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Islamic finance and Indonesia's economy: An empirical analysis

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Abstract

Purpose – Islamic finance is becoming increasingly important both globally and in Indonesia. However, studies on the relationship between Islamic finance and Indonesia's economy are scant. Therefore, this study aims to analyse the short-term and long-term relationship between Islamic finance and Indonesia's economy.

Methodology – We use monthly data for the period 2011–2020 which are estimated using the Vector Error Correction Model (VECM). The dependent variable is Indonesia's GDP, while the independent variables are macroeconomic variables (investment, trade openness and inflation), Islamic finance (Islamic banking, capital market and Sukuk) and a Covid-19 dummy variable.

Findings – We found a one-way causal relationship between Islamic finance and Indonesia's GDP. In the short-term, sukuk has a significant effect on the GDP. While in the long-term, Islamic banks and Islamic mutual funds are found to significantly impact the GDP. These suggest a positive relationship between Islamic finance and Indonesia's GDP in both the short and long-term. Investment, inflation and the occurrence of the Covid-19 pandemic also have a significant impact on the GDP.

Originality – Most studies linking Islamic finance and economic size only use Islamic banking to proxy Islamic finance. However, while Islamic banking institutions dominate the Islamic finance landscape, non-bank Islamic financial institutions such as capital market is increasingly important in many countries, including Indonesia. This study fills the gap by incorporating Islamic capital market variables to explain the relationship between Islamic finance and economic size in Indonesia

Research limitations – Due to data limitation, we only use Islamic mutual funds and Sukuk to represent non-bank financial institutions, which as a sector includes various other sub-sectors.

Practical implications – Policymakers, industry and academics could use the research findings to accelerate the development of Islamic finance in Indonesia and strengthen its role in supporting and aiding the recovery of the Indonesian economy.

Introduction

Islamic economics is increasingly important both globally and in Indonesia. The State of the Global Islamic Economy Report 2020 (SGIE) revealed that the value of Islamic finance assets reached $2.5 trillion in 2018. It is also estimated that Muslims spent US$2.2 trillion in 2018 across the food, pharmaceutical and lifestyle sectors that are impacted by Islamic faith-inspired ethical consumption needs. This spending reflected healthy year-on-year growth of 5.2% and is

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forecasted to reach US$3.2 trillion by 2024 at a cumulative annual growth rate (CAGR) of 6.2%. In addition, Indonesia's Islamic finance is ranked 6th among the Top 10 Islamic Finance Industries globally. Meanwhile, the Indonesian Islamic economy is ranked 4th in the Top 10 Global Islamic Economy Index (DinarStandard, 2020).

In Indonesia, the emergence of Islamic finance can be traced back to 1991 when Bank Muamalat Indonesia (BMI) was established as the first Islamic bank in the country. BMI began operating in 1992 under Law no. 7 of 1992 concerning Banking, which was later revised into Law No. 10/1998 concerning Islamic Banking. The law explicitly states that there are two banking systems in Indonesia: conventional banking and Islamic banking (Hutapea & Kasri, 2010).

Today, Islamic finance has grown significantly in Indonesia. As shown in Table 1, as of December 2020, the value of Indonesia's total Islamic financial assets had grown by 31.77% to stand at 1,801.40 trillion rupiahs, significantly higher than the total value in 2019, which was 1,367.06 trillion rupiahs. Furthermore, among the various sectors in Islamic finance, the Islamic capital market has the greatest total assets, amounting to 1,076.22 trillion rupiahs. The Islamic banking industry has total assets of 608.90 trillion rupiahs, while the Islamic non-bank financial sector (IKNB) has the smallest total assets, at 116.22 trillion rupiahs. Overall, the Indonesian Islamic finance industry has a market share of 9.95% (Otoritas Jasa Keuangan, 2020a).

Table 1. Total Assets of Indonesian Islamic Finance

Islamic Finance Industry	2018	2019	2020
Islamic Banking	489.69	538.32	608.90
Islamic Capital Market	603.41	723.13	1076.22
Islamic Non-Bank Financial Industry	97.12	105.61	116.28
Total Islamic Finance Industry	1190.22	1367.06	1801.40
Sharia Stock Capitalisation	3666.7	3744.80	3550.20

Source: Otoritas Jasa Keuangan (2020a)

The establishment of Islamic banking and the non-Islamic financial industry is expected to increase economic growth and improve people's welfare. Research on the relationship between Islamic finance and economic growth has been carried out in several countries and regions, including the Middle East region (Tabash & Dhankar, 2014), Bahrain, Kuwait, Qatar, Saudi Arabia and UAE (GCC) (Grassa & Gazdar, 2013), the United Arab Emirates (Zarrouk, 2016), and Malaysia (Gani & Bahari, 2020). The majority of these studies concluded that Islamic banking had made a significant contribution to increasing economic growth in the respective countries. Similar studies have been conducted in Indonesia and produced comparable conclusions (see, for example, Abduh & Omar, 2012; Anwar et al., 2020; Santoso & Nurzaman, 2020). It is also notable that most of the previous studies used Islamic banking as a proxy for Islamic finance (see, for instance, Tabash & Dhankar, 2014; Gani & Bahari, 2020; Abduh & Omar, 2012; Anwar et al., 2020).

Although Islamic banking is the dominant aspect of Islamic finance around the world, non-bank Islamic financial institutions such as the capital market are also becoming increasingly important in many Muslim countries. Indeed, in Indonesia, the share of the Islamic capital market exceeds that of Islamic banking, as noted earlier. Data even suggest that the Islamic capital market continued to grow during the Covid-19 pandemic at a time when both the Islamic and conventional banking sectors experienced a contraction. Furthermore, it is notable that the total value of state-issued Islamic bonds or Sukuk (also known as SBSN) increased by around 42.20% during the pandemic. This was due mainly to increased financing needs in line with the widening Indonesia APBN deficit caused by the Covid-19 pandemic, with the growth attributable to a rise in the level of the Sukuk issuance through the auction method (Otoritas Jasa Keuangan, 2020a). This trend is expected to continue in the future. The growing importance of Islamic non-bank financial institutions, including the Islamic capital market, and the continuous development of Islamic banking in Indonesia motivate us to investigate the relationship between Islamic finance and economic growth in Indonesia by incorporating Islamic capital market indicators.

Therefore, the purpose of this study is to examine the relationship between Islamic finance, including the Islamic capital market, and economic growth in Indonesia.

We use the Vector Error Correction Model (VECM) to investigate the relationship. The dependent variable is Indonesia's economic growth, while the independent variables include macroeconomic variables (gross fixed capital formation, trade openness and inflation), Islamic finance (Islamic bank financing, Islamic or sharia mutual funds, and Sukuk) and Covid-19 as a dummy variable. We use monthly data covering the period 2011–2020. The results are expected to provide insights for policymakers, industry and academics to accelerate the development of Islamic finance in Indonesia and strengthen its role in supporting the Indonesian economic recovery.

This paper is structured as follows. Following the introductory section, Section 2 reviews the relevant literature. Section 3 then explains the methods used in the study, while Section 4 discusses the findings and analyses of the study. The final section concludes and provides some recommendations.

Literature Review

Economic Growth and Financial Sector Development

Economic size and its growth are commonly used as a reference point when formulating the economic development steps of different countries. Various scholars have contributed to the theory of economic growth, from Keynes to Harrod-Domar and Mankiw. In his General Theory, Keynes proposed that the total income of an economy is largely determined by the total, or aggregate, spending of households, businesses and governments in the short run (Mankiw, 2009). Meanwhile, Harrod-Domar emphasised the importance of savings and investment in increasing the flow of national output in the long run (Todaro, 2014). Other factors, such as international trade, can also influence economic growth (Salvatore, 2013). As such, economic growth becomes a reference when regulators formulate policies. The government must consider the magnitude of the abovementioned variables on economic growth, which is usually measured using the indicator of gross domestic product (GDP).

As finance is an important component in supporting economic growth, the relationship between economic growth and finance is a major topic that has long been discussed and examined in research Schumpeter (1911, 1934) stated that financial intermediaries such as banks can be a major component of a country's economic development process. McKinnon (1973) and Shaw (1973) complemented previous results on the relationship between economic growth and finance and suggested that both financial development and the emergence of capital accumulation and investment are needed to support the development and growth of a country's economy. In addition, Song et al. (2021) found that economic growth can boost the development of the financial sector and increase people's income. Increased income will lead to an increase in people's interest in using products and services from the financial sector. This in turn will encourage the financial sector to develop innovation and technology, which over time will further increase the development of the financial sector. From this cycle, it can be concluded that financial development not only affects economic growth as a means of supporting investment, but economic growth also affects the development of the financial sector by improving people's welfare.

Furthermore, two financial systems coexist in many countries around the world, namely the conventional and Islamic finance systems. Unlike conventional finance, Islamic finance is based on belief and applies the foundations contained in Sharia law and principles from Islamic economics (Habib, 2018; Nastiti & Kasri, 2019). Islamic banks, as Islamic financial institutions, establish their objectives and operations around the basics and principles contained in the Qur'an and Islam. As a result, Islamic banks provide commercial services to customers without interest (usury) and prohibit usury in all Islamic banking transactions. This prohibition marks a fundamental difference between the Islamic and conventional banking systems (Kettell, 2011).

Among the financial services offered by banks, one of the principal activities is financing. This acts as a reference in determining the financial impact on the economy, and it also applies when looking at sharia financial performance. Theoretically, Islamic bank financing contributes to

economic growth as it directly facilitates the development process. This can be seen from the contribution of financing activities that increase economic productivity, which has a direct impact on the welfare of the community. Increasing community welfare will then help in encouraging the development process (Achmad, 2016). In addition, this type of financing activity has a significant long-term relationship with economic growth (Kasri & Kassim, 2009; Mosab & Raj, 2014; Kassim, 2016). Further empirical studies on the contributions of Islamic finance to economic growth are elaborated in the next section.

Previous Empirical Studies

Research on the relationship between Islamic finance and GDP or economic growth has been carried out in several countries and regions, including the Middle East region (Tabash & Dhankar, 2014); Bahrain, Kuwait, Qatar, Saudi Arabia and UAE (GCC) (Grassa & Gazdar, 2013); the United Arab Emirates (Zarrouk, 2016), and Malaysia (Gani & Bahari, 2020). The majority of these studies concluded that Islamic banking had made a significant contribution to increasing economic growth in the respective countries

More specifically, Yusof and Bahlous (2013) researched the influence of Islamic and conventional finance developments on economic growth in five member countries of the Gulf Cooperation Council (GCC), namely Bahrain, Kuwait, Qatar, Saudi Arabia, and UAE, along with Indonesia and Malaysia. Their study found that Islamic finance spurred economic growth in the five GCC countries; however, no significant relationship was found between conventional finance and growth. In the short term, Islamic banks were found to have made a bigger contribution in Malaysia and Indonesia than in the GCC countries. Similarly, Grassa and Gazdar (2013) examined financial development and economic growth in GCC countries, comparing Islamic and conventional finance. Their research demonstrated empirically that Islamic finance had a significant effect on economic growth while conventional finance did not affect economic growth in the GCC member countries. Furthermore, in Malaysia, Gani and Bahari (2020) examined the contribution of Islamic banking to the country's real economic growth. They found no significant relationship between Islamic banking and the real economy in the short term. Meanwhile, in the long term, financing and deposits from Islamic banking were found to significantly contribute to Malaysia's economic growth. The study identified a two-way relationship between Islamic banking deposits and Malaysia's GDP; however, Islamic banking financing did not affect GDP.

Abduh and Omar (2012) aimed to determine the short-term and long-term relationship between the development of Islamic banking and economic growth in Indonesia. Their study found a significant relationship in both the short and long term between the development of Islamic finance and Indonesia's economic growth. The results also indicated the existence of a two-way relationship. More recently, Anwar et al. (2020) conducted a similar study using deposits, financing and Islamic bank offices to estimate the relationship. They found a significant relationship in the short and long term between deposits and Islamic bank offices and Indonesian economic growth. In addition, there was evidence of a two-way relationship between Islamic banks and the economic growth. Similarly, Santoso and Nurzaman (2020) identified a positive relationship between the growth of the Islamic finance sector and economic growth in Indonesia, where the Islamic banking system and Sukuk can encourage economic growth. In summary, there is evidence that Islamic banks contribute to Indonesia's economic growth.

Hypotheses Development

Based on the previously discussed theories and reviewed literature, this study develops three hypotheses. First, it is hypothesised that there is a one-way causal relationship between Islamic finance and Indonesia's economy. This is essentially because financial developments and the emergence of activities such as capital gathering and investment are needed to support the development and growth of the country's economy (McKinnon, 1973; Shaw, 1973). As such, Islamic finance and financial activities in general will affect the country's economic sizes and growth. This also implies that the is significant unidirectional causality or a one-way positive

causal relationship between Islamic finance and economic growth, as also suggested by Majid and Kassim (2014) and Zarrouk (2016). Therefore, the following hypothesis is derived:
H_1: There is a positive (one-way causal) relationship between Islamic finance and Indonesia's GDP

Second, the role of Islamic finance in the country's economic growth in the short run is explained by Kassim (2016), whose study found that Islamic bank financing has a positive and significant influence on industrial production in the short term, indicating a short-term Granger causality between Islamic bank financing and real economic activities. While Kassim (2016) only focus on Islamic banking financing, this study argues that a wider scope of Islamic finance beyond Islamic banking will also has a similar relationship with the economic growth. As such, the relationship between the variables can be hypothesised as follows:
H_2: There is a short-term relationship between Islamic finance and Indonesia's GDP

Third, as previous studies found that Islamic banking and Islamic finance in general have make a significant contribution to real economic activity in both the short and long terms (Abduh & Omar, 2012; Kassim, 2016; Gani & Bahari, 2020) the following hypothesis can be formulated in this study:
H_3: There is a long-term relationship between Islamic finance and Indonesia's GDP

Research Methods

This study uses time-series data derived from monthly data covering the period from 2011 to 2020. The secondary data used in this study are sourced from the Central Statistics Agency (BPS), the Financial Services Authority (OJK) of Indonesian and the International Monetary Fund (IMF). This study employs the VECM as its method as it is the most widely used method to analyse the short-term and long-term relationships between multi-variables data such as macroeconomic data and its associated fluctuations (Asad & Siddiqui, 2019; Intan et al., 2020). Furthermore, based on previous research, including Kassim (2016), Gani and Bahari (2020), Anwar et al. (2020) and Santoso and Nurzaman (2020), several variables can be used in this type of study to explain the relationship between Islamic finance and Indonesia's economy. An explanation of these variables is provided in Table 2.

Table 2. Description of Variables

Type of Variable	Symbol	Name	Definition	Data Source	Reference
Dependent	PDB	Gross domestic product	GDP Constant Price (Rp Billion)	BPS	Kassim (2016); Gani & Bahari (2020); Anwar et al (2020); Santoso & Nurzaman (2020)
Independent	PBS	Sharia Bank Financing	Total financing disbursed by Islamic Banks (Rp Billion)	Islamic Banking Statistics, OJK	Kassim (2016); Gani & Bahari (2020); Anwar et al (2020)
	RDS	Sharia Mutual Funds	The number of outstanding sharia mutual funds (Rp Billion)	Islamic Mutual Funds Statistics, OJK	
	SUS	Sukuk (Sharia Bonds)	Number of outstanding Islamic bonds (Sukuk) (Rp Billion)	Islamic Bonds (Sukuk) Statistics, OJK	Santoso & Nurzaman (2020)
	PMTB	Gross Fixed Capital Formation	Investment in fixed assets (Rp Billion)	IMF Statistics	Kassim (2016); Gani & Bahari (2020)
	TO	*Trade Openness*	The number of exports and imports normalised by GDP (%)	BPS and IMF Statistics	Kassim (2016)
	INF	Inflation	Inflation, monthly (%)	BPS	Kassim (2016); Gani & Bahari (2020)
	COV19	Covid-19	1 = Covid-19; 0 = Before Covid-19		

Based on the descriptions of the variables given in Table 2 and research from Abduh and Omar (2012), Kassim (2016) and Santoso and Nurzaman (2020), the model for explaining the relationship between all the variables is written as follows:

$$\ln PDB_t = \beta_0 + \beta_1 \ln PBS_t + \beta_2 \ln RDS_t + \beta_3 \ln SUS_t + \beta_4 \ln PMTB_t + \beta_5 TO_t + \beta_6 INF_t + \beta_7 COV19_t + \varepsilon \quad (1)$$

Since most of the variables are macroeconomic variables, this study uses the VECM, as previously used by Kassim and Majid (2014), Ada et al (2014), and Anwar et al. (2020). In general, the form of the regression equation for VECM can be written as follows:

$$\Delta Y_t = \alpha_1 + \sum_{i=1}^{p} \delta_{1i} \Delta Y_{t-i} + \sum_{i=1}^{p} \psi_{1i} \Delta X_{t-i} + \sum_{i=1}^{p} \gamma_{1i} \Delta Z_{t-i} \quad (2)$$

$$\Delta X_t = \alpha_2 + \sum_{i=1}^{p} \delta_{2i} \Delta Y_{t-i} + \sum_{i=1}^{p} \psi_{2i} \Delta X_{t-i} + \sum_{i=1}^{p} \gamma_{2i} \Delta Z_{t-i} \quad (3)$$

This research model comprises several stages of analysis and testing, including a unit root test to check the stationarity of the variables, an optimum lag test to find the optimum lag of the model, and a VAR stability test to validate the model and the data (Gujarati, 2021). Afterwards, Granger Causality and Cointegration tests were performed to analyse the causal relationship between the variables and determine whether there are any long-term relationships or not. Finally, the VECM was used to examine the short- and long-term behaviour of the variables in this study.

Results and Discussion

Before examining the relationship between the variables, as explained earlier, several tests were carried out to determine the best estimation model. These included the unit root test, optimal lag length test and stability tests. Afterwards, causality and cointegration tests were performed.

This study used the Augmented Dickey-Fuller (ADF) test at both a level and first difference to determine data stationarity (see Table 3). At this level, the results show that only one variable is stationary. Therefore, the study proceeded to test the data at first difference. The results show that the probability values for all variables are below the MacKinnon critical values, namely 1%, 5% and 10%. Therefore, it can be concluded that all variables are stationary at the first difference.

Table 3. Unit Root Test Results at the Level and First Difference

Variable	Level		First Difference	
	Prob	Conclusion	Prob	Conclusion
LNPDB	0.7169	Not Stationary	0.0000	Stationary
LNPBS	0.9517	Not Stationary	0.0600	Stationary
LNRDS	1.0000	Not Stationary	0.0000	Stationary
LNSUS	0.9934	Not Stationary	0.0000	Stationary
LNPMTB	0.9683	Not Stationary	0.0788	Stationary
TO	0.0012	Stationary	0.0000	Stationary
INF	0.1119	Not Stationary	0.0000	Stationary

Optimal lag length testing was used to see the optimal lag in this study, the results of which are summarised in Table 4. From the results, it can be seen that four criteria, namely LR, FPE, AIC and HQ, point to the same lag. It was thus concluded that this model has an optimal lag of 10.

Table 4. Optimal Lag Length Test Results

Lag	LogL	LR	FPE	AIC	SC	HQ
1	1486.596	NA	8.09E-22	-2586539	-24.29420*	-25.22810
2	1567.575	138.4009	6.03E-22	-26.17410	-23.03172	-24.89953
6	1847.860	64.49809	6.30E-22	-26.61564	-17.18851	-22.79194
9	2213565	89.82184	1.27E-22	-29.77391	-15.63321	-24.03836
10	2389.575	96.00527*	4.84e-23*	-31.81045*	-16.09856	-25.43762*

Furthermore, a VAR stability test was conducted using the AR Roots Graph. From the VAR stability test results shown in Figure 1, it can be seen that there are no inverse roots outside the circle. It was thus concluded that the model is stable and could proceed to the next analysis stage.

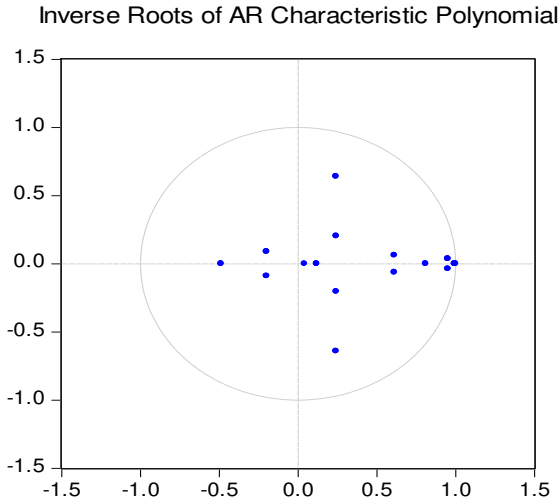

Figure 1. *AR Roots Graph*

Next, a Granger Causality Analysis was performed to determine the causality between the variables. Causality occurs when the probability value is smaller than the level of the hypothesis used (1%, 5%, 10%). Table 5 summarises the results of the Granger causality test between GDP, Islamic bank financing, sharia mutual funds, Sukuk, investment (gross fixed capital formation), trade openness and inflation in Indonesia.

Table 5. Granger Causality Test Results

Null Hypothesis:	Obs.	F-Statistic	Prob.
LNRDS does not Granger Cause LNPDB	110	2.61192	0.0079**
LNSUS does not Granger Cause LNPDB	110	5.79776	0.000***
LNPMTB does not Granger Cause LNPDB	110	2.80457	0.0046**
INF does not Granger Cause LNPDB	110	2.32067	0.0177**
LNPDB does not Granger Cause TO	110	1.92303	0.0521*
INF does not Granger Cause TO	110	2.87327	0.0038**
INF does not Granger Cause LNPBS	110	3.07074	0.0022**
INF does not Granger Cause LNRDS	110	2.10624	0.0319**
INF does not Granger Cause LNSUS	110	2.62245	0.0076**
LNSUS does not Granger Cause LNRDS	110	2.58662	0.0085**
LNRDS does not Granger Cause COV19	110	5.54502	0.000***
COV19 does not Granger Cause LNPMTB	110	26.9868	0.000***

Note: ***, ** and * show significance at 1%, 5% and 10% respectively.

From the test results shown in Table 5, it can be seen that RDS, SUS, PMTB and INF have a causal relationship in the direction of GDP. These results imply that sharia mutual funds, Sukuk, gross fixed capital formation and inflation affect economic growth. However, economic growth does not affect sharia mutual funds, Sukuk, gross fixed capital formation and inflation. Furthermore, GDP has a one-way causal relationship with TO, which means that economic growth affects trade openness, but trade openness does not affect economic growth. INF has a one-way causal relationship with TO, PBS, RDS and SUS, which means inflation affects trade openness, Islamic bank financing, Islamic mutual funds and Sukuk. However, trade openness, Islamic bank financing, Islamic mutual funds and Sukuk do not affect inflation. SUS has a one-way causal relationship with RDS, which means that Sukuk affects sharia mutual funds, but sharia mutual funds do not affect Sukuk. RDS has a one-way causal relationship with COV19, which

means that Islamic mutual funds affect Covid-19, but Covid-19 does not affect Islamic mutual funds. Finally, COV19 has a one-way causal relationship with PMTB. This means that Covid-19 affects gross fixed capital formation, but gross fixed capital formation does not affect Covid-19.

Table 6. Results of the Cointegration Test

Unrestricted Cointegration Rank Test (Trace)				
Hypothesised No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.848618	672.3993	159.5297	0.0000
At most 1 *	0.776356	466.6127	125.6154	0.0001
At most 2 *	0.614117	303.3635	95.75366	0.0000
At most 3 *	0.500092	1995713	69.81889	0.0000
At most 4 *	0417446	123.9981	47.85613	0.0000
At most 5 *	0.272390	65.10181	29.79707	0.0000
At most 6 *	0.243637	30.44094	15.49471	0.0002

Next, a cointegration test was conducted by comparing the trace statistic value with a critical value of 5%. If the value of the trace statistic is greater than the critical value, cointegration occurs. From the estimation results shown in Table 6, the trace statistic value is greater than the critical value, which means that this model has cointegration. Thus, it can be concluded that there is a long-term relationship between the model and variables of this study.

Finally, VECM analysis was performed to examine the long-term relationship between Islamic finance and Indonesian economy. The requirement for using VECM is that the research variables are stationary at the first difference and have cointegration. From the test results (see Table 7), it can be seen that these criteria have been met, therefore the VECM can be used. The results of the VECM test are given as follows.

Table 7. Short-Term and Long-Term Relationship

Short-Term				Long-Term			
Error Correction:	D(LNPDB)	Error Correction:	D(LNPDB)	Cointegrating Eq:	CointEq1	Cointegrating Eq:	CointEq1
D(LNPDB(-10))	-0.345572 (0.13309) [-2.59660]	D(LNPBS(-10))	-0.231257 (0.22361) [-1.03419]	LNPDB(-1)	1.000000	C	30.91317
D(LNRDS(-10))	0.048008 (0.06821) [0.70382]	D(LNSUS(-10))	0.101493 (0.04248) [2.38940]*	LNPBS(-1)	0.709286 (0.16446) [4.31277]*	TO(-1)	0.848497 (0.58375) [1.45353]
D(LNPMTB(-10))	-1.637462 (1.04455) [-1.56763]	D(TO(-10))	-0.154316 (0.11274) [-1.36877]	LNRDS(-1)	0.343817 (0.12035) [2.85671]*	INF(-1)	-1.181263 (0.11601) [-10.1824]*
D(INF(-10))	0.004735 (0.00754) [0.62803]	D(COV19(-10))	-0.063592 (0.04269) [-1.48955]	LNSUS(-1)	0.024624 (0.12414) [0.19836]	COV19(-1)	-0.719972 (0.13863) [-5.19353]*
C	0,026868 (0,01352) [1.98709]			LNPMTB(-1)	-4.464126 (0.46431) [-9.61461]*		

Note: t-table 5% significance value = 1.96

From the short-term results above, it can be seen that the only independent variable that significantly affects GDP is SUS, where SUS has a positive value. A variable is significant if the t-statistic value is greater than the t-value. From the long-term test results above, certain variables have values greater than the 5% t-value with a significance value of 1.96, namely PBS, RDS, PMTB, INF and COV19. Therefore, it can be suggested that in the long term, the variables that significantly affect GDP are financing by Islamic banks, Islamic mutual funds, gross fixed capital formation, inflation and the Covid-19 pandemic.

Discussion

In the Granger causality test results, the finding that sharia mutual funds and Sukuk (sharia bonds) affect GDP is quite intuitive and consistent with theory because both of these are sources of development financing that can encourage GDP and subsequently economic growth (Nurafiati, 2019). In Indonesia, most of the Sukuk are State-Issued Sukuk (SBSN) used to finance infrastructure development. Examples include the construction of the Trans Sumatra Railway, the Holtkamp bridge and the Holtkamp approach bridge, the development of Muhammad Salahudin Bima Airport, flood control over the Palu river, the construction of the Center for Biodiversity Research and Education in Mount Halimun Salak National Park, and several other projects (DJPPR, 2021).

Furthermore, gross fixed capital formation and inflation affect GDP and economic growth. Gross fixed capital formation, which is part of investment, can influence economic activities whereby investment can increase productivity in generating output (Mankiw, 2009; Todaro, 2014). Inflation is a measuring factor for the stability of the domestic economic environment, where changes in inflation will affect the movement of the economy (Kassim, 2016). The Granger causality test results also show that GDP affects trade openness. The improving economy is in line with several industries developing and undergoing changes in technology and innovation related to human resource capabilities, technology transfer and increased accumulation of capital inflows from foreign capital. Such industrial development will increase the country's output and enable it to sell more products/services in the international market (Lee & Huang, 2002). As a result, increased export activity will increase the value of a country's trade openness.

From the short-term test results, it is also found that Sukuk (sharia bonds) affect Indonesia's economic size in the short term. This is because Sukuk can be used as financial capital for social and business projects, such as agriculture and transportation projects, the benefits of which can be felt in both the short and long terms (Altaleb & Alkhatib, 2016). From the study's results, it can be concluded that there is a significant relationship between Islamic finance and Indonesia's economic size in the short term.

The above-mentioned results are also in line with the findings of previous studies (see, among others, Abduh & Omar, 2012; Kassim & Majid, 2014; Mosab & Raj, 2014; Kassim, 2016; Gani & Bahar, 2020) which suggest that Islamic banking financing has a positive effect on economic sizes and growth. In addition, Islamic mutual funds can be a good alternative for investing and generating income in the long term. The more developed the Islamic mutual funds, the wider their reach in terms of investing in development projects that encourage economic growth.

More specifically, the results show that the coefficient of Islamic bank financing is 0.71. This indicates that the financing disbursed by Islamic banks does not contribute greatly to encouraging economic growth. In terms of encouraging economic growth, Islamic bank financing shows a relatively promising trend. For example, during the pandemic in 2020, Islamic bank financing grew by 8.08% while conventional and national banks contracted by -3.02% and -2.34% respectively (Bank Indonesia, 2020). However, in terms of the amount of financing disbursed, Islamic banking accounts for a very small proportion, at a total value of 395 trillion rupiahs, compared to the 5208 trillion rupiahs worth of financing and credit disbursed by conventional banking (Otoritas Jasa Keuangan, 2020b). Given the sizeable difference in their respective contributions, it is understandable that Islamic bank financing continues to account for a relatively small total in value terms. However, Islamic bank financing continues to contribute to GDP or economic growth and has plenty of scope for further development in line with Indonesian Islamic banking.

From the test results, a coefficient value of 0.34 can be seen for Islamic mutual funds. This shows that Islamic mutual funds do not make a particularly large contribution to encouraging economic size and growth. In terms of growth, Islamic mutual funds continue to increase every year. However, in terms of its outstanding value, the value of Islamic mutual funds is very small, at 74 trillion rupiahs, compared to the value of traditional mutual funds in

circulation, which stands at 499 trillion rupiahs (Otoritas Jasa Keuangan, 2020c). This large difference and the relatively low value of the Islamic mutual funds explains why these funds do not make a large contribution to encouraging economic growth. Nevertheless, Islamic mutual funds continue to make a positive contribution to economic growth and this can be developed in line with the broader development of the Indonesian Islamic capital market. In this respect, low Islamic financial literacy may be a reason why the contribution of Islamic finance to encouraging economic growth in Indonesia remains low. In 2019, Islamic financial literacy in Indonesia was recorded at 8.9%, which helps to explain the lack of Islamic finance in Indonesia (Otoritas Jasa Keuangan, 2019).

Furthermore, gross fixed capital formation has a negative and significant relationship, with a value of -4.46. Sulistiawati (2012) found that a negative value for gross capital formation was caused by several factors, including lower spending on consumption than investment, the occurrence of natural disasters and the impact of the global economic crisis. For example, as a country prone to natural disasters, Indonesia requires a substantial level of consumption expenditure to restore former disaster areas before they are eligible for investment. In addition, the global economic crisis caused by the Covid-19 pandemic has led to a decline in investment, as seen from the negative growth in total gross capital formation of -6.5%. This means that investment did not contribute much in terms of boosting the Indonesian economy (Bappenas, 2020).

Finally, inflation and Covid-19 have a negative and significant relationship, with coefficients of -1.18% and -0.71, respectively. The negative and significant relationship of inflation is caused by an increase in inflation and therefore reflects a rise in prices generally. This will reduce public consumption and lead to slower investment. Investors will object to investing when they see instability in the domestic economic environment, as reflected by rising inflation. The Covid-19 pandemic led to a halt in activity and a virtual economic paralysis, which, if allowed to persist and without the correct management, would lead to a fall in Indonesia's economic development every year. From the results of this test, it can be concluded that there is a significant relationship between Islamic finance and Indonesia's GDP in the long term.

Conclusions

Islamic finance is increasingly important both globally and in Indonesia. However, only a very limited number of studies have been conducted on the relationship between Islamic finance and Indonesia's GDP and economic growth. Therefore, this study aimed to analyse the short-term and long-term relationship between Islamic finance and Indonesia's economy. It used monthly data from the period 2011–2020, estimated using the VECM method. The dependent variable was Indonesia's GDP, while the independent variables were macroeconomic variables (gross fixed capital formation, trade openness and inflation), Islamic finance (Islamic banking, capital market and Sukuk) and a Covid-19 dummy variable.

The study found a one-way causal relationship between Islamic finance and Indonesia's GDP. In the short term, Sukuk significantly affects the country's economic size. While in the long term, Islamic banks and Islamic mutual funds are found to significantly impact the GDP. These results imply a positive relationship between Islamic finance and Indonesia's economy in the short and long term. It is also notable that rates of investment, inflation and the occurrence of the Covid-19 pandemic have a significant impact on the economy.

Based on the findings and analyses, it is strongly recommended that policymakers and industry continue to use Islamic financial instruments such as Sukuk, Islamic banking financing and Islamic mutual funds, which are important in influencing Indonesia's GDP and economic growth in both the short and long term. Furthermore, the government must maintain economic growth and stability by controlling inflation and increasing investment. At the same time, it is crucial to exert better handling of the Covid-19 pandemic so that it does not severely impact the Indonesian people and economy.

Despite the findings above, it is notable that this study does not include any variables related to the Islamic Non-Bank Financial Industry (IKNB), which consists of 16 sub-sectors

(such as sharia insurance, sharia pension funds and sharia venture capital), due to data limitation. Therefore, it is suggested that further researchers may develop this research by adding other variables or proxies related to Islamic finance. In addition, further researchers could use other relevant approaches to enhance and enrich the research related to Islamic finance and economic growth.

Author Contributions

Conceptualization: Rahmatina Kasri, Ghina Sakinah, Nurkholis
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Project administration: Ghina Sakinah
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Visualization: Ghina Sakinah
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