

Islamic Insurance Determination Towards Economic Growth in Indonesia: An ARDL Analysis

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Abstract: This research aims to investigate the influence of Islamic insurance growth as one of the halal financial institutions towards economic growth. Total asset and gross premium are used as a proxy of Islamic insurance growth and GDP was used as a proxy of economic growth. Control variables, namely investment, unemployment, and interest rate are also included as predictor variables. We used purposive sampling methods to collect data and used quarterly secondary data for analysis and took the data from OJK, BPS, and BI for the 2014-2019 periods. The Autoregressive Distributed Lag Model is used for estimating the long and short-run relationship between independent and dependent variables. We found that all of the independent variables significantly affect the dependent variable in the long run except for the proxy of assets. Premium and Unemployment negatively affect economic growth, meanwhile, investment and interest rates have a positive effect on economic growth. Otherwise, we didn't find a significant short relationship with alpha 5% except for the lag of GDP.

INTRODUCTION

Economic growth has important roles in the economy of a country because it has a huge impact on various sectors of people's lives. Economic growth is believed to be the main factor that can reduce poverty (Emmanuela et al., 2018; Mansi et al., 2020; Niyimbanira, 2017; Purnomo & Istiqomah, 2019; Škare & Družeta, 2016). In addition, economic growth can also reduce the crime rate, so that security in a country can be improved (Rahman & Prasetyo, 2018). Besides economic stability, economic growth has long been the target of economic policy (Bu & Ren, 2023) and is widely used as a measure of economic performance (Zhao & Cheng, 2023).

Indonesia has experienced various economic growth. The old order was characterized by low economic growth. It was noted that Indonesia experienced economic growth of 5.74 percent

in 1961 and decreased to 1,1 percent at the end of the old order in 1965. Then, Indonesia experienced economic booming in the new order period, at its peak, Indonesia achieved economic growth of 10.9 percent in 1968. On the other hand, Indonesia's economic growth has also slumped to a negative 13,1 percent at the end of the new order in 1998. Fortunately, the Indonesian economy started to improve again at the beginning of the reform order. Between 2004 and 2019, on average, Indonesia's economy grew above 5 percent per year (World Bank, 2024). Indonesia's economic growth from 1961 to 2019 is presented in figure 1.

Contributions to Indonesia's economic growth come from nine groups of economic sectors, namely (1) agriculture, animal husbandry, forestry, and fishery, (2) mining and quarrying, (3) manufacturing, (4) electricity, gas, and clean water, (5) construction, (6) trade, hotels, and restaurants, (7) transportation and communication, (8) finance, real estate, and corporate services, and (9) services (BPS, 2024). In the first quarter of 2020, the manufacturing sector gave the largest contribution to Indonesia's economic growth, which was 19 percent (Kontan, 2020).

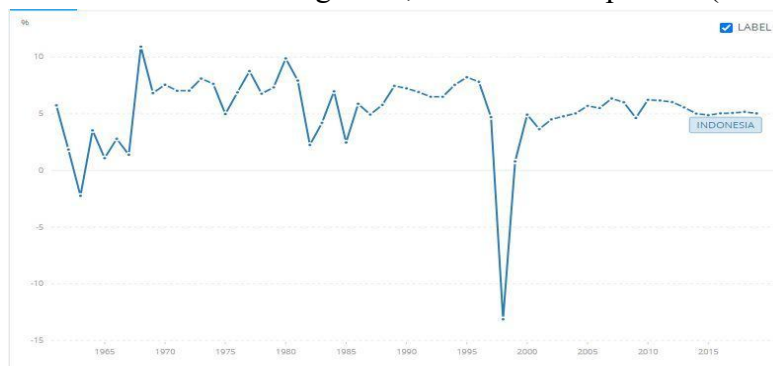


Figure 1. Indonesia's Economic Growth Trend

Source: World Bank, 2021

In general, four main factors affect economic growth, namely natural resources, human resources, capital, dan technology (Bu & Ren, 2023). Meanwhile, the influence of another derived variable is transmitted through the main variables above. In the context of financial sector determination to economic growth, the financial sector influence is transmitted through capital formation and then rising production rate and finally resulting economic growth (Alexiou et al., 2018; Challoumis & Eriotis, 2024).

The contribution of each financial institution in encouraging economic growth is varied. Even though banking sector has the most dominant role in the financial system (Challoumis & Eriotis, 2024), the role of others financial institution like insurance need to be considered, both sharia and conventional insurance. As of December 2020, the Insurance market share in Indonesia's financial system had reached 55.18 percent of non-bank financial institutions' assets. It means that insurance is the largest non-bank financial institution in Indonesia. The insurance company's total asset is IDR 1,454.37 Trillion consisting of IDR 1,409.75 Trillion conventional insurance assets and IDR 44.61 Trillion sharia insurance assets (Antara, 2024).

By theory, Islamic insurance less flexible than conventional insurance in investing their fund because Islamic insurance merely can invest their fund in the instrument that complies with Islamic teaching. This situation makes the investment process move slowly because the fund can not be transmitted to the real sector as soon as possible. As a result, there will be a lag in the influence of Islamic insurance on economic growth. Therefore, these phenomena need to be

investigated further.

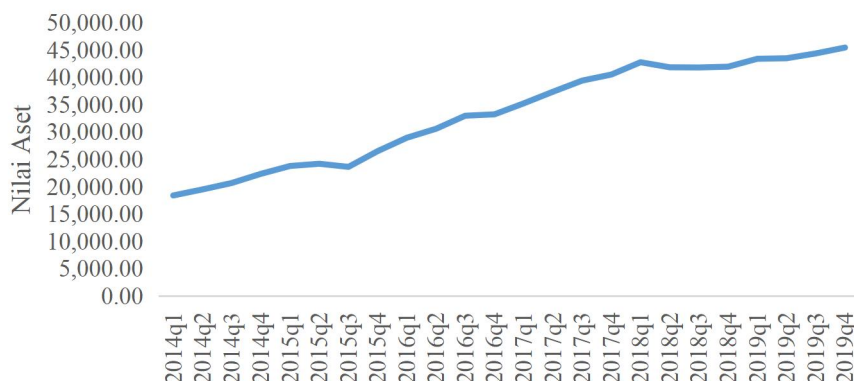


Figure 2. Trend of Sharia Insurance Assets in Indonesia

Source: Indonesia Financial Service Authority, 2021

There are many previous studies about the influence of conventional insurance on economic growth in many countries. In general, the results showed that insurance development has a positive effect on economic growth (Mohy ul din et al., 2017; Peleckienė et al., 2019; Ul Din et al., 2017). However, research that focuses on examining the effect of Islamic insurance on economic growth in Indonesia is still relatively rare.

The authors only found one study that specifically discussed the influence of Islamic insurance on economic growth in Indonesia, namely research by (Mainata and Pratiwi 2019). They found that Islamic insurance development has a positive effect on economic growth. However, their study used a static model instead of the dynamic model. Furthermore, they did not include control variables in their research.

Based on the background above, there are still research gaps in the influence of Islamic insurance on Indonesia's economic growth. The first gap is there has been no previous study that examining this topic using a dynamic model, so that, the research with a dynamic model still can be done. The second gap is the previous study did not include major variables as control variables so that the research that includes control variables still can be done. Therefore, the objective of this research is to investigate the determination of Islamic insurance on Indonesia's economic growth by employing a dynamic model namely autoregressive distributed lag (ARDL), and including major determinants, namely investment, unemployment, and interest rate.

LITERATURE REVIEW

Economic growth is defined as an increase in a country's production or per capita income and is closely associated with gross domestic product (GDP) (Dragoi, 2020; Kaivo-Oja et al., 2022). An increase in GDP is generally regarded as the primary indicator for measuring a country's economic performance. In developing countries, GDP is considered the most significant national income concept. GDP represents the value of goods and services produced within a country during a specific period (Argandoña, 2016). Goods and services included in GDP are those produced within the country's territory, regardless of whether they are produced by citizens or foreigners.

The insurance industry has experienced rapid growth in Indonesia, and the population has become increasingly familiar with insurance products. However, some Muslims argue that the

concept and practice of conventional insurance conflict with Islamic teachings. Critics contend that the operational system of conventional insurance resembles gambling. As a result, the concept of Islamic insurance was introduced in Indonesia. Under the Islamic system, it is acknowledged that individuals require protection against unforeseen risks. To address these risks, participants agree to provide mutual assistance when one member faces a loss (Bouslama & Lahrichi, 2017).

Refers to the minister of finance regulation number 18, 2010 about the implementation of basic principles of Islamic insurance and reinsurance management, several principles need to meet by the insurance company, namely (a) there are mutual help and mutual insurance agreement between insurance participant, (b) there is participant contribution to the *tabarru'* fund, (c) insurance company take place as *tabarru'* fund manager, (d) insurance company must comply principle of justice, integrity, balancing, benefit, universality, and free from things that violate Islamic teaching.

Besides the basic principles above, several other things need to be complied with by Islamic insurance. First, a company must separate *tabarru'* fund from the company fund. Second, insurance and reinsurance polis must contain *tabarru'* and *tijaroh* contract. Third, every time, the insurance company must have the ability to give lending to *tabarru'* fund. Fourth, every insurance company must have a sharia supervisory board that supervises Islamic insurance company sharia compliance.

Insurance in Indonesia adheres to several DSN-MUI fatwa, namely Fatwa DSN-MUI No. 21/2001, Fatwa DSN-MUI No. 51/ 2006, Fatwa DSN-MUI No. 52/2006, and Fatwa DSN-MUI No. 53/2006. Based on the fatwa above, insurance companies need to adhere to two main things. First, there must be a clear contract between the insurance company and the participant. Second, the contract between the insurance company and participant must free from *riba*, *gharar*, *maysir*, *zhulm*, *risywah*, *haram food*, and immoral things.

Economic growth is influenced by some key variables, include total assets. According to (Davidson, 2020) , a total asset can be defined as the sum of fixed assets, current assets, and miscellaneous assets that equal to liability plus equity. In other words, total assets is all of the assets owned by a company that can be used to support its operations. The result of Mainata and Pratiwi (2019) study showed that there is a positive and significant relationship between the insurance company and economic growth in Indonesia.

Premium is the regular payment of insurance participants to the insurance company as a consequence of assurance that is given by the insurance company. According to Apergis & Poufinas (2020), Mohy ul din et al. (2017), Peleckienė et al. (2019) , insurance premium has a significant and positive effect on economic growth.

According to White (2016), investment can be defined as postponement of current consumption for use in productive activity for a certain period. While, according to Dzwigol et al. (2019), Samoylova et al. (2020), Yusubjanovich (2023) , the purpose of investment activity is to encourage economic activity, employment, national income, and prosperity. Investment terms generally consist of two types, namely fixed asset investment and financial investment.

Unemployment is a situation where people that need work can not find work in the labor market (Grainca, 2021) . Unemployment occurs because the labor market is not in a balanced condition. In other words, a quantity of labor supply greater than a quantity of labor demand (N. Gregory Mankiw, 2017) . By theory, unemployment harms economic growth. Because, the greater unemployment, the lower quantity of producing goods and services. Finally, GDP falls and economic growth decline (Gordon, 2018).

Lastly, the interest rate is one of the monetary instruments of Indonesia's central bank. Interest is the price that has to pay by a borrower as compensation for using money in a particular period (Bu & Ren, 2023). Because most of the bank Indonesia still uses interest base, the interest rate is one of the determinants of economic growth. The level of interest rate determines the level of investment and finally affects economic growth. So that, the interest rate harms economic growth. In other words, the higher the interest rate, the lower economic growth. Conversely, the lower the interest rate, the higher economic growth (Bu & Ren, 2023).

Several studies have been conducted in the past to dig deeper into the determination of insurance towards economic growth. Nizar (2016) employed the Vector Autoregressive (VAR) model to investigate the effect of insurance premiums on Indonesia's Economic Growth from 1984 until 2014. The results of the study showed that the number of non-life insurance policies, the inflation rate, and income per capita have a positive effect on economic growth. The influence of each independent variable does not happen directly, but with a different time lag.

Muye and Hassan (2016) utilized panel data analysis to examine the impact of Islamic insurance growth on economic growth across 22 countries from 2004 to 2012. Their findings indicate that gross premium exerts a positive and significant influence on economic growth. The effects of control variables varied: trade demonstrated a positive and significant effect, the consumer price index (CPI) showed a positive but statistically insignificant effect, and consumption exhibited a negative yet insignificant effect. Similarly, Ul Din, Abu-Bakar, and Regupathi (2017) applied panel data analysis to assess the relationship between insurance and economic growth in 20 countries during 2006–2015. In the context of life insurance, they identified a positive and significant effect on economic growth in developed countries when insurance growth was measured by insurance density. A comparable effect was observed in underdeveloped countries when insurance growth was measured by insurance penetration. For non-life insurance, a positive and significant effect was also reported.

Apergis & Poufinas (2020) and Mohy ul din et al. (2017) investigated the relationship between insurance market maturation and economic expansion in OECD nations. Using a panel auto-regressive distributed lagged (PMG/ARDL) framework, they identified a causal connection between these variables; however, the strength of this relationship varied among countries.

Opeyemi (2020) examined the influence of foreign direct investment (FDI) and inflation on economic growth in five African countries, employing ordinary least squares as the estimation method. The findings indicate that FDI exerts a strong effect on economic growth across all five countries, while inflation significantly affects only four. In Egypt, inflation has an insignificant impact on economic growth. These results support the theory that FDI stimulates economic growth by generating employment and enhancing productivity through capital, skills, and technology (Fitriani, 2019).

Febriandika and Hakimi (2020) analyzed economic growth in four ASEAN countries from 2003 to 2013, focusing on population growth, unemployment, and inflation as determinants. Using panel data analysis, they found that population growth and unemployment have a negative and significant impact on economic growth in these countries. In contrast, inflation did not exhibit a significant effect in the ASEAN context, differing from its mixed significance observed in the African countries studied by Opeyemi (2020).

Based on the literature review, theoretical framework, and previous study, the hypothesis for this research can be developed as follows:

H1: Insurance Asset has a positive and significant effect on economic growth

H2: Insurance Premium has a positive and significant effect on economic growth

H3: Investment has a positive and significant effect on economic growth

H4: Unemployment has a negative and significant effect on economic growth

H5: Interest rate has a positive and significant effect on economic growth

METHOD

This research is quantitative and uses a correlational design. Data about insurance that is proxied by total assets and gross premium was collected from the financial report of the non-bank financial institution from the official website of Indonesia's financial service authority (OJK), namely www.ojk.go.id. Data about Gross Domestic Product, Gross Fixed Capital Formations, Unemployment Rate, and BI Rate were collected from the official website of *Badan Pusat Statistik* (www.bps.go.id) and *Bank Indonesia* (www.bi.go.id). We employed quarterly data from 2014 to 2019. The purposive sampling method is used as a sampling method, which we use three criteria for the data, namely (1) based on the availability of insurance data on the OJK official website, (2) the shortest period for GDP data is quarterly, and (3) length of period for control variables data was adjusted to the availability of insurance data.

GDP is the primary and most widely used indicator for measuring a country's economic performance. Among national economic indicators, GDP holds particular significance for developing countries. GDP represents the value of goods and services produced within a country during a specific period (Argandoña, 2016b; Grishin et al., 2019). Accordingly, this study employs GDP as a proxy for economic growth. Two operational variables are utilized as proxies for insurance growth: total assets and total gross premiums of Islamic insurance in Indonesia. For control variables, gross fixed capital formation serves as a proxy for investment, the rate of open unemployment is used as a proxy for unemployment, and the BI-Rate is employed as a proxy for the interest rate.

The autoregressive distributed lag (ARDL) model was employed as the primary analytical technique in this research. ARDL was popularized by Pesaran and Shin (1995) through the introduction of cointegration and bound test approaches (Pesaran & Shin, 1995). The ARDL model enables estimation of linear regression and analysis of long-run relationships, including cointegration tests among time-series variables.

ARDL model is a combination of the Autoregressive (AR) and Distributed Lag (DL) model. Model AR is the model that includes one or more data of dependent variable in the past as an independent variable. Meanwhile, DL is a regression model that includes the current and past data of independent variables (Gujarati, 2021).

ARDL model is very useful in econometric analysis. Because it can convert the model from static model to dynamic model by including the role of time explicitly. This model also can differentiate short-run and long-run responses of variables (Gujarati, 2021). Generally, the ARDL model can be presented as follows:

$$Y_t = \alpha_0 + \alpha_1 t + \sum_{i=1}^p \alpha_2 Y_{t-i} + \sum_{i=0}^q \alpha_3 X_{1t-i} + \sum_{i=0}^r \alpha_4 X_{2t-i} + \sum_{i=0}^s \alpha_5 X_{3t-i} + \sum_{i=0}^t \alpha_6 X_{4t-i} + \epsilon_t$$

The analysis chapter of this research can be divided into six stages as follows: (1) Because of using time series data, the first analysis is a stationary test by using the unit root test. The objective of this test is to investigate whether the data is stationary in the level or the first difference. In other words, this test is conducted to know whether the data contain a unit root. Philip-Perron (PP) test was employed to do this test. (2) The second stage is to choose the most appropriate ARDL model as a basis of short-run and long-run coefficients. The selected model is

based on the Akaike Information Criterion (AIC) where the selected model is the model with a maximum length of lag. (3) Doing a short-run ARDL Test to see the short-run relationship between an independent variable with the dependent variable. (4) Doing ARDL bound test to identify whether there is a long-run relationship between independent and dependent variables. (5) Doing long-run estimation ARDL test. This test was conducted to the investigated long-run relationship between independents and dependent variables. (6) The last test is the stability test to investigate the stability of the ARDL model by using the CUSUM and CUSUMQ test.

RESULT AND DISCUSSION

The first analysis that is conducted was a stationary test to examine the stationarity of the data. A stationary test was conducted by using Phillips-Perron (PP) test. The result of the analysis is presented in table 1. Test results show that all of the variables are not stationary in the level. Therefore, needs to be conducted a stationary test in the first difference. The results show that all of the variables are stationary and do not contain unit root in the first difference. Therefore, the data that will be used in the ARDL test is the data in the first difference.

Table 1. Unit Root Test Results

Variables	Unit Root Test Result Using Philips-Perron Test			
	Level I(0)	P-Value	First Difference I(1)	P-Value
GDP	-0,67	0,8349	-6,52	0,000
Asset	-1,27	0,6215	-4,00	0,006
Premium	-1,12	0,6864	-9,11	0,000
Investment	-0,98	0,7410	-4,45	0,002
Unemployment	-0,34	0,9035	-5,21	0,000
Interest rate	-1,32	0,6001	-3,41	0,021

Source: Processed Research Data

The second test is the test to determine the length of the lag of each variable by using Akaike Information Criterion. The result of the test is presented in figure 3. From 20 top model that is presented in figure 3, the best model is the model with maximum 2 lag for each variable.

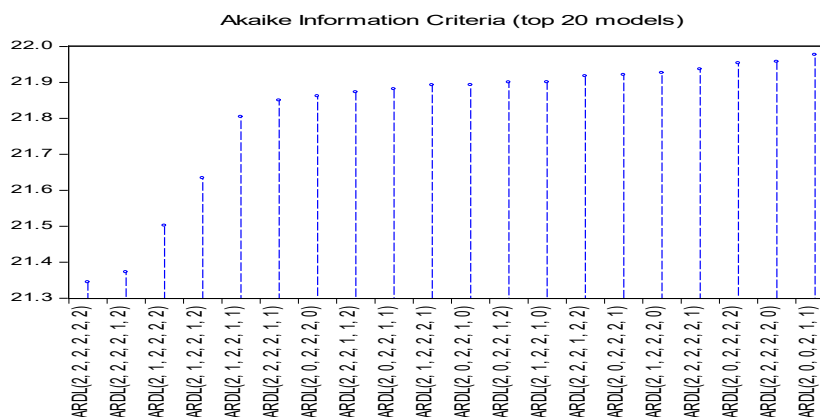


Figure 3. Akaike Information Criterion Test Results

Source: Processed Research Data

The next test is the short-run ARDL test. This test is conducted to investigate the short-run effect of each independent variable toward the dependent variable. The results of the short-run ARDL test are presented in table 2.

Table 2. Short Run ARDL Test Results

Variabel	Koefisien	P-Value
GDP _{t-1}	0,586	0,013
Asset	-4,783	0,533
Asset _{t-1}	-5,346	0,348
Premium	-30,056	0,088
Premium _{t-1}	37,950	0,079
Investment	2411,27	0,167
Investment _{t-1}	-3303,31	0,124
Unemployment	21401,25	0,833
Unemployment _{t-1}	78795,16	0,516
Interest Rate	21689,74	0,069
Interest Rate _{t-1}	-15952,86	0,118
CointEq(-1)	-1,27	0,012

Source: Processed Research Data

The results show that the variable that has a significant effect in the short-run is the only variable lag of GDP. Other variables do not have a significant effect on the dependent variable. However, CointEq(-1) has significant p-value. It means that all of the independent variables move to the long-run equilibrium. Hence, it has a high probability that there is a significant long-run effect in this model.

In the short run, the only independent variable that has a significant effect on the dependent variable is the lag of GDP. It may because of the future expectation of the society, hence they are encouraged to increase their productions. Meanwhile, the variable of interest, both total assets, and gross premium does not have a significant effect on economic growth. It means that there is a lag in the relationship between insurance growth on economic growth. On the other hand, there is not a significant relationship between the control variable with the dependent variable. It also shows that the effect of all control variables on the economic growth is not direct, but has a time lag.

The next analysis is ARDL bound test to reveal whether there is a long-run relationship in the model. The results of ARDL bound test are presented in table 3. The results of ARDL bound test show that F-Statistic 6.34 is higher than the critical value I(1) for all significance levels, namely 1%, 5%, and 10%. Hence, it can conclude that there is a long-run relationship between independents and dependent variables in the ARDL model.

Table 3. ARDL Bound Test Results

Significant Level	I(0)	I(1)
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1%	3,41	4,68
5%	2,62	3,79
10%	2,26	3,35
F-Statistic	6,34	
Number of Variables (K)	5	

Source: Processed Research Data

After doing ARDL bound test and it is known that there is a long-run relationship in the model, ARDL long-run test can be done. The results of ARDL Long-run test is presented in table 4. It can be seen from table 4 that almost all the dependent variables have a significant effect on the dependent variable in the 5% significance level. The only one that has not significant effect is variable assets. Premium and Unemployment have a negative effect, otherwise, investment and the interest rate have a positive effect.

Table 4. Long Run ARDL Test Results

Variables	Coefficient	P-Value
Asset	7,82	0,117
Premium	-59,35	0,047
Investment	5630,46	0,002
Unemployment	-143294,1	0,019
Interest Rate	35410,41	0,001
C	2054162,6	0,001

Source: Processed Research Data

In the long run, all of the variables have a significant effect on the economic growth except assets. The assets variable is not significant either in alpha 1%, 5%, and 10%. It may be because the total assets of Islamic insurance in Indonesia relatively low compared to conventional insurance. Hence, Islamic insurance assets have not enough ability to promote economic growth. This finding is not following the hypothesis (H_1) that state total assets have a significant and positive effect on economic growth. Hence H_1 is rejected.

Insurance premiums have a negative and significant effect on economic growth in the long run. This finding contradicts the hypothesis (H_2) which states that insurance premiums have a positive and significant effect on economic growth. Hence, H_2 is rejected. The argumentation behind this finding is when people decide to buy an insurance product, they have to reduce their consumption and switch their funds to pay an insurance premium. After entering the insurance, the fund cannot be directly transmitted to the real sector, because of the limited number of sharia-compliant investment instruments. As a result, the fund will settle inside the insurance company. Hence, the increase of premium following by the decrease in economic growth. This finding contradicts the finding of Apergis & Poufinas (2020), Mohy ul din et al. (2017), Peleckienė et al. (2019), which found that premium has a positive impact on economic growth.

The investment variable demonstrates a positive and significant effect at the 5% significance level. This result indicates that higher investment rates are associated with increased economic growth. This finding aligns with existing theory, which posits that investment positively influences economic growth (Apergis & Poufinas, 2020; Mohy ul din et al., 2017; Peleckienė et al., 2019). It is also consistent with the findings of (Dykha et al., 2017), who state that investment is a productive element that actively determines output levels. Investment serves

as a foundation for future development due to its capacity to absorb labor. Consequently, increased investment generates new employment opportunities and raises national income.

The test results indicate that the unemployment variable has a negative and significant effect on economic growth, consistent with hypothesis H_3 . Therefore, H_3 is accepted. This result demonstrates that higher unemployment rates correspond to lower economic growth. This finding is also consistent with economic theory, which suggests that unemployment reduces income, increases poverty, and leads to additional social problems (Kalsum 2017) found that unemployment negatively impacts economic growth.

Finally, the interest rate variable also exhibits a significant effect on economic growth. However, this effect contradicts hypothesis H_5 , which posited a negative relationship between interest rates and economic growth. The test results reveal that, in Indonesia, the interest rate has a positive effect on economic growth. Consequently, H_5 must be rejected. This outcome does not align with the theory that suggests interest rates negatively affect economic growth (Wardani, 2023). However, it is consistent with the findings of Raisaba and Purbadharmaja (2021), who report that, in the long run, interest rates have a significant and positive effect on economic growth.

The last test in this analysis is the stability test to investigate the consistency of the model. The stability test is conducted by CUSUM and CUSUMQ test. The result of both is presented in figure 4 dan 5 respectively. Figure 4 shows that blue line consistently moves along between two red lines. It means that ARDL Model (2,2,2,2,2) has been stable.

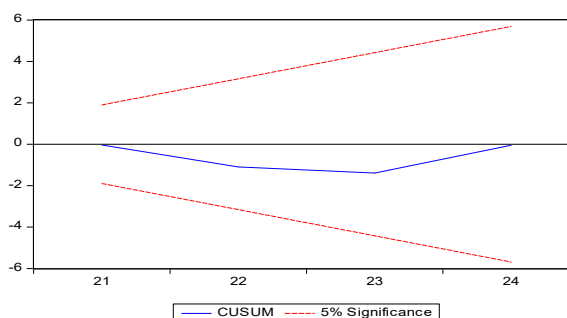


Figure 4. Cusum Test Result
Source: Processed Research Data

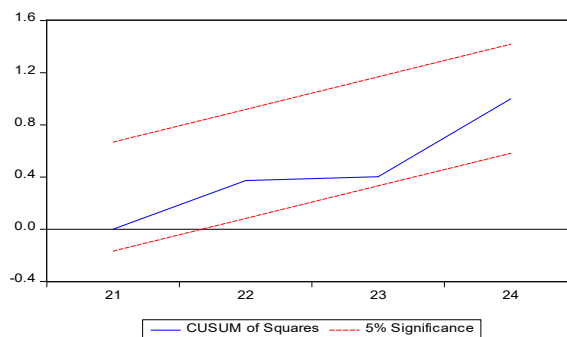


Figure 5. CUSUMQ Test Result
Source: Processed Research Data

Result of CUSUMQ test in line with the result of CUSUM test, where the blue line is consistently moving along between two red lines. It means that the ARDL model that is used in

this analysis is stable. Hence, the influence of independent variables towards dependent variables is stable in the long run.

CONCLUSION

Islamic insurance has experienced significant growth, supported by government regulations. However, further analysis indicates that the growth of Islamic insurance, as measured by premiums and assets, does not significantly influence economic growth in the short term. The CointEq(-1) value demonstrates cointegration within the model, indicating that the variables will adjust toward equilibrium and affect the dependent variable over the long term. Similarly, control variables do not exhibit a significant impact on economic growth in the short run.

In the long run, all of the variables significantly affects economic growth, except the assets variable. The asset is not significant either in significant level 1%, 5%, or 10%. This finding may occur because Islamic Insurance's total assets relatively small compared to the conventional Insurance assets in Indonesia. Another surprising finding is the premium negatively affects economic growth in Indonesia. Maybe it is caused by the transmission of funds from insurance companies to the real sector moving slowly. Hence, the settlement of the fund in the insurance companies decreases capital formation, then finally decreases the economic growth.

All control variables demonstrate a significant effect on economic growth in the long run. Consistent with theoretical expectations, investment exerts a positive influence on economic growth. Similarly, the empirical findings regarding unemployment align with established theory, indicating that unemployment negatively impacts economic growth. However, the results for the interest rate are unexpected. While theory suggests that the interest rate should negatively affect economic growth, the empirical analysis reveals that the interest rate positively influences economic growth in Indonesia.

This research still has many limitations. We highly recommend to the next study dig deeply into another variable related to Islamic insurance that can affect economic growth. Next researcher also can use another model like Error Correction Model (ECM), Generalized Method of Moment (GMM), or Partial Adjustment Model (PAM).

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