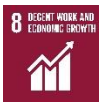

SDGs, Islamic Banks and Economic Growth Nexus: A Case Study of Malaysia

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Abstract

Purpose – The purpose of this paper is to examine the short-run and long-run relationships between Islamic banks' financing that are aligned with the SDGs and economic growth in Malaysia.

Design/methodology/approach – Utilizing quarterly data set for the duration of 2014 to 2018, this study applies the bound testing approach to cointegration and error correction model to analyse the data based on autoregressive distributed lag (ARDL) ARDL approach.

Findings – The results suggest that Islamic banks' financing in line with SDG2, SDG3, SDG4 and SDG11 have significant impact on economic growth in the short-run and long-run. However, while SDG2, SDG3 and SDG4 have negative impact on economic growth, SDG11 has a positive impact on economic growth.

Research limitations/implications – Thoughtful policies to encourage Islamic banks' financing in line with the SDGs while coping with slow economic growth will be imperative in achieving the SDGs in the long-run. This matters because with just eight years to go until the SDGs deadline of 2030, policymakers and Islamic banking regulators need to act fast by formulating strategies that will shift emphasis on GDP growth to financing the SDGs.

Originality/value of the paper – This paper is a pinioning effort in the application of the ARDL approach to investigate the nexus between the SDGs, Islamic banks and economic growth.

Keywords: SDGs, Islamic Banking, Economic Growth, Financing, ARDL, Malaysia

Introduction

Channelling global financial flows towards sustainable development is imperative to accomplish the 2030 Agenda. The 2030 Agenda for sustainable development will require financing to the tune of several trillions of dollars, while current levels of funding are nothing to write home about **(**UNSSC, 2019). Based on estimates, investments ranging from USD5 to USD7 trillion a year are required for clean energy, infrastructure, agriculture, water, and sanitation among others (Carney, 2016). Self-evidently, this requires tapping into other sources of finance to effectively channel financial flows from unsustainable areas towards sustainable avenues to achieve the Sustainable Development Goals (SDGs) **(**UNSSC, 2019).

Islamic finance has grown rapidly in the past few decades and it now stands as a potential contributor in supporting the SDGs. Particularly, Islamic banks have the potential to play a crucial role in supporting the achievement of the SDGs since they have untapped potential as a substantial source of financing for the SDGs (Alawode et al., 2018). The Islamic banking sector is one of the major sectors of the global Islamic financial system comprising about 72.4 percent of the entire Islamic financial services industry. Consequently, Islamic banks today are a vital part of the global economy and they have become systemically important in many jurisdictions. The number of jurisdictions with systemically important Islamic banking sectors increased slightly from 12 in 2018 to 13 in 2019, notwithstanding the global economy recorded its weakest pace of growth in 2019 since the Global Financial Crisis. Out of the 13 jurisdictions recorded in 2019, 12 witnessed an increase in share of Islamic banking assets relative to their total banking sector assets (IFSB, 2021).

Malaysia has consistently been among the countries where Islamic banking has achieved domestic systemic importance (IFSB, 2021). Currently, the Islamic banking assets in Malaysia reached USD 254 billion as at December 2019 with total funds placed with Islamic banks now representing 38 per cent of entire banking sector deposits (BNM, 2021). Despite this growth momentum, their contribution to economic growth, especially when their financing is aligned with the SDGs, remains under researched.

Numerous previous researches have investigated the impact of Islamic banking on economic growth in various jurisdictions (Gani and Bahari, 2020; Bougatef et al., 2020; Mohamad Yusof and Loong, 2020; Abduh and Omar, 2012; Kassim, 2016; Siddique et al., 2020; Kalim et al., 2016). Particularly, studies such as Abduh and Omar (2012), Kassim ((2016), Bougatef et al. (2020), Mohamad Yusof and Loong (2020), among others, demonstrated significant impact of various regressors including Islamic banks' financing on Gross domestic product (GDP) as a measure of economic growth. However, some researchers such as Coscieme et al. (2020), Eu-umweltbuero (2020), Adrangi and Kerr (2022) and Stiglitz et al. (2009) argued that economic growth as measured based on GDP growth makes it difficult to achieve the Sustainable Development Goals (SDGs). They suggested that focus should be on achieving the SDGs rather than GDP growth. The ongoing debate necessitates further research on this topic, particularly from the perspective of Malaysia. To the best of the authors' knowledge, there is limited work concerning the association between Islamic banks' financing in line with the SDGs and economic growth. This study thus extends the existing literature by empirically examining the relationship between Islamic banking and economic growth, utilizing Malaysian Islamic banks' financing data in line with the SDGs.

Literature Review

Islamic Banking and Economic Growth

Empirically speaking, early scholarly works devoted to the research concerning the nexus between Islamic financial development and economic growth were concentrated on examining the idea of Islamic banking and economic growth causality. Thus, some studies such as Gani and

Bahari (2020), Mohamad Yusof and Loong (2020), Bougatef et al. (2020), Kassim (2016), Abduh and Omar (2012), Barajas et al. (2013), Mifrahi and Tohirin (2020), Furqani & Mulyany (2009), Brahim and Omar (2012), and Benes and Kulhof (2012) addressed the connection between Islamic finance and economic growth with emphasis on the role of Islamic banks in supporting economic growth. Most of these studies, such as Mohamad Yusof and Loong (2020), Bougatef et al. (2020), Majid and Kassim (2016), and Abduh and Omar (2012) demonstrated significant impact of various regressors including Islamic banks' financing on Gross domestic product (GDP) as a measure of economic growth. However, some researchers such as Coscieme et al. (2020), Eu-umweltbuero (2020), Adrangi and Kerr (2022) and Stiglitz et al. (2009) argued that economic growth as measured based on GDP growth makes it difficult to achieve the Sustainable Development Goals (SDGs). They suggested that focus should be on achieving the SDGs rather than GDP growth.

The SDGs and Economic Growth

Achieving economic growth is one of the objectives of the 17 Sustainable Development Goals (SDGs). Specifically, the objective of Goal 8 (decent work and economic growth) is to achieve a minimum of 7% gross domestic product (GDP) growth each year in the least developed countries. Realising 7% growth every year is in the high range for least developed countries. Social and environmental issues may be compromised in an attempt to meet such a target. For instance, exporting labour-intensive goods may increase GDP while limiting wage growth. Likewise, exporting wood products can fuel growth while eventually causing environmental challenges (Hailu, 2015). Similarly, Coscieme et al. (2020) discussed the synergies and trade-offs evolving from the indicators used to measure improvement toward SDG goals. Their work noted that the role of GDP as an indicator for SDG 8 causes a problem since unrestrained GDP growth contradicts with the reality of limited natural resources. They further indicated how focussing on GDP growth may lead to difficulties in achieving the SDGs in general.

Consistent with Coscieme et al. (2020), Adrangi and Kerr (2022) analysed the metrics of the SDGs and their relationship with GDP in emerging economies. They used the feasible generalized least squares (FGLS) and the seemingly unrelated regressions (SUR) on panel data comprising five BRIC countries spanning 2000 through 2017. They then evaluated a regression model showing the association of SDGs with GDP. Their study came to a conclusion that focusing on GDP may not lead to achieving overall SDGs.

Eu-umweltbuero (2020) noted that a growing majority of people consider quality of life and well-being as crucial matters in the development of society. Measuring development by mainly looking at economic indicators such as GDP, overlooks the complexity of society and people as well as societal well-being. Correspondingly, Costanza et al. (2016) also argued that the use of GDP as the single measure of a country's well-being should be rejected. They noted that increasing economic growth, as measured by GDP, leads to destroying of natural resources, devastating the environment, and possibly contributing to climate change. Continuous increase in wealth has not improved income distribution, leading to inequality in societies. Thus, the current way of measuring GDP may have a negative impact on sustainable development and vice versa.

Consequently, some authors such as Stiglitz et al. (2009) recommended that GDP should not only focus on measuring production at market prices but rather should take into account non-market activities. Stiglitz et al. (2009) in a report by the "Commission on the Measurement of Economic Performance and Social Progress" suggested that the focus of GDP should not only be on measuring production at market prices but, instead, the focus should be on wealth, income and consumption at the household level, taking into account non-market activities such as domestic work, childcare, among others. The authors argued that, GDP per capita may go up while household income decreases leading to inequality.

Corresponding to the above, in an attempt to reduce inequality and boost economic growth in Malaysia, the government classified Malaysians based on household income into three different groups as the basis for various government initiatives. According to the Household Income & Basic Amenities Survey Report 2019 by the Department of Statistics Malaysia (DOSM), these household income classifications include Bottom 40% (B40), Middle 40% (M40) and Top 20% (T20) (Department of Statistics Malaysia, 2020). The B40 are the low-income group comprising 2.91 million households as at 2019, with income threshold between RM1 – RM4,849 (Department of Statistics Malaysia, 2020). The B40 income group most often struggle to keep up with the increasing cost of living and are particularly vulnerable to economic shocks. As a result, attention is most often on the B40 group and there are many affordable housing schemes reserved just for them. The affordable housing initiative is in the right direction towards achieving some of the SDGs along with economic growth since many low-income families are able to live and work in the cities.

Islamic Banking in Malaysia

Malaysia is home to one of the most developed Islamic banking markets in the world. The country has a long track record of building a successful domestic Islamic banking industry over the past 30 years, giving the country a solid foundation in the industry (BNM, 2021). Currently, the Islamic banking assets in Malaysia reached USD 254 billion as at December 2019 with total funds placed with Islamic banks now representing 38 per cent of entire banking sector deposits (BNM, 2021). To date, there are about 16 full-fledged Islamic banks with domestic branches of 2,246 and 10 Islamic banking windows with domestic branches of 2,170 (IFSB, 2021).

Notwithstanding the ongoing challenging economic conditions, the Malaysian Islamic banking sector remained profitable. This was as a result of the concentrated exposure of the Islamic banks to retail financing, which is less vulnerable to economic downturns as compared to corporate financing (IFSB, 2021). Given the high level of the Islamic banking sector assets, its increasing market share as well as general performance in Malaysia, it is timely and highly relevant to assess the contribution of Islamic banks' financing in line with the SDGs to economic growth. This is particularly important in the case of Malaysia, where Islamic finance is positioned to play an increasingly significant role in the economy. Accordingly, there are social finance instruments by Malaysian Islamic banks based on Value-Based Intermediation (VBI) initiative introduced by the Central Bank of Malaysia intended to assist the needy and reduce income inequality (Abd Rasid et al., 2020).

Methodology

Data Sources and Variables Measurements

Quarterly data of Islamic Banks' value of *Sharī`ah*-compliant financing in different sectors of the Malaysian Islamic banking industry were collected from the IFSB database and categorized based on Sustainable Developments Goals (SDGs) and used in the study analysis over the period Q1 2014 to Q4 2018. In particular, the quarterly data of Banks' value of *Sharī`ah*-compliant financing have been categorized into 10 SDGs namely SDG1 (No poverty), SDG2 (Zero Hunger), SDG3 (Good Health and Well-Being), SDG4 (Quality Education), SDG8 (Decent Work And Economic Growth), SDG9 (Industry, Innovation and Infrastructure), SDG10 (Reduced Inequalities), SDG11 (Sustainable Cities and Communities), SDG16 (Peace, Justice and Strong Institutions), and SDG17 (Partnerships for the Goals). Data on the Gross Domestic Product (GDP) on the other hand was collected from the statistical department of Malaysia.

Variables Measurement

The variables measurement was based on the SDGs objectives with cross section of Islamic banks *Sharī`ah*-compliant financing in different sectors in the countries such as (a) agriculture, forestry, hunting and fishing; (b) mining and quarrying; (c) manufacturing; (d) electricity, gas, steam and air-conditioning supply; (e) water supply; sewerage and waste management; (f) construction; (g) wholesale and retail trade; repair of motor vehicles and motorcycles; (h) transportation and storage; (i) accommodation and food service activities; (j) information and communication; (k) financial and insurance activities; (l) real estate activities; (m) professional, scientific and technical activities; (n) administrative and support service activities; (o) public administration and defence; compulsory social security; (p) education; (q) human health and social work activities; (r) arts, entertainment and recreation; (s) other service activities (export); (t) activities of households as employers, (t*) other financing of households; (u) activities of extraterritorial organisations and bodies and (u*) financing to non-residents.

Method of Analysis

This study applied autoregressive distributed lag (ARDL) model that was introduced by Pesaran and Shin (1995), Pesaran et al. (1996) and Narayan (2004). The ARDL model analysis includes several steps namely lag determinants, the bound-test and long-run and short-run estimation of the variables' coefficients. The justification for utilizing ARDL model is due to the fact that it is applicable irrespective of whether the underlying regressors are purely I(0), purely I(1) or mutually cointegrated, and it avoids problems resulting from non-stationary time series data (Pesaran et al., 1996 and Pesaran et al. 2001). In addition, it is more robust and achieves better outcomes for small sample sizes (Narayan, 2004).

Testing for Cointegration

After determining the optimal lag length for each variable by searching the $(p+1)^{k+1}$ in different ARDL models, the study applied "The Bound Test" to examine whether there is existence of cointegration relationships among variables under study using the F-statistics in the conditional unrestricted ARDL model as illustrated in equation (1).

H0: δ1 = δ2 = δ3 = δ4 = δ5 = δ6 = δ7 = δ8 = δ9 = δ10 = δ11 = 0 (1)

H1: δ1 ≠ 0, δ2 ≠ 0, δ3 ≠ 0, δ4 ≠ 0, δ5 ≠ 0, δ6 ≠ 0, δ7 ≠ 0, δ8 ≠ 0, δ9 ≠ 0, δ10 ≠ 0, δ11 ≠ 0

The null hypothesis stated that, non-existence of long-run relationship among the variables in the ARDL model, while the alternative hypothesis stated the existence of the long-run relationship between the identified variables in the model. The computed F-statistic value will be evaluated with the critical values generated by conditional unrestricted ARDL model. If the value of F-statistic lies above the upper bound critical value for a given significance level; the decision is that there is existence of cointegration relationships among variables. If the value of the F-statistic falls below the lower bound critical value, the inference is that there is no existence of cointegration relationships among variables. However, if computed F-statistic falls within lower and upper bound, then the results are inconclusive (Narayan, 2004).

Long-run and Short-run Dynamics

After the cointegration is confirmed between the dependent and exploratory variables on the bound test, then the estimated coefficients of long-run relationship will be measured using the following ARDL (m1, m2, m3, m4, m5, m6, m7, m8, m9, m10, m11) model:

$$\mathrm{GDP}_t = \alpha_0 + \sum_{i=1}^{m1} \alpha_1\ \mathrm{GDP}_{t-i} + \sum_{i=0}^{m2} \alpha_2\, \mathrm{SDG1}_{t-i} + \sum_{i=0}^{m3} \alpha_3\, \mathrm{SDG2}_{t-i} + \sum_{i=0}^{m4} \alpha_4 \mathrm{SDG3}_{t-i} + \sum_{i=0}^{m5} \alpha_5\, \mathrm{SDG4}_{t-i} + \sum_{i=0}^{m6} \alpha_6\, \mathrm{SDG8}_{t-i} + \sum_{i=0}^{m7} \alpha_7\, \mathrm{SDG9}_{t-i} + \sum_{i=0}^{m8} \alpha_8\, \mathrm{SDG10}_{t-i} + + \sum_{i=0}^{m9} \alpha_9\, \mathrm{SDG11}_{t-i} + \sum_{i=0}^{m10} \alpha_{10}\, \mathrm{SDG16}_{t-i} + \sum_{i=0}^{m11} \alpha_{11}\, \mathrm{SDG17}_{t-i} + \mu_t \quad (2)$$

Where α_0 denotes the costants term, $\alpha_1 \ldots \alpha_{11}$ refers to the coefficient of the long-run relationships of the variables, [$m_1, m_2, m_3, m_4, m_5, m_6, m_7, m_8, m_9, m_{10}, m_{11}$] denotes the lag orders for each individual variable in the model, μ_t refers to the residual error term, *t*- denotes the time and *i* refers to time of the previous observation value.

The short-run estimated coefficients will be derived using the Error Correction Model of the following formula:

$$\Delta\mathrm{GDP}_t = \beta_0 + \sum_{i=1}^{p-1} \beta_1 \Delta\mathrm{GDP}_{t-i} + \sum_{i=0}^{p-1} \beta_2 \Delta\mathrm{SDG1}_{t-i} + \sum_{i=0}^{p-1} \beta_3 \Delta\mathrm{SDG2}_{t-i} + \sum_{i=0}^{p-1} \beta_4 \Delta\mathrm{SDG3}_{t-i} + \sum_{i=0}^{p-1} \beta_5 \Delta\mathrm{SDG4}_{t-i} + \sum_{i=0}^{p-1} \beta_6 \Delta\mathrm{SDG8}_{t-i} + \sum_{i=0}^{p-1} \beta_7 \Delta\mathrm{SDG9}_{t-i} + \sum_{i=0}^{p-1} \beta_8 \Delta\mathrm{SDG10}_{t-i} + \sum_{i=0}^{p-1} \beta_9 \Delta\mathrm{SDG11}_{t-i} + \sum_{i=0}^{p-1} \beta_{10} \Delta\mathrm{SDG16}_{t-i} + \sum_{i=0}^{p-1} \beta_{11} \Delta\mathrm{SDG17}_{t-i} + \psi\, ECM_{t-1} + \mu_t \quad (3)$$

Where, all variables are as previously defined, β_0 represents the constant term, $\beta_1 \ldots \beta_{11}$ indicates the coefficient of the first difference variables, ψ represents adjustment coefficient of the error correction term (ECM_{t-1}), which is derived from the long-run relationship estimated in equation number (2). *p* represents the maximum number of lags lengths, μ_t refers to the white noise residual, *t*- represents the time and *i* denotes the time of the previous observation value.

Diagnostics Tests

Finally, diagnostics tests will be performed to ensure the validity and stability of the specified ARDL model. For instance, the LM-test and heteroscedasticity test will be performed to ensure that the model residual is free from serial correlation and heteroscedasticity effect. Further, normality test will be performed to ensure that the residual of ARDL model is normally distributed. The Cumulative Sum of Recursive Residuals (CUSUM), and Cumulative Sum of Squares of Recursive residuals (CUSUMsq) tests will be performed to confirm that the specified ARDL model is stable.

Findings and Discussions

This section covers five steps including the stationarity status of the variables using unit root tests, followed by testing the existence of long-run relationship among the variables through bounds F-test. The third and fourth steps involve estimations of the long-run and short-run coefficients, along with the error correction term of the models. Finally, the goodness of fit and structural stability of the models were investigated through diagnostic tests.

Unit Root Tests

Application of the ARDL approach to cointegration requires that the variables be integrated of order zero or one, i.e. I(0) or I(1), or a combination of both. The ARDL approach is however inappropriate if one of the variables is integrated of order two, i.e. I(2). This is because as noted by Ouattara (2004), the presence of I(2) variables renders the computed F-statistics provided by Pesaran et al., (2001) invalid. It is therefore necessary to conduct stationarity tests in order to verify that none of the variables is integrated of order two, i.e. I(2). Thus, the Augmented Dickey Fuller (ADF) and Phillips-Perron (PP) tests for stationarity were employed.

The results of the unit root test as reported in Table 1 disclosed that the logs of GDP, SDG16 and SDG 17 are stationary at level, i.e. they have no unit roots at their levels and are integrated of order zero, I(0). On the other hand, the logs of SDG1, SDG2, SDG3, SDG4, SDG8, SDG9, SDG10, SDG11 have unit roots at their levels. However, they become stationary upon taking the first difference, and thus, integrated of order one, I(1). This combination of I(0) and I(1) variables has justified the use of the ARDL approach to cointegration, which accommodate such situation.

Results of the Cointegration Test: Bounds F-test

As noted earlier, the bounds tests approach to cointegration was adopted in this study and the results are presented in Table 2 below. The results indicated that, the calculated F-statistics is higher than the upper critical bounds at 1% level of significance (200.108 > 2.97). Accordingly, there is strong statistical evidence of the existence of long-run relationship between the variables in this study. This result suggests that Malaysian Islamic banks' financing based on the objectives of the SDGs have long-run relationship with economic growth.

Estimates of the Long-Run Relationship

The results of the estimated model are presented in Table 3 below. The results of long-run coefficients of the regressors were mixed. While coefficients for SDG2, SDG3 and SDG4 were found to have statistically significant negative impact on economic growth in the long-run, SDG11 on the other hand was found to have statistically significant positive impact on economic growth in the long-run. For instance, at 5% level of significance, a 1% change in Malaysian Islamic banks' financing in line with SDG2 (Zero hunger), leads to about 2.662% decrease in economic growth in the long-run. In the case of SDG3, at 10% level of significance, a 1% change in Malaysian Islamic banks' financing in line with SDG3 (Good health and well-being) leads to 14.014% decrease in economic growth. Similarly, with regards to SDG4, at 1% level of significance, a 1% change in Malaysian Islamic banks' financing in line with SDG4 (Quality education) leads to 5.441% decrease in economic growth in the long-run. Conversely, at 5% level of significance, a 1% change in Malaysian Islamic banks' financing in line with SDG11 (Sustainable cities and communities) leads to 0.572% increase in economic growth in the long-run. The above significant impact of the regressors on economic growth corroborates with some of the studies in the literature (such as Gani and Bahari, 2020; Bougatef et al., 2020; Mohamad Yusof and Loong, 2020; Kassim, 2016; and Abduh and Omar, 2012).

The findings are an indication that with the exception of SDG11, Malaysian Islamic banks' financing in line with SDG2, SDG3 and SDG4 involves some compromise in economic growth in the long-run. This SDGs-GDP trade-off is expected since not all the financing by Islamic banks such as *qard hasan* (benevolent loan), *zakat* (obligatory charity) and *sadaqa* (voluntary charity) are captured in the calculation of GDP. That is to say, non-market activities such as *zakat* and *sadaqa* are not taken into account in measuring GDP and that may be one of the reasons for the negative relationship. Stiglitz et al. (2009) in a report by the "Commission on the Measurement of Economic Performance and Social Progress" suggested that the focus of GDP should not only be on measuring production at market prices but, instead, the focus should be on wealth, income and consumption at the household level, taking into account non-market activities such as domestic work, childcare, among others. The authors argued that, GDP per capita may go up while household income decreases leading to inequality. This divergence justifies the inverse relationship between SDG2, SDG3 and SDG4, and economic growth. This implies that, focus should not be on GDP growth but rather on achieving the SDGs. Researchers such as Coscieme et al. (2020), Adrangi and Kerr (2022), Eu-umweltbuero (2020) and Costanza et al. (2016) indicated how focussing on GDP growth may lead to difficulties in achieving the SDGs in general.

Table 1. Unit Root Test Results for the Malaysian GDP and Islamic Banks' Shariah Compliant Financing Based on SDGs Objectives

Name of Variables	On Levels		On First Differences		
	Intercept and Trend		Intercept and No Trend		Stationarity Status
	ADF	PP	ADF	PP	
GDP	-4.218631**	-1.649828	-3.456566**	-3.620429**	I(0)
SDG1	-0.852254	-1.728395	-4.541123***	-4.542193***	I(1)
SDG2	-1.548587	-1.530286	-4.581197***	-4.618819***	I(1)
SDG3	-0.868467	-0.868467	-3.457798**	-3.477999**	I(1)
SDG4	-1.545695	-1.545695	-3.678708**	-3.662088**	I(1)
SDG8	-2.126707	-2.173073	-4.025320***	-4.639204***	I(1)
SDG9	-1.321936	-0.891083	-3.009549*	-2.919876*	I(1)
SDG10	-1.607540	-1.263411	-4.392060***	-4.418304***	I(1)
SDG11	-0.592523	-0.691949	-3.452785**	-3.443991**	I(1)
SDG16	-4.992233***	-2.131041	-3.623470**	-3.097778**	I(0)
SDG17	-5.040142***	-1.843126	-1.695044	-4.392542***	I(0)

Table 2: Bound Test Results for Cointegration

Model	F-Stat		
		(Unrestricted intercept and trend)	
		I(0)	**I(1)**
GDP	200.1086	1.98	2.97
		2.21	3.25
		5.37	6.29

Table 3: Estimated Long-Run Coefficients using the ARDL Approach, ARDL (3, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0) Selected Based on AIC Criterion, Dependent Variable is Malaysian GDP

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SDG1	2.147788	4.959234	0.433089	0.7072
SDG2	-2.662293	0.395708	-6.727921	0.0214
SDG3	-14.013950	4.005230	-3.498912	0.0729

SDG4	-5.441262	0.426367	-12.761907	0.0061
SDG8	-0.258659	0.207428	-1.246983	0.3386
SDG9	-0.660028	0.520180	-1.268846	0.3322
SDG10	0.142731	0.202991	0.703140	0.5548
SDG11	0.571765	0.109698	5.212195	0.0349
SDG16	-0.042449	0.489010	-0.086806	0.9387
SDG17	2717.274189	979.632024	-2.773770	0.1091
@TREND	3007.893417	956.877785	3.143446	0.0880

On the other hand, SDG11, which involves making cities and human settlements inclusive, safe, resilient and sustainable, was found to have positive impact on economic growth in the long-run. The affordable housing initiative for the bottom 40 per cent (B40) of Malaysians categorised as low-income group, could be one of the reasons for the positive relationship between SDG11 and economic growth. This is because the affordable housing initiative has enabled many low-income Malaysians in the B40 category, who previously could not afford to live in the cities in order to work, to become house owners in the cities. Now they are able to work to contribute to economic growth in country. This is in the right direction towards achieving SDG11 (Make cities and human settlements inclusive, safe, resilient and sustainable).

Estimates of Short-run Relationship and the Error Correction Model

The result of the impacts of Malaysian Islamic banks' financing based on the SDGs on economic growth in the short-run is presented in Table 4. The findings revealed that SDG2, SDG3, SDG4, SDG8, SDG9 and SDG17 all have significant negative impact on economic growth in the short-run, while SDG11 has a significant positive impact on economic growth in the short-run. This significant effect of the regressors on economic growth in the short-run is contrary to the findings in the work of Gani and Bahari (2020) in Malaysia, but reinforced that of Abduh and Omar (2012), Kassim (2016), among others. The error correction term (-2.912) has a negative sign and statistically significant at 1%, indicating the existence of an adjustment toward equilibrium.

Table 4: Short-run Coefficients Estimation using the ARDL Approach, ARDL (3, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0) Selected Based on AIC Criterion, Dependent Variable is Malaysian GDP

Cointegrating Form

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GDP(-1))	0.993584	0.063195	15.722527	0.0040
D(GDP(-2))	0.591951	0.041409	14.295193	0.0049
D(SDG1)	4.742463	5.029065	0.943011	0.4452
D(SDG2)	-7.763150	0.743950	-10.435039	0.0091

D(SDG3)	-38.863921	4.581955	-8.481952	0.0136
D(SDG4)	-15.642786	1.021196	-15.318109	0.0042
D(SDG8)	-0.878177	0.253828	-3.459737	0.0743
D(SDG9)	-2.037715	0.416017	-4.898150	0.0392
D(SDG10)	0.877551	0.379710	2.311108	0.1470
D(SDG11)	1.665425	0.165035	10.091337	0.0097
D(SDG16)	-0.086518	0.724172	-0.119472	0.9158
D(SDG17)	-8077.566127	1184.281473	-6.820647	0.0208
	844151.80065			
C	2	34611.686125	24.389213	0.0017
CointEq(-1)	-2.911982	0.119532	-24.361558	0.0017

Results of Diagnostic Tests

The results of the diagnostic tests in Figures 1, 2 and 3 as well as Tables 5 and 6 indicated that the model has passed all diagnostic tests of serial correlation, functional form, normality and heteroscedasticity. The model was also correctly specified indicating that the coefficients estimated were stable, efficient and unbiased. Also, the cumulative sum of recursive residuals (CUSUM) and the cumulative sum squares of recursive residuals (CUSUMSQ) tests were carried out to test for structural stability. The results demonstrated that all the plots of the CUSUM and CUSUMSQ statistics were within the critical bounds of the 5 percent significance level. Therefore, the null hypothesis, stating that all the coefficients in the regressions are stable, cannot be rejected. Thus, the results can be used for policy recommendation purposes.

Figures 1: Normality Tests

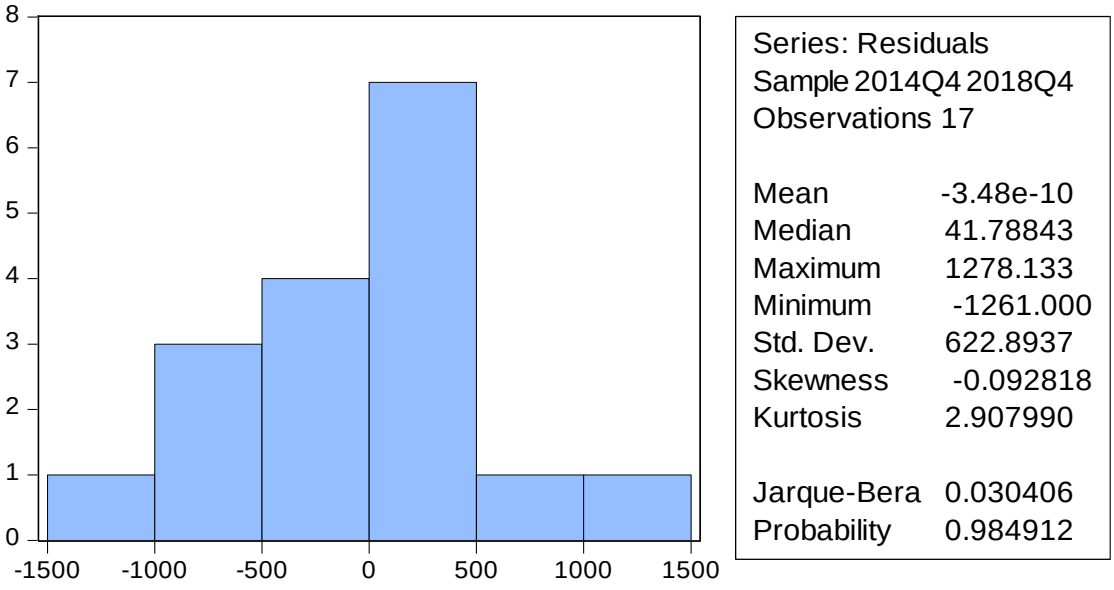


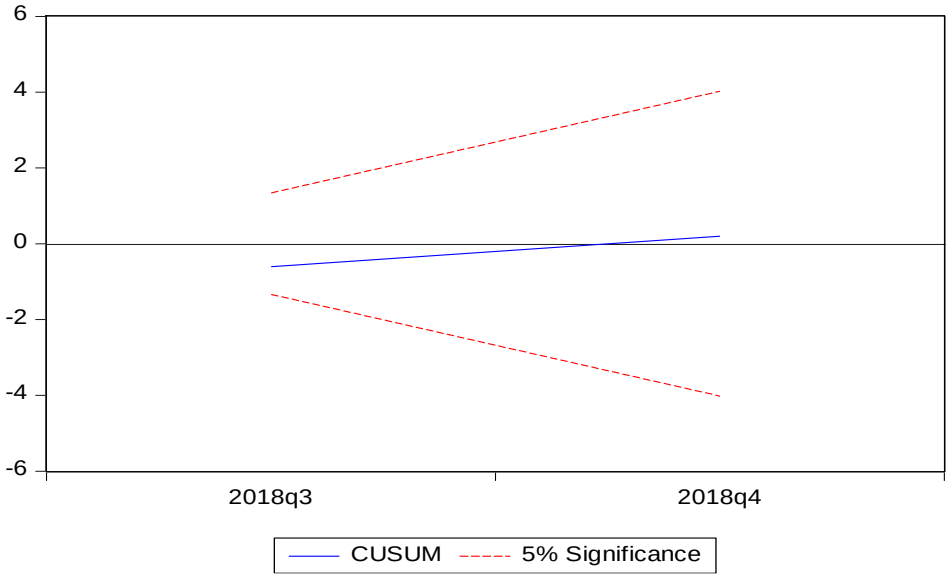
Table 5: Breusch-Godfrey Serial Correlation LM Test

F-statistic	9.844973	Prob. F(2,1)	0.2198
Obs*R-squared	16.17834	Prob. Chi-Square(2)	0.0003

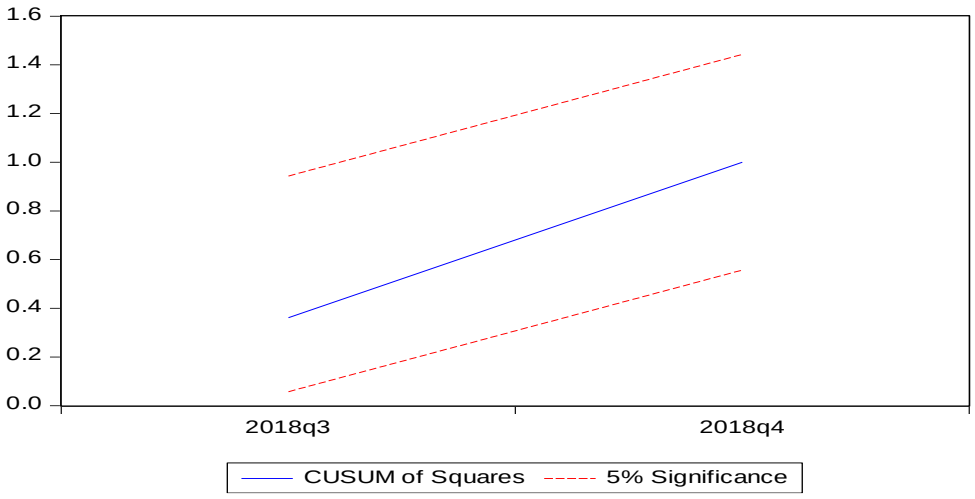
Table 6: Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	8.568712	Prob. F(14,2)	0.1093
Obs*R-squared	16.72122	Prob. Chi-Square(14)	0.2713
Scaled explained SS	0.220788	Prob. Chi-Square(14)	1.0000

Figures 2: Cumulative Sum of Recursive Residuals



Figures 3: Cumulative Sum Squares of Recursive Residuals



Conclusion

Given the pressing need to achieve the SDGs, the growing market share of Islamic banking in Malaysia, the increasing assets as well as significance of the industry in the country, necessitate an evaluation of the role the sector plays in contributing to economic growth through the SDGs. This paper employed the autoregressive distributed lag (ARDL) approach and bounds testing approach to co-integration to empirically investigate the impact of Islamic banks' financing that are aligned with the SDGs, on economic growth in Malaysia. The findings revealed that, overall, seven and four SDG indicators out of the ten analysed in this study were found to have statistically significant impact on economic growth in the short-run and long-run respectively. These indicators were SDG2, SDG3, SDG4, SDG8, SDG9, SDG11 and SDG17 in the short-run and SDG2, SDG3, SDG4 and SDG11 in the long-run. While SDG2, SDG3 and SDG4 remained inversely related to economic growth both in the short-run and long-run, SDG11 was found to have positive association with economic growth both in the short-run or long-run. With a focus on the long-run, continuous financing based on most of the SDGs objectives will eventually lead to decline in economic growth in the long-run. This highlights the compelling need to move focus from GDP growth to supporting the SDGs. While Islamic banks' financing in line with most of the SDGs may lead to decrease in economic growth, financing in line with some of the SDGs such as SDG11 may also lead to increase in economic growth in the long-run. Particularly, policymakers should encourage Islamic banks' participation in the affordable housing schemes for the B40. Hence, thoughtful policies to encourage Islamic banks' financing in line with the SDGs while coping with slow economic growth will be imperative in achieving the SDGs in the long-run. This matters, because with just eight years to go until the SDGs deadline of 2030, policymakers and Islamic banking regulators need to act fast by formulating strategies that will shift emphasis on GDP growth to financing the SDGs. More importantly, an all-inclusive representation of the true scale of financing in line with the SDGs, taking into account the extra costs of reaching the deprived and most vulnerable people as well as the full costs of transitioning to more equitable financing models, is needed to ensure the realisation of the 2030 agenda.

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