The Impact of Islamic Capital Market on Malaysian Real Economy

(Impak Pasaran Modal Islam ke atas Ekonomi Benar Rakyat Malaysia)

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ABSTRACT

The primary purpose of the financial sector of an economy is financial intermediation. Financial intermediation activities of channelling funds from surplus to the deficit units in the economy including through capital market affect the economic growth of a country. The role of Islamic capital market in the process of affecting the growth of an economy is another dimension in finance-growth nexus. This study empirically examines the impact of Islamic capital market on Malaysian economy. It employs the ARDL bounds test approach for cointegration. The results revealed that in the long-run, Islamic capital market contributes to the Malaysian economy by way of capital formation and the efficiency of the capital served as channels of transmitting growth. However, in the short run, only Islamic capital market measure of Islamic stock market turnover contributes to the economy with productivity of capital as the only channel of transmitting growth. Moreover, there is evidence of causality between the Islamic capital market turnover and the Malaysian economy. The findings imply that the Islamic capital market effectively channelled and pooled funds to productive investment activities. It further proves the notion that in general, Islamic finance is more inclined towards real sector growth as compared to conventional counterpart due to the emphasis on equity-based financing as opposed to debt-based financing.

Keywords: Capital formation; economic growth; Islamic capital market; Islamic financial market; productivity of capital

ABSTRAK

Tujuan utama bagi sektor kewangan dalam ekonomi adalah sebagai perantaraan kewangan. Aktiviti perantaraan kewangan iaitu menyalurkan lebihan dana kepada unit defisit dalam ekonomi termasuk melalui pasaran modal memberi kesan kepada pertumbuhan ekonomi sesebuah negara. Peranan pasarn modal Islam dalam proses mempengaruhi pertumbuhan ekonomi merupakan satu dimensi yang berlainan dalam neksus pertumbuhan- kewangan. Kajian ini menguji impak pasaran modal Islam ke atas ekonomi Malaysia menggunakan kaedah ujian sempadan ARDL untuk kointergrasi. Hasil kajian mendapati bahawa dalam jangka masa panjang, pasaran modal Islam menyumbang kepada ekonomi Malaysia melalui pembentukan modal dan kecekapan modal berfungsi sebagai saluran untuk pertumbuhan. Walau bagaimanapun, dalam jangka pendek, hanya pasaran modal Islam yang diukur bagi pusing ganti pasaran modal Islam menyumbang kepada ekonomi dengan hanya produktiviti modal sebagai saluran untuk pertumbuhan. Dapatan ini menunjukkan bahawa pasaran modal Islam berkesan menyalurkan dan mengumpul dana untuk aktiviti pelaburan yang produktif. Ia selanjutnya membuktikan tanggapan bahawa secara umum, kewangan Islam lebih cenderung ke arah pertumbuhan sektor benar berbanding kewangan konvensional disebabkan oleh penekanan kepada kewangan berasaskan ekuiti daripada kewangan berasaskan hutang.

Kata kunci: Perantaraan kewangan; pertumbuhan ekonomi; pasaran modal Islam; pasaran kewangan Islam; produktiviti modal

INTRODUCTION

The financial sector is among the most crucial sectors that promotes growth and development in any given economy. The primary purpose of the financial sector of an economy is financial intermediation. Through financial intermediation activities, financial sector affects the economic growth of a country. The financial sector

development of any given financial economy comprises of different sectors, which includes banking sector development and non-banking sector development. The latter comprises of financial markets, insurance companies, pension fund administrators, mutual fund managers and others. The capital market is an institution in the financial market sector. It is a channel of accumulating capital and ensuring productivity within an economy. The capital market is a highly specialised and organised financial market and an essential agent of economic growth and development because of its ability in facilitating and mobilising savings and investments. The positive relationship between capital market through capital accumulation and real economic growth as per economic theories (Anyanwu 1996).

The capital market offers access to a variety of financial instruments that enable economic agents to pool price and exchange (through assets with attractive yields liquidity, risk characteristics and encourages savings in the financial form). It is essential for enterprises, government and other institutions that need long-term funds and suppliers of long-term funds (Gani & Sani 2015). Capital markets become much more pertinent in the process of capital accumulation. Deltuvaitė and Sinevičienė (2014) also exhibited that there is higher economic development in countries with the market based financial system than countries with the bank-based financial system.

Nevertheless, it is important to note that these financial market contributions and benefits on the economy discussed earlier are of the doctrine of conventional economics. Therefore, the kind of benefits or return investors gained is from the interest that serves as the price of the loans and rent of money. Hence, according to Islamic laws (*Shariah*), paying or receiving interest is vividly prohibited (Hasnuddeen 2009). It inspires Muslims to transform Islamic economic ideas into practice and introduces a trading concept of profit and loss sharing financial system as an alternative for interest-based conventional finance. Shariah and its sources guide this type of system. Islamic finance and its activities comprise of equity and debt financing (based on the instrument raised to facilitate it, such as *murabaha, ijarah, mudharaba, musharaka, musharaka mutanaqisa*). However, it is predominantly equity financing according to the Islamic economic principles of trade (ISRA, 2012), even though it is not put in practice, as many Islamic financial institutions (IFIs) prepare debt-financing instruments such as *murabaha* and *ijarah* than equity-based instruments. The emergence and increasing significance of Islamic finance around the globe resulted in the study to focus on the equity-based feature of Islamic finance and the role that it may play in the economic growth processes. It hypothesised the link and connectivity of Islamic finance and the economy's real sector.

Many countries embrace the idea of Islamic finance (Malaysia inclusive). Malaysia is one of the fastest-growing Asian economies with a well-designed and developed financial system (Department of Statistics Malaysia, 2019). Islamic finance in Malaysia resisted the financial crisis of 2009 where the assets/capital of the Islamic financial system in the country significantly increased from RM1.8 billion in 2008 to RM2.4 billion in 2009 which is an increase of over 76% (Bank Negara Malaysia, 2017).

Islamic capital market (ICM) in Malaysia provided Islamic equities and *Sukuk* indices that generate profit as a return on investment and substituted interest-bearing instruments. Islamic equities and *Sukuk* offer mitigation against risk and instability, especially during the period of crisis (Kenourgios et al., 2016). The Malaysian market has a larger market capitalisation than the conventional capital market. As at the last quarter of 2017, the ICM has a total of over RM 1,148 million capitalisation of *Shariah*-compliant private liabilities companies (PLCs) with 59.14% *Shariah*-based on market capitalisation. It shows a significant increase in three years (from 2015 where it amounts to RM1,086.2 million). It also dominated the PLCs in Malaysian capital market, in which 687 out of 906 numbers of PLCs (75.83) are *Shariah*-based. It confirmed the dominance of *Shariah* complaint deals in overall Malaysian financial market (Bursa Malaysia 2018). Moreover, Malaysian *Sukuk* market has an outstanding amount of RM781.05 billion as of 2018; compared to 2015 when it was RM607.93 million. The total size of the Malaysian ICM market as in 2015 is RM1,694.13 million, whereas, in the last quarter of 2017, it increased to RM1,930.07 billion (Bursa Malaysia 2018). The ICM played a significant role in financial intermediation. It provides room for investment or capital accumulation as well as efficiency or productivity of the capital. The robustness of the ICM in Malaysia is capable of affecting the country's real economy. This could be proved through an empirical investigation to provide evidence.

This study is among the few empirical studies conducted on the relationship between ICM and economic growth. Some of the studies conducted include that of Altarturi and Abduh (2016), Yahya et al. (2012) , Hamidi et al. (2018) and Majid and Kassim (2015). This study aims to investigate the impact of ICM on Malaysian economy through the channels of capital accumulation and productivity of the capital. The study is organised into five parts. The first is the introduction, where the background, problem and objectives of the study are stated, and the second part is the literature review and framework. The third part is the methodology used, which discussed the data and variables used as well as the method of the data analysis. The fourth part is the presentation and discussion of the results and the last part is the conclusion and recommendations.

LITERATURE REVIEW

Bagehot (1879) and Schumpeter (1911) opined that financial activities and services had effected economic growth. They analysed the positive impact of financial development on the real economy. It was the beginning of the finance-growth nexus arguments. This leads to the emergence of four different significant hypotheses; it includes supply-leading hypothesis originated from the Schumpeter views and developed in financial repression theory of McKinnon (1973) and Shaw (1973). The theory suggests that financial development influence economic growth. The demand-following hypothesis is entrenched from Robinson (1952). Robinson asserts that 'where finance follows growth leads' which means the growth in the real economy leads to financial development. Patrick (1966) initiated the mutual dependence hypothesis. The hypothesis proposed that the causality between financial development and economic growth is reciprocal and bi-directional. It contended that in underdeveloped countries, finance leads growth, whereas, in developed economies, growth influences finance. Finally, Lucas (1988) proposed the neutrality hypothesis. Lucas hypothesis championed that the finance-growth relationship is unnecessarily overstressed, which means finance is not an essential factor in the growth process. To provide new evidence on this argument, this study followed the endogenous growth theories. According to the endogenous growth theories, growth accumulation relies on the quantifying magnitude in which the variations in output or income is attributed to physical and human capital accumulation, and to what extent it is contributing to the efficiency on the utilisation of the capital. Growth accumulation started with the specification of an aggregate production function. The aggregate production function of Mankiw, Romer, and Weil (1992) and de Gregorio (1996) as an endogenous growth model applied in this study.

Finance contributes to economic growth through different channels. According to Waheed and Younus (2010), the financial system improves the level of economic growth through two main channels, namely; increase in savings and investments (capital accumulation or quantity effects), and increase in productivity (quality effects). Capital accumulation, which is the quantity of investment, is the process of realizing additional capital stock used in the productive process. Capital accumulation is an indication or preparation for growth especially for companies and organization (Gani 2015). The productivity of capital, which is the efficiency of capital, is the situation when an organization is being efficient and successful on ideas. Capital productivity is an essential factor in explaining material standards of living, and it is at the heart of determining rates of return (Sinha 2016).

However, the bases of those arguments were positioned on the conventional setting of financial activities where the interest rate is the benchmark of the processes. Interest in some cases failed to finance the real economy of many developing economies (ISRA 2012). The view of Islamic finance on the arguments of a causal relationship is that a well-designed and efficient Islamic financial system is guaranteed to mobilise more funds for investment. The funds were allocated to individuals, firms and companies, in the process of increasing investments and growth of the economy. On the other hand, stable and profitable real enterprises are destined to bring more return to the Islamic financial system and subsequently, spurring it to develop (Kassim 2016). It implies an expectation of bi-directional causal relationship to occur between Islamic finance and economic growth. Therefore, this section of the study is to review the previous empirical research literature on Islamic financial market (IFM) (specifically ICM) and growth relationship.

Smaoui and Nechi (2017) examined *Sukuk* market development and economic growth to determine the impact of *Sukuk* market development on economic growth using the Generalized Method of Moments (GMM) estimator. The study that was carried out between 1995 and 2015, confirmed robust evidence that *Sukuk* market development spurs the growth of an economy. The *Sukuk* market can still contribute to growth even after various financial market developments, institutional quality and the classical economic growth measures were controlled. Meanwhile, Ahmad et al. (2012) focused on examining the macroeconomic effects on *Sukuk* issuance and how it affects growth in Malaysia. The study used vector autoregressive models, variance decomposition and impulse response functions. It revealed that *Sukuk* causes economic growth in Malaysia, and economic growth causes steady business circle and inflation, which may harm the economy. However, in this study, the capital market was represented by the *Sukuk* market and the previous study has no control variable included in the model estimators. In another study, Muzrifah et al. (2017) also represented capital market by *Sukuk* market. The study investigates whether the announcements of *Sukuk* issuance that carry any new information can create impact on the market's reactions. The study covered 3 different timeframe windows; before, during and after 2007-2008 financial crisis. The study employed Brown and Warner's standard event study methodology of Brown and Warner (1985). The study revealed that the effect of the announcement is significantly negative a day before and on the announcement date. Furthermore, it also revealed that there is a significant and positive reaction 30 days after the announcement of *Sukuk* issuance, which indicates that investors take a longer time to absorb the information from the *Sukuk* announcement. However, this study does not show the relationship between ICM and economic growth.

In the same vein, Hakimah et al (2018) re-examines the relationship of several macroeconomics variables with Malaysia Stock Market Index, KLCI. The study employed Johansen (1988) procedure, vector error correction model (VECM) for symmetric cointegration, while threshold cointegration test proposed by Enders and Siklos (2001) is used for asymmetric cointegration, and applied it on quarterly data of 26 years (1990-2015). The findings of the study revealed the presence of the long-run relationship between KLCI and the macroeconomics variable, which include industrial production index, inflation rate, exchange rate and money supply. The study also revealed an evidence for asymmetric adjustment of the stock price index towards its long-run values. However, the study measured the relationship of ICM with some of the Macroeconomics variables, which include one of the indicators of growth but it does not totally measured the relationship between ICM and economic growth. Meanwhile, Altarturi and Abduh (2016) studied stock markets and economic growth to test the effects and impact of macroeconomic performance on a comparative analysis between Islamic and conventional markets in Malaysia. Employing vector autoregression, variance decompositions (VDC), impulse response functions (IRF) and exogeneity test, it documented a bi-directional relationship between Islamic stock market development and Malaysian economic growth. The contribution to the economic growth comes indirectly through its investment effects. The exogeneity test conducted revealed that conventional and Islamic stock markets were super exogenous. The impact of the conventional stock market on the growth and performance of the Malaysian economy is far more than that of Islamic. However, Islamic market capitalisation is more prominent than the conventional market (Bursa Malaysia, 2018), but the market is not performing as expected. The study considered only market capitalisation as representative of both Islamic and conventional market, which is one-sided on the function of the capital market as an agent of financial intermediation.

Yahya et al. (2012) examined the association between Islamic stock market and Malaysian macroeconomic performance. Employing vector autoregression (VAR) estimation approach, the findings of the study revealed that the Islamic stock market and the growth of the economy share positive unidirectional and supply leading long-run relationship. This is contrary to the findings of Altarturi and Abduh (2016) on the direction of causality. The unidirectional and positive causal relationship exist between economic growth and inflation, while a negative relationship appeared on growth with money supply and foreign exchange rate. However, the proxy used for economic growth may not be an accurate reflection of the country's real economy to some extent. Once more, the money supply proxy in this study is questionable. The result findings prove that

the ICM investment rate is not enough to determined Islamic stock market performances but can contribute to the growth of the economy in the future.

Majid and Kassim (2015) assess the contribution of Islamic finance to economic growth using ARDL Bound test, VECM and VDCs on Malaysian post-1997 economic crisis. The study proves that there is significant unidirectional causality between Islamic finance and economic growth of Malaysia, which shows a supply leading views that is the finance-led hypothesis, which means Islamic finance, brought growth to the Malaysian economy. The finding is in line with that of Yahya et al. (2012).

The reviews above confirmed the need for another study on the topic, as weaknesses and loopholes were identified. Among the identified weaknesses and loopholes from the previous studies include that of the capital market was only represented either poorly with a weak or single proxy (Yahya et al. 2012; Altarturi & Abduh 2016), or with *Sukuk* (Smaoui & Nechi 2017). The channels through which ICM contributed to growth were not included in the review literature. Furthermore, some of the studies do not balance the processes of financial intermediation (surplus and deficit) to represent Islamic financial sector, like that of Ahmad et al. (2012), and Yahya et al. (2012). Moreover, strong control variables were missing in many of the literature. Lastly, all of the studies reviewed covered a short period. The identified weaknesses is taken into consideration in this study to contribute to the field of study and fill the gap in the literature.

METHODOLOGY

VARIABLES DESCRIPTIONS AND DATA

The aggregate production function of Mankiw et al. (1992) and de Gregorio (1996) as an endogenous growth model ($Y_t = AK_t^\alpha (H_t L_t)^{1-\alpha}$) is followed, and the model of this study has been constructed as follows:

$$GDP = f(ICMC, ISMT, GFCF, TFP, GOVT, INF) \quad (1)$$

The dependent variable for the model is the real gross domestic product (GDP) of the economy. It is the output produced by the economy at a particular period. It describes the total output of the Malaysian economy. Higher GDP in an economy means high economic growth. The variables that measure financial deepening of ICMs in this study are the total Islamic capital market capitalisation (ICMC) and Islamic stock market turnover (ISMT). ICMC is the market capitalisation of the ICM; it equals the total value of listed shares in the market. It measures the size of the market relative to the economy. ISMT is the turnover ratio equals the value of the traded shares in Islamic stock market divided by the total value of listed shares, and it measures the liquidity

TABLE 1. Variable Definitions

Variables	Definitions	Sources
GDP	It is the output produced by the economy at a particular period. It describes the total output of the Malaysian economy.	Kassim (2016), Majid & Kassim (2015)
ICMC	It is the market capitalisation of the ICM; it equals the total value of listed shares in the market.	Altarturi & Abduh (2016), Majid & Kassim (2015)
ISMT	It is the turnover ratio equals the value of the traded shares in Islamic stock market divided by the total value of listed shares, and it measures the liquidity of the Islamic stock market relative to its size.	New Variable
GFCF	It is an indicator of business activity level, which measures net investment by enterprises of the domestic economy in fixed capital assets during an accounting period.	Furqany and Mulyani (2009)
TFP	It is the ration of output not explained by the number of inputs used in production. As such, the level of capital efficiency is resolute by efficient and intense utilisation of the inputs in production.	Adak (2009)
GOVT	It is the level of expenditure by the government in the economy through a budget.	Kassim (2016)
INF	It stands for inflation, and it is represented by the consumer price index (CPI)	Majid & Kassim (2015)

of the Islamic stock market relative to its size. The theory predicts that, when the market is more liquid and active, it is capable of facilitating the efficient allocation of resources and foster growth (Fufa & Kim 2018).

The channels through which ICMs transmit growth are capital accumulation and productivity of capital. Capital accumulation or a total investment of an economy is measured by the gross fixed capital formation (GFCF). The GFCF is an indicator of business activity level, which measures net investment by enterprises of the domestic economy in fixed capital assets during an accounting period (Furqani & Mulyany 2009). GFCF can positively affect GDP through an expansion of capital. The productivity of capital or efficiency of capital is measured by total factor productivity (TFP). TFP is the ration of output not explained by the number of inputs used in production. As such, the level of capital efficiency is resolute by efficient and intense utilisation of the inputs in production (Adak 2009). TFP affects GDP when factoring inputs such as labour and capital changes. An increase in the factor inputs means an increase in the production of goods and services and vice versa.

The inclusion of government expenditure (GOVT) and inflation (INF) serve as control variables because of the causal relations of the variables within the model is reflecting the reactions to other main variables, hence may influences other intermediate variables (Altarturi & Abduh 2016). Therefore, there is a need for control variables. It is necessary to avoid the likelihood of result biases through omitting some of the variables (Abubakar 2015). Results and conclusion are more comprehensive and realistic when control variables are included (Altarturi & Abduh 2016).

INF stands for inflation, and it is represented by the consumer price index (CPI). An increase or decrease in inflation reduces or raises the purchasing power of individuals to spend on goods and services, hence affecting GDP (Aziakpono 2003). GOVT is the level of expenditure by the government in the economy through a budget. Even though financing budget deficit through domestic borrowing can potentially crowd out private investments, hence negatively affecting growth (Kassim 2016). The variable selection is justified based on their descriptions, for the avoidance of specifying the wrong model. It is also consistent with the existing studies in this area (Majid & Kassim 2015) among other studies.

The study uses Malaysian quarterly data, covering 20 years from 1998Q1-2017Q4. The source of data are; statistical bulletin and publications of Bank Negara Malaysia (BNM), International Monetary Fund (IMF) publications, United Nations Industrial Development Organisation (UNIDO) publications, Department of Statistics Malaysia (DOSM), International Financial Statistics, Bursa Malaysia, and Securities Commission Malaysian (SC).

ESTIMATION TECHNIQUES

The cointegration techniques are employed in the study to estimate the effects of the IFM through ICM activities on Malaysian economic growth. By choosing these techniques may overcome the tendency of the presence of unit root which is in most of macroeconomic and financial time series data and may be able to result in spurious regression (Gani 2015) The cointegration technique with its potential error-correction specification merits includes a stable

parameter estimates since analysis are based on stationary time series data. It is also data admissible and theory consistent, which would enhance the forecasting power and policy formulation capabilities of the model (Essien 1997).

Furthermore, it is central to econometric modelling of integrated variables as well as investigation of long-run relationships among those variables. If the time series data integrated at I(1) and non-stationary at I(0), the investigation will proceed to check the existence of any long-run relationship among the data series. There are many possible tests for co-integration, but this study employed the recently developed approach by Pesaran et al. (2001) termed autoregressive distributed lag (ARDL).

ARDL approach is applicable irrespective of whether the essential regressors are at I (0) or I (I) and or fractionally integrated (Pesaran et al. 2001). In ARDL, it is assumed that all the variables in the model are endogenous. The ARDL approach is commonly used as a method to test for the existence of co-integration vectors; it involves the estimation of the restricted error correction (EC) term of the ARDL model, and therefore, for this study, ARDL model involving the real economy and ICM can be presented as follows:

$$
\begin{aligned}
\Delta \ln(GDP)_t =\ & \alpha_0 + \lambda_1 \ln(ICMC)_{t-1} + \lambda_2 \ln(ISMT)_{t-1} + \lambda_3 \ln(GFCF)_{t-1} + \\
& \lambda_4 \ln(TFP)_{t-1} + \lambda_5 \ln(GOVT)_{t-1} + \lambda_6 \ln(INF)_{t-1} + \\
& \lambda_7 \ln(GDP)_{t-1} + \sum_{i=1}^{p} \beta_1 \Delta\ln(ICMC)_{t-i} + \\
& \sum_{i=0}^{p} \beta_2 \Delta\ln(ISMT)_{t-i} + \sum_{i=0}^{p} \beta_3 \Delta\ln(GFCF)_{t-i} + \\
& \sum_{i=0}^{p} \beta_4 \Delta\ln(TFP)_{t-i} + \sum_{i=0}^{p} \beta_5 \Delta\ln(GOVT)_{t-i} + \\
& \sum_{i=0}^{p} \beta_6 \Delta\ln(INF)_{t-i} + \sum_{i=0}^{p} \beta_7 \Delta\ln(GDP)_{t-1} + \varepsilon_t
\end{aligned}
\tag{2}
$$

Equation (1) is the model for the estimating ICM development and economic growth. From the equation, *p* is the lag length of the model, Δ stands for first difference operator, α is the intercept, λβ₁ to λ β₇ are the coefficients of elasticity. Lastly, ε_t is the error correction or disturbance term. All the variables in the model were in natural logarithm (ln).

The first step is computing cointegration using ARDL to establish a cointegration relationship among the variables is the estimation of the equations in the ordinary least square (OLS) method. The next step is finding the joint significance of the variables through the calculation of the F-statistics to determine the long-run relationship. The following is the null and alternative hypotheses for the test of the above model:

$$H_0 = \lambda_1 = \lambda_2 = \lambda_3 = \lambda_4 = \lambda_5 = \lambda_6 = \lambda_7 = 0,$$

$$H_1 = \lambda_1 \neq \lambda_2 \neq \lambda_3 \neq \lambda_4 \neq \lambda_5 \neq \lambda_6 \neq \lambda_7 \neq 0$$

The calculated F-statistics distribution to establish the evidence of a long-run cointegration relationship among the variables may not be standard for bound testing. The critical values of the F-statistics were provided by Pesaran et al. (2001) in two categories. The first class is the lower critical bound category (LBC) that has an assumption of all variables is to be at I(0). The second category is the upper bound critical values (UBC); this category assumed that all the variables are to be I(1). If the computed F-statistics is less than the lower bound value, then there is no sign of a long-run relationship. Hence H₀ cannot be rejected. If the computed F-statistics is greater than the lower bound value, it means a long-run relationship exists. Hence H₀ is rejected (Narayan 2004). However, if the computed value is within and equal to the two bounds, then it is inconclusive and regarded as no cointegration among the variables.

To obtain each variable optimal lag length, the modified ARDL approach is to compute $(p + 1)^k$ number of regressions, where *p* stands for some lags to be adopted, and k represents the number of variables in the models. Based on that, the need for choosing an appropriate number of lags is critical in the model because F-statistics can be affected by many lags in the model. This study adopted Schawartz information criterion (SIC) to select the lag length. It is because the lowest value of the criterion was obtained in SIC when the optimal lag lengths of the model were estimated using Eviews econometric package and it is also one of the most widely accepted among scholars and researchers.

The next step after establishing co-integration among the variables is to estimate a model of a long run for the equations as follows:

$$
\begin{aligned}
\ln(GDP)_t =\ & \beta_0 + \sum_{i=1}^{p} \beta_1 \ln(GDP)_{t-i} + \sum_{i=0}^{p} \beta_2 \ln(ICMC)_{t-i} \\
& \cdot \sum_{i=0}^{p} \beta_3 \ln(ISMT)_{t-i} + \sum_{i=0}^{p} \beta_4 \ln(GFCF)_{t-i} + \\
& \sum_{i=0}^{p} \beta_5 \ln(TFP)_{t-i} + \sum_{i=0}^{p} \beta_6 \ln(GOVT)_{t-i} + \\
& \sum_{i=0}^{p} \beta_7 \ln(INF)_{t-i} + \varepsilon_t
\end{aligned}
\tag{3}
$$

After the long-run equation, the next is the short-run equation. The short-run equation can be established by substituting the lagged level variables with an error correction model or term (ECT or ECM) as follows:

$$
\begin{aligned}
\ln(GDP)_t = \quad & \beta_0 + \sum_{i=1}^{p}\beta_1\Delta\ln(GDP)_{t-i} + \sum_{i=0}^{p}\beta_2\,\Delta\ln(ICMC)_{t-i} + \\
& \sum_{i=0}^{p}\beta_3\Delta\ln(ISMT)_{t-i} + \sum_{i=0}^{p}\beta_4\Delta\ln(GFCF)_{t-i} \\
& + \sum_{i=0}^{p}\beta_5\Delta\ln(TFP)_{t-i} + \sum_{i=0}^{p}\beta_6\Delta\ln(GOVT)_{t-i} \quad + \\
& \sum_{i=0}^{p}\beta_6\Delta\ln(INF)_{t-i} + \theta ECT_{t-1} + \varepsilon_t
\end{aligned}
\qquad (4)
$$

The ECM shows the speed of the adjustments and indicates how fast the variables can converge in the long-run equilibrium. In ECM, cointegration relationship can only exist when the value of the coefficient is statistically significant and with a negative sign. An error correction model provided the opportunity to distinguish the long-run and short-run Granger causality. The short-run dynamics are identified in the specific coefficients of the lagged terms, whereas the error correction mechanism provides information of the long-run causality. Therefore, when the coefficient of each lag independent variable is significant, there is evidence of short-run causation and a negative and statistically significant error correction term means long-run causality (Adebola et al. 2011).

Furthermore, diagnostic tests are conducted to test the goodness of fit of the models and to enable the results to be relevant for policy recommendation. In this juncture, the serial correlation test, and heteroskedasticity test are conducted. Similarly, the cumulative sum (CUSUM) and the cumulative sum of squares (CUSUMSQ) stability tests are also conducted.

RESULTS AND DISCUSSIONS

The results are divided into five different sections as follows:

DESCRIPTIVE STATISTICS

In the Tables 2a and 2b below, the standard deviation is less than the mean in the cases of ICMC, GFCF, TFP, GOVT, and INF. However, the reverse is the case in term of GDP, and ISMT, where the mean is less than the standard deviation. It indicates the heterogeneity or high variability among the variables in the sample of this research. The range is the value that differentiates the minimum and maximum values. It is enormous on Islamic finance indicators, and it moderates on the other variables. Nevertheless, there is consistency in the data as the mean, and the median are within the range of maximum and minimum values.

Moreover, Table 2a also demonstrates the symmetry of the data through skewness and peakedness and flatness through kurtosis. It shows that all the variables have positive skewness except TFP, which is negative, and all are greater than zero. However, it means a long right tail exists, and the values of the variables are high except TFP, which has a long-left tail. The kurtosis is a peak with high values on all of the variables because all the variables indicate positive kurtosis.

There is a consequence of the data may not be normally distributed regarding the above. Thus, if the data transformed into a natural logarithm, the problem may be mitigated. It shows in Table 2b at the logged values side, where the values of skewness of all the variables are either negative or positive, and it ranges between ±1 and ±0.5 or even less. Therefore, the logged variables are near to symmetric and moderately skewed in both left and right. Moreover, the kurtosis values of the variables are positive but not near zero because all are less than 3.00, which is the normal distribution. Jarque-Bera values indicate only ISMT and INF typically distributed. Even though, data not normally distributed cannot be a problem, because ARDL, which is the techniques employed in this research, can automatically fix the problem and provide a reliable result to serve as a tool for policy recommendations.

TESTS OF STATIONARITY (UNIT ROOT)

The ARDL techniques to cointegration are applied to the variables not integrated into the same order as at I(0) or I(1). Therefore, it is still possible to conduct stationarity tests, so that to have a confirmation and verification that none of the variables is integrated at second difference i.e. I(2). The presence of I(2) variables classified the computed F-statistics provided by Pesaran et al. (2001) as invalid (Ouattara 2004). As such, one of the most widely accepted tests for stationarity is used, which is the Augmented Dickey-Fuller (ADF) test. All of the variables plotted indicates the appearance of intercept and trend. However, a constant and linear trend was included in the test conducted.

Table 3 shows that there is a mixture of variables that are stationary at level and first difference. This mixture justified choosing ARDL framework for cointegration, which can be applied if there are such cases. It also revealed that no variable is found stationary at the second difference I(2).

Cointegration Test: Bounds F-test

The Bound Test approach to cointegration results for this study is as follows:

From Table 4, the results demonstrated that the calculated F-statistics for the model is above the upper critical bounds at 1% level of significance (i.e. 7.047>4.39). Thus, there is evidence for the existence of a robust long-run cointegration relationship between the variables under study. It means ICM activities

TABLE 2a. Descriptive Statistics (Absolute Values)

	Absolute Values						
Variables	Mean	Median	Maxi	Mini	Standard Dev	Skewness	Kurtosis
GDP	184.0	176.45	355.71	72.568	802.54	0.334	1.925
ICMC	3830	3040.00	76200.0	908.680	2330.0	0.327	1.437
ISMT	126.8	940.35	266.62	23.854	763.74	0.577	1.738
GFCF	433.9	381.23	889.38	151.89	221.60	0.562	1.918
TFP	0.97	0.99	1.05	0.86	0.05	-0.713	2.244
GOVT	336.5	331.53	616.41	112.19	152.73	0.154	1.606
INF	107.1	105.66	120.80	96.88	5.91	0.439	2.421

TABLE 2b. Descriptive Statistics (Logged Value)

	Logged values				
Variables	Skewness	Kurtosis	Jarque-Bera	Probability	Observations
GDP	-0.179	1.769	5.474	0.065	80
ICMC	-0.056	1.482	7.714	0.021	80
ISMT	0.036	1.917	3.925	0.140	80
GFCF	0.068	1.713	5.578	0.061	80
TFP	-0.768	2.326	9.389	0.009	80
GOVT	-0.279	1.701	6.661	0.035	80
INF	0.340	2.326	3.060	0.216	80

TABLE 3. Stationarity Test

	ADF Test	
Variables	Level	First Difference
LGDP	-3.799**	-5.730***
LICMC	-1.796	-7.014***
LISMT	-3.628**	-7.596***
LGFCF	-3.743**	-5.733***
LTFP	-2.500	-4.051***
LGOVT	-1.747***	-5.622***
LINF	-2.495	-9.300***

TABLE 4. Results of Bounds F-Test for Long-Run Relationship

	7.047	
Computed F-Statistic	Critical Bounds (k = 6)	
Levels of Significance	I(0)	I(1)
1%	3.27	4.39
5%	2.63	3.62
10%	2.33	3.25

Note: The critical values are based on Pesaran et al. (2001), case Table C (iii) case v: unrestricted intercept and trend.

have a long-run equilibrium relationship with the real Malaysian economy.

Estimation of the Long-Run Relationship

The results for the long-run relationship among the variables and diagnostic tests are presented in Table 5.

From Table 5, the long-run estimation results revealed that the ICM capitalisation and Islamic stock market turnover are positive and significant. It demonstrated strong statistical evidence of a relationship with GDP. It is evidence of the robustness of the ICM in Malaysia, which ranked among the top 5 of the world most active ICMs (IFSB, 2018). Malaysian ICM is more significant than the conventional capital market in Malaysia (Bursa Malaysia 2018). This means the indicators of ICM development has impact on the real Malaysian economy. A 1% change in the total ICM capitalisation causes a 0.15% increase in Malaysian GDP and a 1% change in total Islamic stock market turnover will lead to a 0.13% increase in Malaysian GDP. Though the investments in the ICM is limited on *halal* and *Shariah*-compliant companies/stocks or PLCs only, the percentage increase caused by both total ICM capitalisation and total Islamic stock market turnover on the Malaysian economy is encouraging. Market capitalisation in the ICM of Malaysia is robust. The size of the market, which is more significant than that of the conventional capital market according to Bursa Malaysia (2018), proved to be effective. The finding is also justified, as most of the investments in the ICM are long term on fixed assets, leasing, and capital financing. Furthermore, it confirmed that the Islamic stock market in Malaysia is liquid. The liquidity of the Islamic

stock market encourages more investments, and more investments foster the economy to grow, which leads to achieving economic growth. The results are in line and consistent with the findings from Altarturi and Abduh (2016) and Yahya et al. (2012). It deciphered that the Islamic market financial intermediation in Malaysia is positively and increasingly supporting and influencing the long run economic growth of the country.

Capital formation is positive and strongly significant. The productivity of capital is also positive with strong significance. This proved that capital or investment can be accumulated and be productive as well as efficient through the activities of the IFM. The two serve as the channels through which ICM contributes to the growth of the Malaysian economy. The productivity of capital seemed to have the most potent effects compared to the other variables in the model; it shows that a 1% change in total factor productivity causes 0.98% change in GDP. It demonstrated that through efficiency in productivity especially on sound risk management and proper supervision, ICM in Malaysia contributed more to economic growth. Contrarily, government spending (as a control variable) negatively related to the real economy in Malaysia. This negative association is the same as the relationship between inflation (also as a control variable) and the real economy (though it shows consistency with the theories).

The diagnostic tests results in Table 6 revealed no serial correlation among the residuals in the model. It is normally distributed and no trace of heteroscedasticity. The probability values are >0.05 significance level. The model was specified correctly. These confirmed that the coefficients estimated in this model are unbiased, efficient and are stable. Thus, it could be used for policy

TABLE 5. ARDL Estimate of Long-run Relationship

REGRESSORS	COEFFICIENTS	T-STATISTICS
LICMC	0.146***	3.824
LISMT	0.130***	4.131
LGFCF	0.142***	2.806
LTFP	0.976***	6.468
LGOVT	-0.031	-0.568
LINF	-0.104	-0.785
INTERCEPT	0.015***	9.239

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

TABLE 6. Diagnostic Test Statistics

Serial Correlation $X^2(4)$	2.087[0.095]	(Breusch-Godfrey LM)
Normality $X^2(2)$	8.25[0.016]	(Jarque-Bera)
Heteroscedasticity $X^2(1)$	0.807[0.666]	(Breusch-Pagan-Godfrey)
ARDL (2,1,0,0.4,1,0) is selected based on SIC		

Note: p-values in parenthesis and the tests names in the bracket

TABLE 7. Results of ARDL Short-Run Estimate and ECM

Regressors	Coefficients	t-Statistics
ΔLGDP(-1)	0.502***	5.618
ΔLICMC	0.026	0.626
ΔLISMT	0.123***	4.437
ΔLGFCF	0.080	1.622
ΔLTFP	2.094***	3.948
ΔLGOVT	-0.038*	-1.816
ΔLGOVT(-1)	-0.074***	-3.214
ΔLGOVT(-2)	-0.097***	-4.389
ΔLGOVT(-3)	-0.078***	-3.742
ΔLINF	0.099	0.472
Intercept	8.067***	8.978
ECM (-1)	-0.854***	-8.953

Note: ***, ** and * represent statistical significance at 1%, 5% and 10% respectively. ARDL (2,1,0,0,4,1,0) for the model selected based on SIC.

recommendation. The CUSUM and CUSUMSQ graph provided that the data is within 0.05 line graph, means the data is not drifting, and it is in good shape and fit for making a good prediction and produce a reliable result. However, the graph is not shown here due to the space limitation.

The Estimation of Short-run Relationship and the ECM

The results for the short-run relationship among the variables as well as ECM coefficient is estimated, the diagnostic tests were also conducted, and presented in Table 7. The results in Table 7 showed that the ICM capitalisation does not affect Malaysian GDP in the short run. It implies that investments in ICM are usually long-term. The fund for capitalisation is for the future, as most of the maturity of the investment is long term. Islamic stock turnover affects GDP in the short run, implying that soon, the turnover received and the liquidity of Islamic stock market in Malaysia is lucrative. It increases the purchasing power of individuals, which will be spent on economic goods within the economy and hence causes growth. The coefficient of Islamic stock market turnover (ISMT) suggests that a 1% change in the turnover of the Islamic stock market causes up to 0.12% raise in Malaysian GDP. It implies that the turnover received from the sales of Islamic stocks increases the liquidity of Islamic stock market of Malaysia within a short period, and the liquidity is effective in influencing Malaysian economy immediately. The liquidity encourages more investments, which increased the price of *Shariah*-compliant stocks and generate more profit to the stockholders. A portion of the profit is spent immediately on economic goods and increases the demand for the economic goods within the country. Therefore, producers increase production and hence positively affects GDP. It is evidence of a rapid impact on the economy within a short time. The results also suggest the Granger causal relationship between Islamic stock turnover and GDP, but no causal relationship between ICM capitalisation and GDP.

The error correction term of the model for this study is negative and statistically significant. It implies that 85% of all the deviations from the long-run equilibrium route can be adjusted in one quarter. It is evident the existence of a long-run relationship between IFM activities among other variables and real Malaysian economy. The capital formation does not affect real Malaysian sector in the short run. This implies that the formation of capital using ICM fund is absent in the short run, hence, does not serve as a channel of transmitting growth. The productivity of capital affects Malaysian economic growth implying that capital sourced from the ICM is efficient in production and serve as a channel through which the ICM affect economic growth. It follows the trend of the long-run findings. The findings of this study in the short run do not support the findings of Altarturi and Abduh (2016) and Yahya et al. (2012). However, it provided new evidence in the short run.

Government expenditure has a negative relationship with GDP. It also reiterates the ineffectiveness of fiscal policy instrument on the growth of the Malaysian economy. The inflation is positive but insignificantly related to the real economy in the short run.

CONCLUSION

Based on the results obtained, it is revealed that in the long-run the ICM significantly and positively impacts the real economy of Malaysia. Total investment and the efficiency of capital served as channels of transmitting growth to the Malaysian economy. The ICM confirmed a long-run relationship with Malaysian economic growth.

It means that the ICM plays a critical role in fostering real sector growth. Thus, empowering and solidifying the role of Islamic financial system through deliberate policies by policymakers in Malaysia that can provide varieties in *Shariah* structured products and services. Improving the volume of IFM investment should be encouraged. Moreover, there is a need for policies from the authorities concerned to reduce the financial costs of ICM product development and registration. It will serve as an incentive to create more Islamic capital market products that are profitable and hence increase the volume of financial market participatory investment. Policies like reduction in duties and taxes by Malaysian tax authorities as well as lowering registration fees for their incorporation should be considered as incentives.

In the short run, the relationship between the ICM indices and the real Malaysian economy is only significant with Islamic market turnover. Capital formation does not serve as a channel for transmitting growth, but the productivity of capital does. This means short-term funds in the Malaysian ICM is not capable of affecting growth, but its productivity is efficient (due to proper risk management and supervision) hence affecting growth. The policy implication here is that indeed, ICM must play their role of mobilising surplus funds through the innovation of a wide range of Islamic financial products and services that have short-term benefits, and improved service quality. The result of ISMT confirmed the superiority of equity financial activities over the dominated debt financial activities of Islamic financial institutions in Malaysia. The returns from Islamic stock is based on equity shares and shows the strong influence it has on the growth of the Malaysian economy in both the short run and long run. Therefore, Islamic financial institutions in Malaysia are recommended to shift back to the original model of Islamic banking and finance to achieve both sectoral and economic growth. This study also suggested the need for strengthening the PLS structured products in financing portfolios of Islamic financial institutions in Malaysia. It may cause more financial inclusion, and hence economic growth can be attained in the short run. Most importantly, the Malaysian Islamic financial sector stakeholders should provide more *Shariah* compliant structured money market instruments for ICM short-term liquidity management. Equally, they should ensure that a considerable portion of their financings goes to a real productive sector, which, in turn, could bring a quick return. It is essential in securing sustainable growth, which has direct and indirect multiplier effects on the Islamic financial institutions and the economy in general. It may also significantly affect the economy in the short run.

Nevertheless, this study is evidence that the ICM in Malaysia is performing effectively well in carrying out its primary function of financial intermediation. It effectively channelled and pooled funds to productive investment activities, which resulted in affecting growth. It further proves the notion that Islamic finance is more inclined to real sector growth as compared to the conventional counterpart, due to its emphasis on equity-based financings as opposed to debt-based financing. As such, the study recommends that Islamic financial institutions should increase the provision of Islamic financial services and overcome all its hitches. Conventional financial institutions pose a great challenge to the Islamic financial institutions so continuous efforts are needed to keep a balance between spiritually and providing commercially feasible Islamic substitute to shareholders for updated investment strategies (Alam, Abdul Aziz & Iqbal 2020). Moreover, the ICM needs to create products with short term maturity that can attract investors to finance short term investments. The government should also devise the means of managing its spending that can be geared towards influencing the growth of the economy. Thus, avoid overcrowding the ICM, let the funds in the ICM be used for financing the real sector than financing government projects. Therefore, the Malaysian IFM specifically ICM is among the top-ranking capital markets in the world (Bursa Malaysia, 2018); it needs effective efforts by all stakeholders in promoting its activities.

There is an existence of causality between the Islamic stock market turnover and the Malaysian economy. However, no causal relationship between ICM capitalisation and Malaysian economic growth. Subsequently, a causal relationship exists between the productivity of capital and economic growth but not with capital formation.

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