



## Potential of Islamic Insurance Market: Islamic Banking and Sukuk Sectors Case Study in Indonesia

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**Abstract:** This paper predicts the potential of the Indonesian Islamic insurance market, approached by calculating the premium contribution from the Islamic banking and sukuk sectors. This paper aims to determine and analyze the potential development of Islamic insurance market in Indonesia, seen from total contributions from Islamic banking and sukuk sectors over the next five years. The paper uses the Box-Jenkins ARIMA method which is one of the quantitative forecasting methods. The results of this study indicate that over the next five years, the total contribution of Islamic insurance will experience positive growth and it is predicted that it will have a total contribution of IDR 11,568.40 billion in 2023 from Islamic banking and sukuk sectors with the biggest contributor from the Islamic banking sector. The ARIMA forecasting results show a positive trend in the premium contribution of the Islamic banking and sukuk sectors from year to year. Even so, the growth will experience a slowdown. The prediction of a slowdown in the two sectors in its contribution to the Islamic insurance market in Indonesia is a sign that there might be a decline in the total financing growth by Islamic banking. Likewise with the sukuk sector, both state and corporate sukuk are predicted to experience a slowdown in the growth of Islamic insurance premiums.

**Keywords:** *ARIMA, Islamic Banking, Islamic Insurance, and Sukuk.*

Article History

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### Introduction

Nationally and internationally, the Islamic finance industry is currently developing quite well. The development of the Islamic finance industry is quite good due to several things. One of them, namely the resistance of the Islamic finance industry to the shock of the economic crisis. This can be seen from the absence of Islamic banks that went bankrupt during the economic crisis (Syafique et al., 2012). Economists believe this is due to the majority of financing made by Islamic banking derived from third party funds. In addition, Islamic banking is also free from excess leverage and motive of speculation that has been carried out by conventional banks (Ahmed, 2010). The principle of no *riba* (interest), no *gharar* (uncertainty), and no *maysir* (speculative) in banks and other Islamic financial institutions is expected to be a solution to all kinds of economic crises that occur. Therefore, many economists argue that the Islamic finance industry has better performance compared to the conventional financial industry (Parshar & Venkatesh, 2010).

Recorded from the data released by the IFSB (2017), the total assets of the Islamic finance industry reached USD 2,050.2 billion in 2017. In addition, the non-bank Islamic finance industry, such as the Islamic capital market and Islamic insurance, also experienced a fairly good increase. The total international Islamic insurance reached USD 26.1 billion at the end of 2016, an increase of 4% compared to the end of 2015. However, compared to Islamic banking and other Islamic finance industries, such as sukuk, Islamic insurance assets are still lagging far behind. Globally, the proportion of Islamic banking in the Islamic finance industry reached 76%, followed by sukuk and Islamic funds, each at 19.5% and 3.3%. Islamic insurance alone occupies the last position with a proportion of 1.3% in the international Islamic finance industry.

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The Islamic finance industry is also developing quite well in Indonesia. With the largest Muslim population in the world, Indonesia is a big market for the development of the Islamic finance industry. Even so, growth has not been as big as other countries, such as Malaysia and other Middle Eastern countries.

Islamic insurance is one of the well-developed sectors in Indonesia, in addition to Islamic banking and the capital market. Islamic insurance is currently in great demand as an alternative to existing conventional insurance. The prospect of the Islamic insurance industry is predicted to continue to develop in the future. Based on the Global Takaful Report 2017 report, the global Islamic insurance industry has grown by 14% every year. In addition, a fairly stable economic growth in Indonesia is predicted to increase the number of middle class (Ramadhani, 2015). Indonesian people also began to understand the importance of insurance. This was evidenced from the results of the financial literacy survey conducted by OJK in 2016 which showed that the level of public understanding of insurance was 15.76%.

The development of Islamic banking industry and Islamic capital market should be positively correlated with the demand for Islamic insurance. Sherif and Shaairi (2013) found that one of the causes of increased demand for Islamic insurance was the development of the Islamic finance industry. This is likely due to a functioning bank that will increase consumer confidence in other financial institutions, such as insurance (Beck & Webb, 2003). Development of a high-level financial industry in a country is expected to increase insurance sales (Li et al., 2007). On the other hand, the insurance industry also has a positive influence on other financial industries, as stated by Outreville (1996) and Li et al. (2007). This happens because the development of an efficient financial system will help insurance companies to invest in a more efficient way so as to produce greater profits. In addition, activities carried out by Islamic financial institutions should be integrated with each other. For example, Islamic banking that carries out financing activities should automatically use takaful to protect its financing assets in order to minimize risk.

Islamic banking in Indonesia is the biggest market potential for Indonesia Islamic insurance. The financing activities carried out by Islamic banking should be protected by Islamic insurance. At present, Islamic banking is experiencing a fairly good development. In 2011, total Islamic banking financing reached IDR 102.66 trillion and in the October 2018 increased to IDR 312.88 trillion or increased by 205%. This is a huge market potential for Islamic insurance. Therefore, increasing in financing by Islamic banking should be able to increase contributions or premiums on Islamic insurance. So far, Islamic banking has the highest proportion of total Islamic insurance contributions<sup>1</sup>.

In addition to the banking sector, the development of sukuk in Indonesia, both state sukuk and corporate sukuk experienced a significant increase. State sukuk achieved issuance value of IDR 433.06 trillion in the period of February 2017 (DJPPR, 2017) and corporate sukuk achieved issuance value of IDR 15.74 trillion in 2017 (OJK, 2019). The increase in volume of sukuk issuance indicates a positive response from investors, so it does not rule out the possibility that the volume of sukuk issuance will always increase in the coming years.

The increase in the volume of outstanding sukuk is of course a potential for Islamic insurance. The increase in outstanding sukuk volume will be positively correlated with the number of underlying assets used as the basis for its issuance. If the volume of outstanding sukuk is getting bigger, the underlying assets needed will be even more. Underlying assets can be either tangible assets or benefit values of the asset, both existing and existing, services, certain projects and predetermined investment activities. In order to minimize risk, the underlying asset that is the basis for issuing sukuk should be insured.

Therefore, this study aims to map the contribution of the Islamic banking sector and sukuk to Islamic insurance market. In addition, this study also aims to see the potential of Indonesia Islamic insurance market by predicting the development of the Islamic financial industry, especially financing on Islamic banking, outstanding sukuk, and premiums from Islamic banking financing and sukuk.

### Islamic Insurance versus Conventional Insurance

One of the things that is the advantage of Islamic insurance compared to conventional insurance is the concept of risk sharing. The premiums paid by participants are divided into two, namely for *tabarru'* funds and investment funds. This *tabarru'* fund will be used if one member experiences a disaster. This

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<sup>1</sup> In-depth interviews with experts from the Indonesian Islamic Insurance Association (AASI) in 2017

is where the principle of risk sharing is applied. Insurance companies only act as fund managers who will obtain *ujrah*.

In contrast to the concept of conventional insurance where the company receives premiums from participants as compensation for the transfer of risk to the company. In this case, the premium is recognized as fully owned by the company. If a claim occurs, the company will pay a sum of insured. But if there is no claim, the insurance participant will not get anything or the funds are forfeited. In addition, in the Islamic insurance model, if there is a surplus or excess of funds, the funds can be used to pay zakat or be channeled to help build public infrastructure projects, such as the construction of schools, hospitals, and other things that are permitted by Islamic law (Swartz & Coetzer, 2010).

Conventional insurance and Islamic insurance both generate profits for shareholders, but according to Anwar (2008) the Islamic insurance business has several other benefits. One of them is transparency of expenditure which does not always occur in conventional insurance. Sarwar (2016) in his study stated that other advantages possessed by Islamic insurance, namely related to information systems and policies that are quite transparent compared to conventional insurance. Another significant difference between Islamic insurance and conventional insurance is that when a participant buys a conventional insurance policy, participants cannot claim premium after the maturity date if the participant does not face the difficulties mentioned in the policy. Unlike the case with Islamic insurance which distributes the premium to participants at maturity. The difference between Islamic and conventional insurance according to Soemitra (2014) is shown by Table 1.

Table 1. The Difference between Islamic Insurance and Conventional Insurance

Aspects	Islamic Insurance	Conventional Insurance
Existence of Islamic Supervisory Board (DPS)	Exist	Not exist
Contract used	<i>Tabarru'</i> contract (grant), among fellow insurance participants. <i>Tijarah</i> contract, for participants with insurance companies.	Similar to buying and selling contract ( <i>ta-badduli</i> )
Investment activities	Free from usury ( <i>riba</i> )	<i>Riba</i>
Fund ownership	The rights of insurance participants, insurance companies only manage it	Belongs to insurance companies
Claim payment source	From <i>tabarru'</i> fund	From the insurance company's fund account
Advantage	Profit sharing between companies and insurance participants according to a predetermined proportion	All profits belong to the insurance company
Concept	Risk sharing	Risk transfer
Accounting system	Cash basis	Accrual basis

Source: Soemitra (2014).

## Research Method

The analytical method used in this study is descriptive analysis and Autoregressive Integrated Moving Average (ARIMA). ARIMA is used to predict the development of the Islamic finance industry, especially financing in Islamic banking, outstanding sukuk, and insurance contribution value from Islamic banking financing and sukuk.

ARIMA or commonly referred to as the Box-Jenkins method is one of the forecasting methods that uses a single variable (univariate) time series and ignores the independent variables in the modeling. The formation of the ARIMA model aims to determine a good statistical relationship between variables predicted by the historical value of the variable so that forecasting can be done with that model. ARIMA has excellent accuracy for short-term forecasting.

The ARIMA method is chosen because the time series data used is not stationary, so it is necessary to do differencing processes for data that are not stationary in the average and the transformation process

for data that is not stationary in the variant. The general form of the ARIMA model can be stated in the following equation (Hatidja, 2011):

$$\delta_p (B) \nabla^d Y_t = c + \theta_q (B) \varepsilon_t \quad (1)$$

where:

- $Y_t$  = Value of observation at  $t$
- $\delta_p$  = Autoregressive parameter
- $B$  = Backwards operator
- $d$  = Differencing parameter
- $c$  = Constant parameter
- $\theta_q$  = Moving average parameter
- $\varepsilon_t$  = Error

The steps for preparing the ARIMA (p, d, q) model are as follows (Firdaus, 2011):

#### 1. Identifying Model

ARIMA (p, d, q) model can be varied, including the form of AR (p), MA (q), ARMA (p, q), or it can be SARIMA (seasonal ARIMA). For this reason, model identification is needed. This stage consists of three things, namely identification of patterns of data, identification of data stationary, and identification of patterns or behaviors of ACF (autocorrelation function) and PACF (partial autocorrelation function). Plots of ACF and PACF are very useful in predicting orders p and q (AR and MA).

#### 2. Estimating Model

At this stage, the first thing to do is to calculate the value of the initial estimate for the parameters of the tentative model. To obtain the final estimation value, a computer program is used through an iterative process.

#### 3. Diagnostic Checking

After the tentative model equation is obtained, a diagnostic test is carried out to test the closeness between the model and the data. This is done by testing the residual value ( $Y_t - \hat{Y}_t$ ) and by testing the significance and parameter relationships.

#### 4. Forecasting

The ARIMA model is built on two boundaries, namely (1) forecasting is linear for observed observations and (2) model selection is based on the parsimony principle.

## Results and Discussions

### *Mapping the Market of Indonesia Islamic Insurance*

Islamic banking and sukuk sectors have a huge market potential for Indonesian Islamic insurance. For Islamic banking, total Islamic banking financing reaches IDR 312,878.77 billion in October 2018. If it is assumed that the premium paid by the customer is 2% of the total financing, the total contribution from Islamic banking reaches IDR 6,257.58 billion.

In addition to Islamic banking, state sukuk and corporate sukuk is also one of the markets that has great potential for Islamic insurance. The outstanding value of state sukuk at the end of 2018 reached IDR 646,451.43 billion and corporate sukuk reached IDR 22,842 billion. If it is assumed that the contribution to be paid from this project value is 0.2% of the total outstanding sukuk value, then the contribution from state sukuk and corporate sukuk will reach IDR 1,338.59 billion.

From the description above, it is known that Islamic banking and sukuk sectors have a large potential market contribution for Indonesia Islamic insurance. Each sector has different contribution value in accordance with the nominal of the insured object. The value of contributions from the banking sector and sukuk can be seen in Table 2.

From Table 2, it can be seen that the biggest potential for premium contribution in 2018 is from the banking sector. This is due to the high amount of financing channeled by Islamic banking. The potential value of premiums in the banking sector in 2018 reaches IDR 6,257.58 billion or around 82% of the total potential contribution of Islamic insurance premiums. The state sukuk sector has potential premium contribution of 17%. The proportion of each sector in 2018 can be seen in Figure 1.

Table 2. Potential Value of Indonesian Islamic Insurance Premium Contribution (IDR Billion)

Institutions	Outstanding					Premium contribution in 2018
	2014	2015	2016	2017	2018	
Islamic banking	199,330.00	212,996.47	248,007.23	285,694.59	312,878.77	6,257.58
State sukuk	206,100.73	297,575.40	412,632.50	551,560.22	646,451.43	1,292.90
Corporate sukuk	7,144.00	9,902.00	11,878.00	15,740.00	22,501.79	45.00
Total						7,596.48

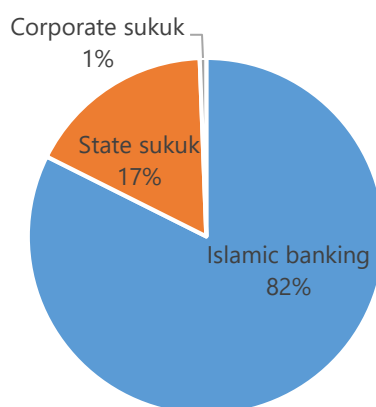


Figure 1. Proportion of the Potential Contribution of Indonesian Islamic Insurance in 2018

### *Modeling of Islamic Banking Financing and Sukuk Data in Indonesia*

The potential of the Islamic insurance market in this study was approached by calculating the potential premium contribution from the Islamic banking and sukuk sectors predicted by the ARIMA method. This study uses monthly data on the amount of financing carried out by Islamic banks from 2011 to 2018. The sukuk data used are monthly data from 2011 to 2018, both state sukuk and corporate sukuk. Predictions are carried out for the next five years or until 2023.

#### *Islamic Banking Financing*

Figure 2 shows a graph of the data pattern of Indonesian Islamic banking financing. From the graph, it can be seen that financing in Islamic banking experienced a fairly high increase in the period of 2011 to 2013, experienced a slowdown until 2015, and increased significantly again in the following year period.

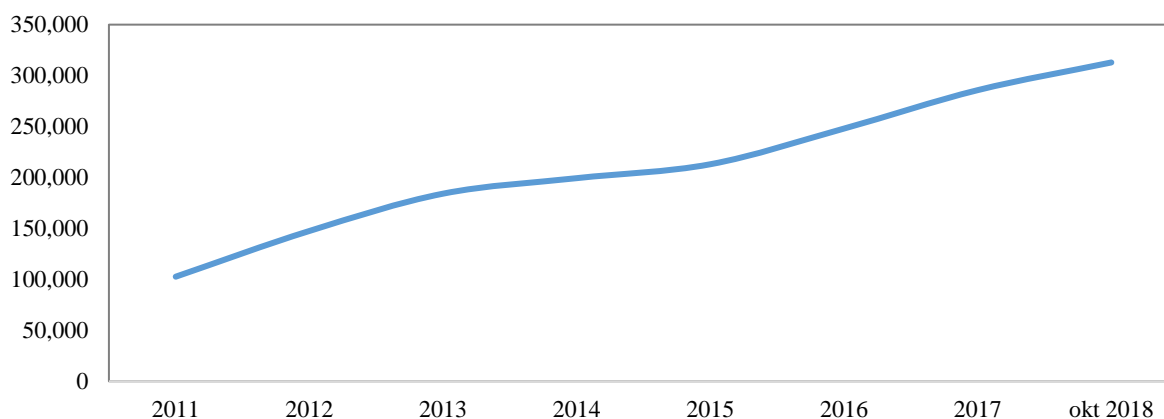


Figure 2. Total Financing in Islamic Banking in 2011 - 2018 (IDR billion)

Source: OJK (2019).

After data smoothing with natural logarithms, data of financing on Islamic banking (LNPBS) are tested for stationarity with the Augmented Dick Fuller (ADF) unit root test. The test results show that stationary data is at the level, so the model used is ARIMA (p, 0, q). To find out the order of AR and MA, ACF and PACF tests are needed. Based on the corelogram test, the results of AR(1) and MA(0) are obtained, so that the alternative model for LNPBS is only ARIMA (1, 0, 0) or the simple form is AR(1). The results of the corelogram are presented in Figure 3.

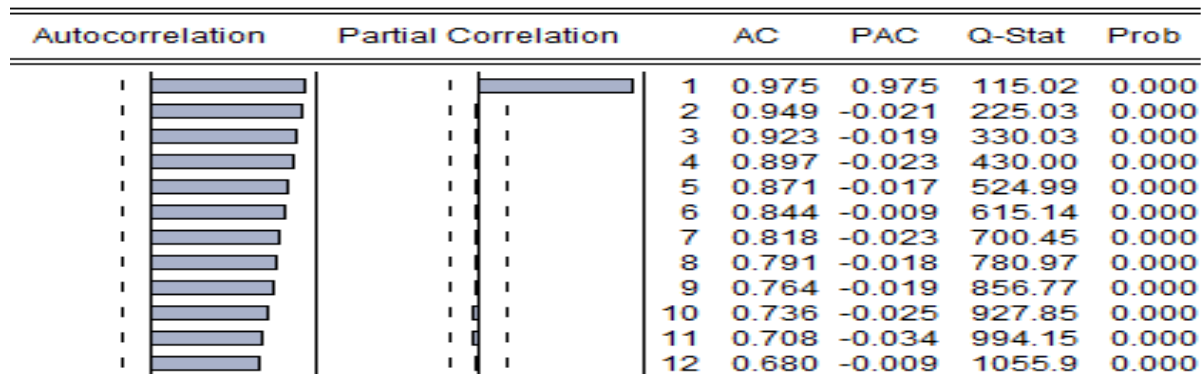


Figure 3. ACF/PACF Plots on LNPBS Data with AR (1)

In searching for the best ARIMA model, Box Jenkins model evaluation criteria are needed, among others (Firdaus, 2006): (1) residuals are random and normally spread, (2) parsimonious principles applied, (3) all estimated parameters must be significantly different from zero, (4) must fulfill invertibility and stationarity conditions, which can be seen from the number of MA or AR coefficients, each of which must be ≤ 1, (5) the iteration process must be convergent, and (6) the estimated value of the MSE model must be small, the value indicates the overall model is better.

The estimation results of the AR (1) model on Islamic banking financing are available in Table 3. The equation of the AR (1) model for Indonesian Islamic banking financing is as follows:

$$\ln Y_t = 0.1453 + 0.9892 \ln Y_{t-1} + \varepsilon_t \tag{2}$$

Table 3. AR (1) Model for Islamic Banking Financing Data

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.1453	0.0256	5.6688	0.0000
LNPBS(-1)	0.9892	0.0022	456.9927	0.0000

*Outstanding State Sukuk and Corporate Sukuk*

Figure 4 shows a graph of the state sukuk data pattern from 2011 to 2018. From the graph it appears that the outstanding state sukuk experienced a slight slowdown in 2014, but continued to increase until 2018. The outstanding value of corporate sukuk began to increase significantly after in 2014. Graphs of data patterns can be seen in Figure 5.

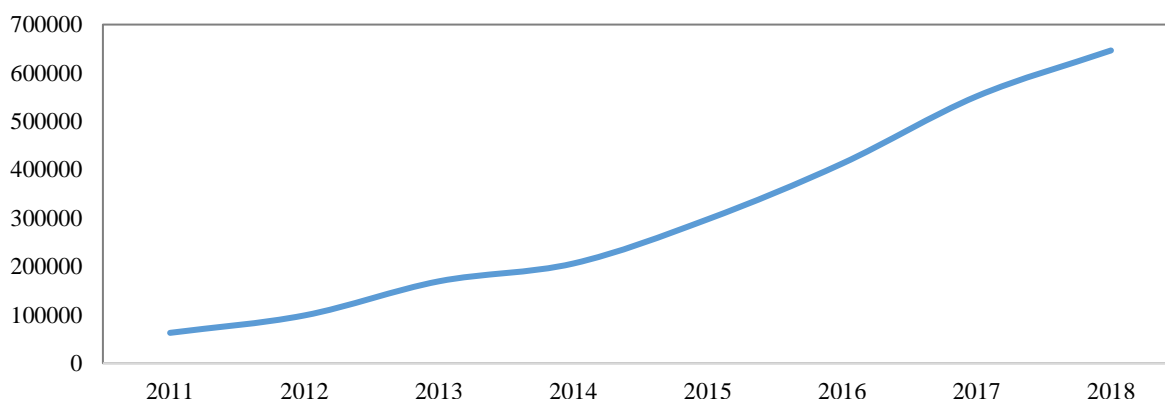


Figure 4. Total of Outstanding State Sukuk in the Period of 2011-2018 (IDR billion)

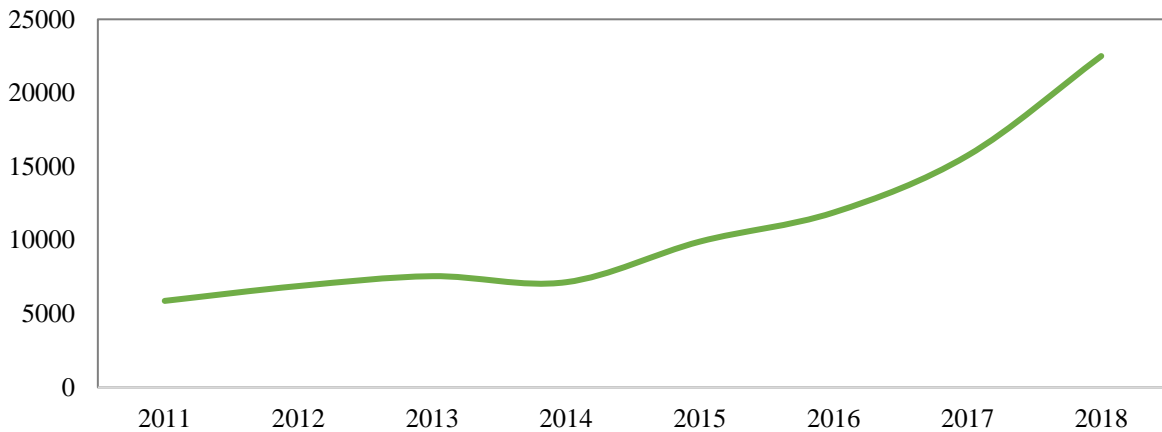


Figure 5. Total of Outstanding Corporate Sukuk in the Period of 2011-2018 (IDR billion)

Data transformation on the outstanding value of state and corporate sukuk is done by converting them to natural logarithms. Based on the unit root test, it shows that the outstanding state sukuk (LNSBSN) and outstanding corporate sukuk (LNSKOR) data are at the level, so the model used each are ARIMA (p, 0, q).

Based on the ACF/PACF corelogram test on LNSBSN and LNSKOR, AR (1) and MA (0) results are obtained in both, so that the alternative model for LNSBSN and LNSKOR is ARIMA (1, 0, 0) or the simple form AR (1). The LNSBSN corelogram results are presented in Figure 6 and the corelogram results of LNSKOR are presented in Figure 7.

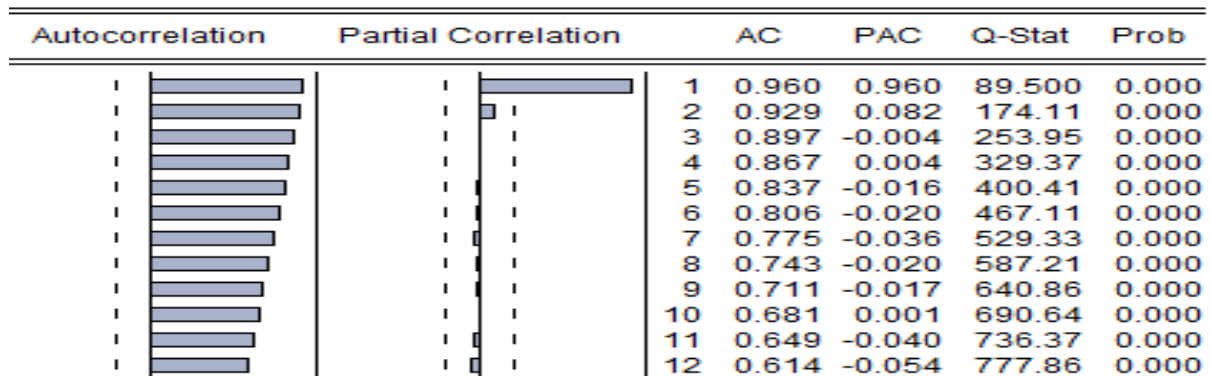


Figure 6. ACF/PACF Plot on LNSBSN Data with AR (1)

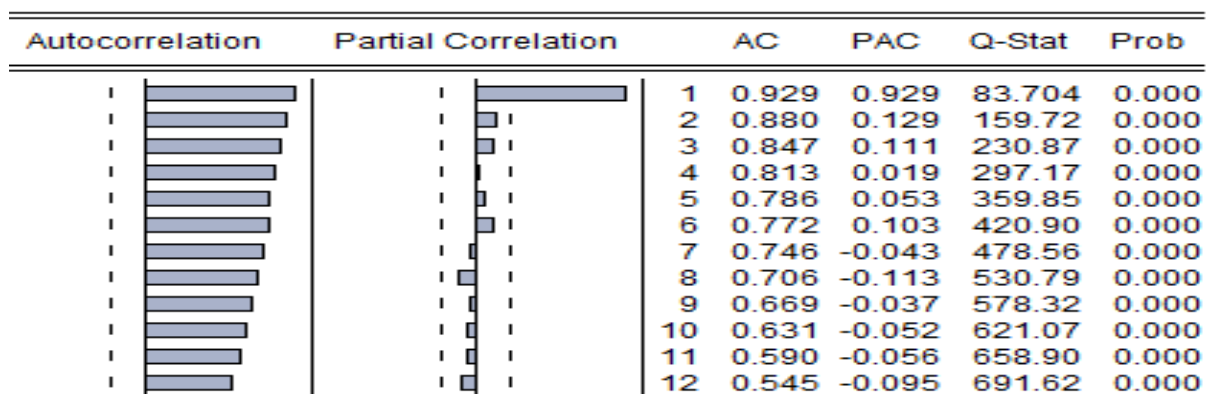


Figure 7. ACF/PACF Plot on LNSKOR Data with AR (1)

Based on estimation results in Table 4, the equation of the AR (1) model for Indonesian outstanding state sukuk and corporate sukuk is as follows:

LNSBSN:  

$$\ln Y_t = 0.2305 + 0.9836 \ln Y_{t-1} + \varepsilon_t \tag{3}$$

LNSKOR:  

$$\ln Y_t = 0.0519 + 0.9958 \ln Y_{t-1} + \varepsilon_t \tag{4}$$

Table 4. AR (1) Model for Outstanding Value of State and Corporate Sukuk Data

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LSBSN:				
C	0.2305	0.0985	2.3411	0.0214
LNSBSN(-1)	0.9836	0.0080	122.4026	0.0000
LSKOR:				
C	0.0519	0.2498	0.2079	0.8358
LNSKOR(-1)	0.9958	0.0275	36.2013	0.0000

**Potential of the Islamic Insurance Market in Indonesia**

The model test results show the best model for Islamic banking financing, outstanding state sukuk, and outstanding corporate sukuk each are AR (1). After selecting the best model that can represent the performance of Islamic banking financing, outstanding state sukuk, and outstanding corporate sukuk, the next step is to forecast to determine the level of Islamic banking financing and outstanding sukuk in the future and its contribution to Islamic insurance in Indonesia.

*Islamic Banking Financing*

The results of the analysis that have been conducted show that the amount of financing channeled by the Islamic banking sector in the next five years (2019-2023) is predicted to experience a significant increase. Figure 8 shows that the total financing disbursed by Islamic banks at the end of 2023 is predicted to reach IDR 471,988.55 billion.

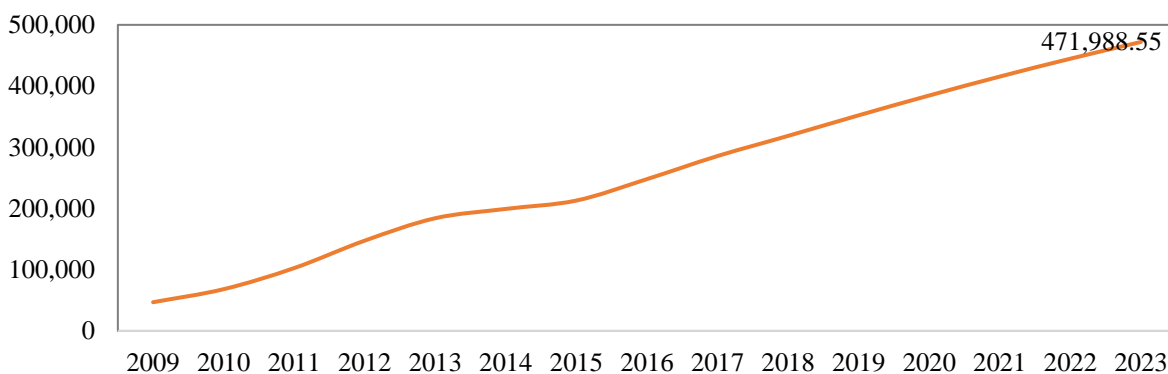


Figure 8. Prediction of the Value of Islamic Banking Financing for the Period 2019-2023 (IDR billion)

*Outstanding State Sukuk and Corporate Sukuk*

State sukuk, which is issued by the government, is predicted to continue to increase in the period 2019 to 2023. Figure 9 shows that in 2023, predictable outstanding state sukuk will reach IDR 1,026,248.01 billion. In addition to state sukuk, corporate sukuk issued by listed companies are expected to continue to increase in the period 2019 to 2023. Figure 10 shows that in 2023, outstanding corporate sukuk can be predicted to reach IDR 38,068.03 billion.



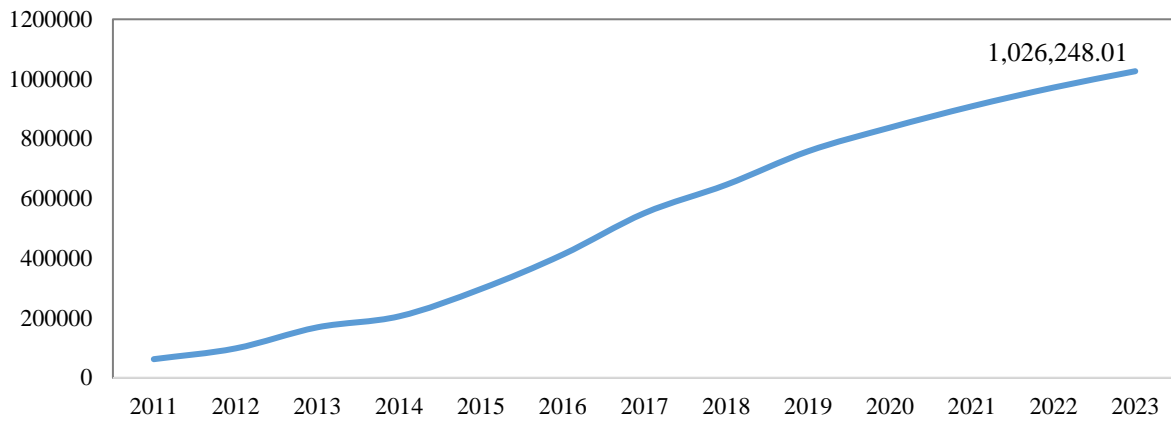


Figure 9. Prediction of the Outstanding Value of State Sukuk for the Period 2019-2023 (IDR billion)

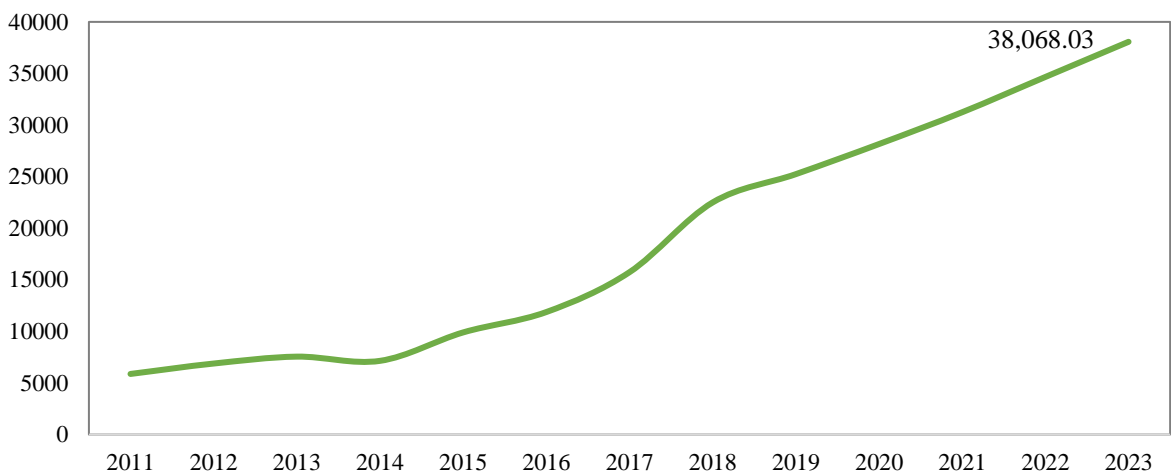


Figure 10. Prediction of the Value of Outstanding Corporate Sukuk for the Period 2019-2023 (IDR billion)

*Predictions of Value and Growth of Indonesian Islamic Insurance Premium Contribution from Islamic Banking and Sukuk Sectors*

In line with the growth in the value of Islamic banking financing and sukuk, the amount of premium contribution in each sector can be estimated until 2023. Table 5 is a prediction of premium contributions from 2019 to 2023. The value of premium contributions is obtained from the amount of Islamic banking financing multiplied by 2%, while the outstanding sukuk is multiplied by 0.2%.

Table 5. Amount of Premium Contributions (IDR billion)

Sectors	Amount of Premium Contributions (IDR billion)					
	2018	2019*	2020*	2021*	2022*	2023*
Islamic banking	6,371.35	7,043.26	7,691.39	8,309.60	8,893.33	9,439.77
Sukuk**	1,337.91	1,567.26	1,731.46	1,879.78	2,012.28	2,128.63
Total	7,709.26	8,610.52	9,422.85	10,189.38	10,905.61	11,568.40

\* Projected premium contributions 2019-2023.

\*\* Total state and corporate sukuk.

As the data in Table 5 shows that the Islamic banking sector in general has a fairly high contribution compared to the sukuk sector. This shows that the potential development of the Islamic insurance market in Indonesia will experience significant growth if the Islamic insurance industry is able to maximize the opportunities that exist in this sector. On the other hand, the sukuk sector which has shown an increasing trend will also contribute to the growth of Islamic insurance premiums in Indonesia.

Table 6 shows the growth projections of each sector's premium contribution in 2018 and growth from 2019 to 2023. Predicted growth in the premium contribution of the banking sector and sukuk from 2019 to 2023 shows a positive trend.

Table 6. Prediction of Growth in Indonesia Islamic Insurance Contributions

Sectors	Growth of Premium Contributions					
	2018	2019*	2020*	2021*	2022*	2023*
Islamic banking	9.52%	12.56%	9.20%	8.04%	7.02%	6.14%
Sukuk	17.92%	17.14%	10.48%	8.57%	7.05%	5.78%

From the Table 6, it is increasingly clear that the growth of Indonesia Islamic insurance contributions shows a pretty good percentage of growth, although it continues to experience a slowdown until 2023. The banking sector in 2019 shows the highest growth rate with a value of 12.56%. This indicates that in 2019, the banking sector experienced business expansion. One of the things that triggered the growth of the Islamic financial and banking market was the government's efforts to carry out rapid infrastructure development. The infrastructure development carried out by the government automatically has an impact on the growth of Islamic insurance premium contributions, especially when the Islamic banking industry is involved in financing or purchasing Islamic securities issued by the government. It is understandable that the Islamic banking industry will increase the amount of its premium payments when they feel the need to share risks with the Islamic insurance industry in handling the risks of their business. According to Sherif and Shaairi (2013), Islamic banking development is also one of the variables that provide positive impact on the Islamic insurance industry.

The prediction of a slowdown in the two sectors in its contribution to the Islamic insurance market in Indonesia is a sign that there might be a decline in the total financing growth by Islamic banking. Likewise with the sukuk sector, both state and corporate sukuk are predicted to experience a slowdown in the growth of Islamic insurance premiums.

Although the biggest contributor to the Islamic insurance industry is the Islamic banking sector, it cannot if it only relies on this sector. Based on previous studies, many variables can be encouraged to be able to increase demand for Islamic insurance. As stated by Akhter and Khan (2017) that the level of education has a strong influence on the demand for Islamic insurance. These results have also been delivered by Redzuan et al. (2009), Sherif and Shaairi (2013), and Yazid et al. (2012). In addition, income per capita (Redzuan et al., 2009), saving rate (Gustina & Abdullah, 2012), and lower inflation (Yazid et al., 2012; Sherif & Shaairi, 2013; Li et al., 2007) also influence the demand for Islamic insurance products.

## Conclusions

The potential of the national Islamic insurance market in this study covers two main sectors, namely the Islamic banking sector and sukuk. The potential value of contributions to Islamic banking and sukuk by the end of 2018 is IDR 7,596.48 billion with the largest contribution to the banking sector, which is 82%. The value of this contribution is expected to continue to increase, especially in the banking sector and sukuk until 2023.

The forecasting results of premium contributions, both from the banking sector and sukuk, experienced a positive trend with a fairly large nominal from each sector in 2019 to 2023. The predicted growth data until 2023 is quite good as a potential data for Indonesia Islamic insurance premiums. Various strategic steps in order to capture the great potential need to be immediately formulated.

Therefore, as an effort to formulate a strategy to increase the potential of the Islamic insurance market, it is recommended to conduct a follow-up study using the ANP approach by classifying it into three aspects, namely the problem aspects, solutions, and strategies. The problem and solution aspects consist of four clusters, namely problems and intra-Islamic insurance solutions, customer problems and solutions, competition problems and solutions, and regulatory problems and solutions, while the strategy aspects offered are strategies to improve service quality, relationship improvement strategies and synergy between Islamic financial authorities and institutions, as well as affirmative policy strategies that support the development of Islamic insurance by authorities and the government.

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