent to which an asset can be transformed into cash based on asset demand and supply [17]. The liquidity ratios measure the ability of the company to pay its short-term liabilities without undue stress in a ratio [22]. Thus, the liquidity ratio will help to determine the ability of the company to convert its current assets into cash to cover its current liabilities in the short period. However, a company with a high current ratio indicates that there is idle cash, which leads to a reduction of profitability. This implies that cash and other short-term assets which should have been utilized to generate profit are being used inefficiently [22]. Gürbüz' et al. (2010) stated that an increased level of current assets has the potential to cause problems attributable to decreased rates of return [24].

Return on Asset. Return on Asset or ROA is a profitability ratio that measures the ability of the company to generate profit in relation to its total assets, which is presented in the form of a percentage [20][22]. Profitability ratios such as the return on assets, return on invested capital, return on equity, and profit margin all decreased during the COVID-19 [25]. According to Goddard et al. (2004), ROA is a preferable indicator of performance as it reflects the leverage usage effect, whereas return on equity (ROE) does not. Furthermore, the profitability of insurers is determined by premiums, claims, and expenses [26]. Thus, the higher ROA indicates that the company utilizes its assets efficiently.

Net Investment Income Ratio. The profitability of the life insurance companies is merely determined through the reinvestment of the premiums earned from the policyholders (individuals or corporations) by the insurance companies in the stock market [27][28] or known as net investment income [5]. Net investment income is determined from the difference between investment income and investment expenses. Thus, Net Investment Income Ratio is measured to examine the ability of life insurance companies to increase profit by investing the net premium earned so that it will increase the net investment income.

Given the importance of understanding the financial health and performance of companies during the COVID-19 pandemic, this study aims to investigate several key hypotheses related to operating cash flow, liquidity ratios, return on assets, and net investment income ratio. Specifically, the following hypotheses have been developed to examine the impacts of these financial metrics during the pandemic period:

H1.1 = OCF has a positive impact on the ROA during the pandemic of COVID-19.

H2.1 = OCF has a positive impact on the NIIR during the pandemic of COVID-19.

H3.1 = LQR has a negative impact on the ROA during the pandemic of COVID-19.

H4.1 = LQR has a negative impact on the NIIR during the pandemic of COVID-19.

3 Methodology

3.1 Sampling and Data Collection Method

Purposive sampling in which the samples are selected in a particular limitation will be used in this study. The samples were taken from the life insurance companies sector listed on OJK and AAJI in the reporting year of 2018–2021. There are a total of 53 life insurance companies listed and registered under OJK and AAJI. However, this study will take companies with total net premium earned above the industry average from 2018–2021. This is consistent with the fact that the majority of life insurance firms' income is derived from premium income. As a result, there are a total of 15 life insurance companies that will be taken as research samples based on the characteristics of the sample method.

Table 1 List of Companies Used as Research Sample

No	Companies Name
1	PT AIA Financial
2	PT Astra Aviva Life
3	PT Asuransi Allianz Life Indonesia
4	PT Asuransi Jiwa Bringin Jiwa Sejahtera (BRI)
5	PT Asuransi Jiwa Manulife Indonesia
6	PT Asuransi Jiwa Sinarmas MSIG
7	PT Asuransi Simas Jiwa
8	PT Axa Financial Indonesia
9	PT Axa Mandiri Financial Services
11	PT BNI Life Insurance
12	PT Capital Life Indonesia
13	PT Indolife Pensiantama
14	PT Panin Dai-chi Life
15	PT Prudential Life Assurance

This study will use quantitative research to examine the impact of COVID-19 on the financial condition of the Indonesian life insurance industry with data obtained from the financial reports of Indonesian life insurance companies registered on the OJK and AAJI. The type of data collection used in this study is the secondary data, which will be obtained through the available financial report published by the company. In an attempt to analyze the impact of COVID-19, the time period for this study will collect the financial data before and during the pandemic from 2018–2021.

3.2 Variable Operation

According to the previous research and data availability, the following variables were selected to analyze the impact of COVID-19 on the financial condition of the life insurance industry in Indonesia:

Table 2 Description of Variable Operation

Variables	Abbreviation	Formula
Dependent	Return on Assets	$\frac{\text{Net Income}}{\text{Total Assets}}$
	Net Investment Income Ratio	$\frac{\text{Net Investment Income}}{\text{Net Premium Earned}}$
Independent	Operating Cash Flow	$\frac{\text{Net Cash Flow From Operating Cash and Cash Equivalents}}$
	Liquidity Ratio	$\frac{\text{Current Assets}}{\text{Current Liabilities}}$
	COVID-19	Value of 1 to during pandemic and 0 to before pandemic

3.3 Data Analysis Technique

This study will utilize the multiple regression equation model to determine the relationship between the two dependent variables to each independent variable as specified [29],[30], and [31]:

Equation 1: ROA as the dependent variable

$$ROA_{it} = \beta_0 + \beta_1 OCF_{it} + \beta_2 LQR_{it} + \beta_3 COV_{it} + \varepsilon$$

Equation 2: NIIR as the dependent variable

$$NIIR_{it} = \beta_0 + \beta_1 OCF_{it} + \beta_2 LQR_{it} + \beta_3 COV_{it} + \varepsilon$$

The present statistical model indicates that return on assets (ROA) and net investment income ratio (NIIR) is the dependent variable, which is considered as a measurement for the financial performance of the life insurance industry. To analyze the influence of COVID-19 on the financial condition of the life insurance industry in Indonesia, a dummy variable for the pandemic will be used. Moreover, operating cash flow and liquidity ratio will be taken into account as the independent variable that impacts the dependent variable. The analysis in this study will provide the results of descriptive statistics of each variable used in this study, the correlation matrix results to test the relationship between two or more independent variables or known as multicollinearity [32], the multiple regression and the hypothesis results using EViews 12 Student Version Software. Additionally, Microsoft Excel will be utilized to calculate the financial ratios used in this study.

4 Results and Discussion

4.1 Descriptive Statistics Result

Descriptive statistics are used to provide a general description of the data utilized in the study, which in general consists of the measure of central tendency and the measure of dispersion such as mean, median, maximum, minimum, and the standard deviation. Table 3 summarizes the descriptive statistics of all the variables used in this study.

Table 3 Descriptive Statistics Result

	ROA	NIIR	OCF	LQR
Mean	0.016933	0.137307	1.274653	2.332897
Median	0.011650	0.123050	0.849050	2.055000
Maximum	0.067100	0.443200	18.647700	6.020000
Minimum	-0.033900	-0.198100	-22.521100	1.030000
Standard Deviation	0.022426	0.117221	4.727203	1.104539
Observations (N)	60			

Table 3 provides the result of descriptive statistics for all the variables used in this study. As shown in the table, from the total of 60 observations, the average value of ROA and NIIR as the dependent variable in this study were 1.69% and 13.73%, respectively, along with the highest value being 6.71% and 44.32%, respectively, and the lowest value being -3.39% and -19.81%, respectively, over the last four years from 2018 to 2021. The range of ROA and NIIR are higher than the standard deviation value of 0.022426 and 0.117221, respectively. This implies that the typical value in a dataset that deviates from the mean value is close to the mean of the data

set. Furthermore, the average value implies that Indonesian life insurance companies included in this study have relatively good financial performance in terms of profitability, as the mean value is higher than 0.

On the other hand, the independent variable of OCF has a mean value of 1.274653 with the maximum and minimum of 18.6477 and -22.5211, respectively, for the last four years from 2018 to 2021. The maximum and minimum value of OCF indicates that the highest amount of cash generated from operating activities is 1,864.77 and the cash outflows are 2,252.11, while the average of 127.47 was generated by the sampled life insurance companies in Indonesia on cash flow from operating activities. The standard deviation value of 4.727203 indicates how widely the OCF data is dispersed. Furthermore, the LQR as the other independent variable has a mean value of 233.29% for the last four years from 2018 to 2021 with the maximum value of 602% and the minimum value of 103%. The mean value implies that on average the life insurance companies in Indonesia included in this study have the ability to cover their short-term obligation. The standard deviation value of 110.45% indicates how widely the LQR data is dispersed.

4.2 Correlation Matrix Result

The Pearson correlation matrix determines the correlation and movement of relationship between the dependent and independent variables, which range from -1.0 to +1.0 with the suggestion that if the results are close to 0 then the correlation is weaker [29][31]. In addition, the positive and negative signs will determine the relationship within the variables, respectively. The correlation among the variables used in this study are shown in Table 4

Table 4 Correlation Matrix Result

	ROA	NIIR	OCF	LQR
ROA	1.000000	-0.056314	0.399858	0.198494
NIIR	-0.056315	1.000000	-0.039952	0.126521
OCF	0.399858	-0.039952	1.000000	0.098239
LQR	0.198494	0.126521	0.098239	1.000000

As displayed in the table, the positive sign of LQR indicates that the increase in life insurance companies' liquidity enhances the firms' financial performances in terms of profitability, which, in this case, is measured by ROA and NIIR while the correlation values are 0.198494 and 0.126521, respectively, implying that the relationship is weak, as the results are close to zero. Similarly, OCF with correlation value of 0.399858 indicates a positively weak relationship with ROA. On the contrary, OCF has a negatively weak relationship with NIIR, as the correlation value is -0.039952. This implies that the increase in OCF will decrease the NIIR. Furthermore, there is no multicollinearity between the two independent variables used in this model, as all of their values are below 0.80, indicating that the independent variables used in this model are suitable for the multiple regression analysis.

4.3 Multiple Regression Test and Hypothesis Result

The equation models used in this study aim to analyze the influence of Operating Cash Flow (OCF) and Liquidity Ratio (LQR) on the Return on Asset (ROA) and the Net Investment Income Ratio (NIIR) during the pandemic of COVID-19 (COV). The analysis results from Chow test and Hausman test indicates that the Fixed Effect Model is the most applicable model for estimating the panel data in this study.

Table 5 Equation 1: ROA as the Dependent Variable (Fixed Effect Model)

Variables	Dependent: ROA	
	Coefficient	Profitability
C	0.017425	0.0102
OCF	0.001486	0.0008
LQR	-0.000542	0.8262
COV	-0.002243	0.5346
R-squared	0.764207	
Prob (F-stats)	0.000000	

Based on the probability value of each variable shown in Table 5, there are two variables that have a significant effect separately on the dependent variable, namely the constant (C) variable and the OCF variable, as the respective probability values are 0.0102 and 0.0008 (below the significance level of 0.05) and the respective coefficient values are 0.017425 and 0.001486, which indicates the relationship for each variable on ROA is significantly positive. In contrast, the probability value of LQR is 0.8262, which is above the 0.05 significance level, while the coefficient value is -0.000542. Thus, LQR is negative and insignificant in explaining the ROA variable. In addition, to see the dummy variable effect towards the ROA, put the assigned value into the equation. In this case, to examine the COVID-19 impacts on ROA the calculation will be thus:

$$ROA_{it} = 0.017425 + 0.001486OCF_{it} - 0.000542LQR_{it} - 0.002243(1)+\varepsilon$$

From this equation, it can be concluded that the COVID-19 will decrease the ROA insignificantly. This model can be considered to be feasible to use as the Prob value (F-statistic) is 0.00000 (below the significance level of 0.05) so that all independent variables used in this model have a significant effect on the dependent variable, namely ROA. Moreover, based on the R-squared value of 0.764207 or 76%, which means that the OCF, LQR and COV variables in this model are able to explain or influence the ROA variable by 76% while the remaining 24% is explained by other variables outside the model. Overall, the results imply that H1.1 is accepted and H3.1 is accepted.

Table 6 Equation 2: NIIR as the Dependent Variable (Fixed Effect Model)

Variables	Dependent: NIIR
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	Coefficient	Profitability
C	0.200057	0.0002
OCF	-0.003705	0.2491
LQR	-0.026930	0.1610
COV	0.009594	0.7296
R-squared	0.488682	
Prob (F-stats)	0.012083	

Based on the probability of each variable shown in Table 6, the respective probability values of OCF and LQR are 0.2491 and 0.1610, which is above the 0.05 significance level, while the respective coefficient values are -0.003705 and -0.026930. Thus, OCF and LQR are negative and insignificant in explaining the NIIR variable. In addition, to see the dummy variable effect towards the NIIR, put the assigned value into the equation. In this case, to examine the COVID-19 impacts on NIIR the calculation will be as follows:

$$NIIR_{it} = 0.200057 - 0.003705OCF_{it} - 0.026930LQR_{it} + 0.009594(1) + \varepsilon$$

From this equation, it can be concluded that the COVID-19 will increase the NIIR insignificantly. This model can be considered to be feasible to utilize as the Prob value (F-statistic) is 0.012083 (below the significance level of 0.05) so that all independent variables used in this model have a significant effect on the dependent variable, namely NIIR. Moreover, based on the R-squared value of 0.488682 or 49%, which means that the OCF, LQR and COV variables in this model are able to explain or influence the NIIR variable by 49%, while the remaining 51% is explained by other variables outside the model. This model can be said to have moderate strength (medium) because the R-squared value is still below 66%. Overall, the results imply that H2.1 is rejected and H4.1 is accepted.

5 Conclusion

5.1 Conclusions

The pandemic of COVID-19 has impacted the Indonesian life insurance industry, as the mortality rate is increasing during the reporting years in 2018–2021. Due to the pandemic, the lockdown policy has been implemented to contain the virus. This lockdown implementation has caused firms to close and thus resulted in job losses. Therefore, the claims that have to be paid out are increasing while the premiums earned by the companies are decreasing, as people tend to secure their money in hand. In addition, the pandemic also caused uncertainty in the market and reduced investment activities. Based on the analysis results of this research, the relationship between each independent variables and dependent variables can be concluded as follows:

1. The impact of Operating Cash Flow (OCF) of life insurance companies in Indonesia on the Return on Assets (ROA) during the pandemic of COVID-19 is found to be positively significant, which concurs with the theory (Janiszewski, 2011; Mills, 1964; Mouelhi, 2021; Ross et al., 2015; Turcaş, 2011) and similar with the previous study (Liman & Mohammed, 2018; Rahman & Sharma, 2020).
2. The impact of Operating Cash Flow (OCF) of life insurance companies in Indonesia on the Net Investment Income Ratio (NIIR) during the pandemic of COVID-19 is found to be negatively insignificant, which explains the opposite movement indicating that the companies generate more profit by borrowing and selling stock (Ross et al., 2015) or, in this case, life insurance companies could sell investment assets such as bond or equity stock. This implies that the OCF of the company is not utilized to generate profit, as there is a negative value in the net cash flow from operating activities of the company.
3. The impact of the Liquidity Ratio (LQR) of life insurance companies in Indonesia on the Return on Assets (ROA) during the pandemic of COVID-19 is found to be consistent with the existing theory that explains the high level of LQR decrease the ROA (Gürbüz' et al., 2010; Ross et al., 2015), as there is a negatively insignificant effect between these variables, which is similar with the previous study (Gulzar et al., 2019).
4. The impact of the Liquidity Ratio (LQR) of life insurance companies in Indonesia on the Net Investment Income Ratio (NIIR) during the pandemic of COVID-19 is found to be negatively insignificant, which indicates that the NIIR has a greater fund management. This implies that the life insurance companies are focusing on both variables to maintain their financial condition stability and health.

Lastly, the multiple regression analysis given in Chapter 4 indicates that the Operating Cash Flow (OCF) and Liquidity Ratio (LQR) simultaneously influence the Return on Asset (ROA) and Net Investment Income Ratio (NIIR) of life insurance companies in Indonesia during the pandemic of COVID-19.

5.2 Future Research

For further research, it is highly recommended to increase the researched period or time series and add more variables to explain the financial condition of life insurance companies in a proper measurement, such as including more firm-specific factors and external factors. To analyze the impact of COVID-19 towards the financial condition, it is suggested to use the quarterly or monthly time series, as it should have shown the influence more specifically.

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