

The effectiveness of Sukuk (Islamic bonds) financing on the financial stability of Islamic banks: An empirical evidence from Malaysia

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Summary: This paper aims to investigate empirically the impact of Sukuk (Islamic bonds) financing on the financial stability of Islamic banking in Malaysia. This paper applied bootstrap quantile regression as an optimal estimation approach to investigate the impact of Sukuk financing on the financial stability of Islamic banking in Malaysia spanning from 2013Q4 to 2019Q3. Sukuk financing was proxied by the total issued Sukuk holdings, while the financial stability of Islamic banking was calculated by the Z-score formula. The sample covered all full-fledged Islamic financial institutions in Malaysia. The findings demonstrated that Sukuk financing is enhancing the financial stability of Islamic banking in Malaysia which reflects the significant role of the Islamic financial markets of Sukuk as a vital contributor to financial stability. This paper would fill the literature by investigating the role of Sukuk financing on the financial stability of Islamic banking in Malaysia as a successful experiment, as the outcome of this paper serves as a guide for financial researchers, decision-makers, and policymakers to improve the Sukuk market globally as an alternative financing source for the best contribution to the financial stability of Islamic banking and the economic stability.

Keywords: Sukuk Financing; Financial Stability; Z-Score; Islamic Financial Markets; Bootstrap Quantile Regression.

JEL Classification Codes: C80; C31; E44; G29.

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I-Introduction:

Lately, Islamic finance has proven to be a significant player in economic development around the world, with the expansion of its reserves forecast to rise to US\$3.8 trillion by 2023 (DinarStandard, 2020). According to Lahsasna et al. (2018) and Al-Ali (2019), Sukuk is essentially the largest Islamic finance tool that stimulates economic development. Sukuk are Islamic bond certificates or Islamic debt instruments that conform with Islamic law where the benefit from Sukuk is free from interest but derives from the performance of the underlying asset (Lahsasna et al., 2018; Al-Ali, 2019). As a result, the benefit provided by Sukuk is not interest-based but is a result of the success of the basic asset.

Recently, the Sukuk market has seen rapid growth, especially in most Muslim economies. As a result, the most advanced Sukuk markets around the world are in the southeast of Asia, where the Islamic finance industry is expanding in all of Malaysia, Indonesia, and Brunei (DinarStandard, 2020). Malaysia persisted on the global Sukuk market by establishing 50.5% of the global Sukuk issue, while Malaysia remained the world's leading issuer, accounting for 41 percent of the overall global Sukuk share in the first half of 2018, up 33% a year earlier (International Islamic Financial Market, 2020).

In the first half of 2018, Sukuk published USD 22.4 billion, a rise of 9% from the first half of 2017 (Figure. 1) (International Islamic Financial Market, 2020). This extraordinary growth reflected both a boost in industrial production across a large spectrum of sectors and a rise in the number of short-term Islamic government bonds sold by Malaysia's central bank (International Islamic Financial Market, 2020).

Malaysia's domestic Sukuk sector continues to serve as an important and fruitful forum for state and business firms to raise long-term funds for diverse economic, trade, and infrastructure development requirements (International Islamic Financial Market, 2020). In the first half of 2018, Sukuk government and corporate debt added RM 99.36 billion, or 52.02 percent of the overall bond issue, compared to RM 79.01 billion in the first half of 2017, while Sukuk's total outstanding debt grew to RM 818.41 billion, or 59.59 percent of the total debt released, compared to RM 718.41 billion in the first half of 2017 (International Islamic Financial Market, 2020). This substantial Sukuk growth reflects the fact that Malaysia is the leading leader in Islamic finance with the best Global Islamic Economy Indicator (GIEI) score of 111, representing the best Islamic finance success in the world (DinarStandard, 2020).

According to Haini (2019), and Ledhem (2020), Malaysia has seen massive economic stability and growth recently thanks to changes in the Islamic capital markets of Sukuk. Besides, according to Ahmad and Radzi (2011), and N. Ahmad et al. (2012), Sukuk (Islamic bonds) are enhancing financial stability. For this reason and as an expansion to the literature on investigating the link between Sukuk financing and financial stability, this study aims to investigate whether Sukuk financing is promoting financial stability based on a leading country in issuing Sukuk which is Malaysia.

Based on the research of Ahmad and Radzi (2011), Ahmad et al. (2012), Taoual (2016), pure studies that investigated the link between Sukuk financing and financial stability are limited, consequently, there is an understanding lack of this link. Thus, this study is enriching the literature by giving a purer investigation on this link from a robust sample of Islamic financial institutions of Malaysia which contain remarkable Islamic financial markets of Sukuk. Malaysia is currently seeing a steady increase in capital stock, consumption, and knowledge accumulation, contributing to financial stability (W. Ahmad and Radzi, 2011; Karim, Alhabshi, Kassim, and Haron, 2018). Therefore, this paper is providing a significant contribution to the literature by investigating empirically the effect of Sukuk financing and financial stability of Islamic banks in Malaysia as the top pioneer country at issuing Sukuk. Thus, this paper answers the following question: "Does Sukuk financing enhance the financial stability of Islamic banking in Malaysia?"

According to Ahmad and Radzi (2011), and N. Ahmad et al. (2012), Sukuk financing is improving financial stability. Thus, this paper formulates the hypothesis as the following:

- Sukuk financing affects positively the financial stability of Islamic banks in Malaysia.

II- Literature review:

Many studies determined that Islamic finance is boosting financial stability (Čihák and Hesse, 2010; Islam, Sumon, Ahmed, and Yousuf, 2019; Sakti and Mohamad, 2018). However, pure studies of the link between Sukuk and financial stability are limited (W. Ahmad and Radzi, 2011; Selim, 2015; Taoual, 2016). For this reason, and as an extension to the studies on Sukuk and financial stability, this study examines the relationship between Sukuk financing and financial

stability. Consequently, it is believed that this paper will add a significant contribution to the literature.

Regarding studies on the link between Sukuk and financial stability, Selim (2015) examined the usefulness of Sukuk as an alternative monetary policy instrument by comparing Sukuk-driven monetary policy with the traditional monetary policy based on interest rates under fixed and stable exchange-rate regimes. Its findings have shown that the Sukuk-based monetary policy is comparatively more effective in rising production, jobs and keeping inflation stable, without having harmful side effects on the economy.

Similarly, Ahmad and Radzi (2011) looked at the sustainability of Sukuk alongside traditional bonds in Malaysia using OLS regression for the period 1990-2009. Their findings have shown that Sukuk (Islamic bonds) are part of the key factors of bond issuance that have confirmed Sukuk's success and longevity in the financial markets.

As well, Taoual (2016) discussed the role of Islamic Sukuk's financial stability instruments in the GCC region and how Sukuk can contribute to the stability of the GCC. Their studies have shown that long-term Sukuk funding is important for economic stabilization by financing infrastructure and facilitating industrial investment. Additionally, Sukuk and Islamic shares have the potential to improve financial stability by adhering to the Sharia (Islamic Law) concepts of wealth ownership, risk-sharing, and accountability, while resisting efforts to be similar to traditional bonds. Besides, Sukuk and Islamic securitization stay a largely untapped form of structured finance that can and should be seen as a potentially useful contribution to the stabilization of the financial system in the GCC and the MENA region. Also, the profit and loss sharing structure (PLS) in Sukuk will help to maintain a distribution of resources in the scheme that will prevent it from failure. As financial integration increases along with the internationalization of Islamic finance, development in the Sukuk sector is set to lead to a more holistic growth process while at the same time improving financial stability.

Correspondingly, Cakir and Raei (2007) measured the effects of Islamic bonds (Sukuk) on the expense and risk structure of investment portfolios based on Islamic values using the value-at-risk system. Their results showed that Sukuk provided by the same lender differed greatly from Eurobonds in terms of having diversifying investment portfolio advantages.

Concerning the contribution of Sukuk to economic stability and growth, there are many studies on this topic. In a recent study, Ledhem (2020) investigated the link between Sukuk and economic growth in all of Indonesia, Brunei, and Malaysia based on a quarterly sample from 2013-2019. The findings indicated that Islamic securities had a positive impact on economic growth. Besides, Yıldırım et al. (2020) assessed the influence of business changes in Sukuk on economic growth across a sample of nine Islamic banking and finance countries over the period 2014Q1 to 2017Q4. They determined the existence of a long-term correlation between the production of the Sukuk market and economic growth when the Sukuk density and the Sukuk exports had a positive impact on economic growth. Similarly, Al-Raeai et al. (2018) examined the effect of macroeconomic factors on the growth of the Sukuk sector in the Gulf Cooperation Council for the period 2001-2016 to suggest Sukuk as an alternate source of financing to achieve economic stability. They concluded that market trends in Sukuk could enhance the economic stability.

According to the literature, Sukuk has the potential in achieving financial stability through Islamic banks. As well, Sukuk financing has the potential in achieving economic stability through enhancing economic growth. To expand the literature surrounding the contribution of Sukuk in achieving financial stability, this study is investigating the effect of Sukuk financing on the financial stability of Islamic banks from a pioneer country in issuing Sukuk (Islamic bonds) which is Malaysia. Hence, it is believed that this paper will make a significant contribution to the literature.

III- Research methodology:

III. 1. Sample and data collection:

This study used data of Sukuk in Malaysia over all the Islamic financial institutions which cover 16 Islamic banks (Affin Islamic Bank Berhad, Al Rajhi Banking & Investment Corporation (Malaysia) Berhad, Alliance Islamic Bank Berhad, AmBank Islamic Berhad, Bank Islam Malaysia Berhad, Bank Muamalat Malaysia Berhad, CIMB Islamic Bank Berhad, HSBC Amanah Malaysia Berhad, Hong Leong Islamic Bank Berhad, Kuwait Finance House (Malaysia) Berhad, MBSB Bank Berhad, Maybank Islamic Berhad, OCBC Al-Amin Bank Berhad, Public Islamic Bank Berhad, RHB Islamic Bank Berhad, and Standard Chartered Saadiq Berhad) over a period starting from the last quarter of 2013 until the third quarter of 2019, while the bank-specific variables (Z-score factor which was calculated from the return on assets (ROA), Equity, and Assets; Capital adequacy ratio (CAR); Risk-weighted assets to total assets (RWATA); Bank size (SIZE)) were extracted from Bank Negara Malaysia database (Table 1).

III. 2. Experimental variables:

III. 2.1. The financial stability variable of Islamic banking:

Following Berger et al. (2017), Fiordelisi and Mare (2014), and Kabir and Worthington (2017), the financial stability variable of Islamic banking is determined by the z-score which is calculated based on the following formula presented by Boyd et al. (2006):

$$Z\text{-score} = \frac{ROA + \frac{Equity}{Assets}}{\sigma(ROA)} \quad (1)$$

Where the Z-score is calculated based on ROA (return on assets), Equity/Assets ratio, and the standard deviation of ROA.

III. 2.2. The Sukuk financing variable

Following Smaoui and Nechi (2017), Echchabi et al. (2018), Yıldırım et al. (2020), and Ledhem (2020), the Sukuk financing variable (SUKUK) is determined with total issued Sukuk holdings in Malaysia.

III. 2.3. Bank-Specific variables:

To avoid the problem of bias due to omitted bank-specific variables which can also affect the financial stability, other internal bank-specific variables were included in the estimated model to show the potential effects of other determinants of financial stability which were used based on the previous studies relating to the link between Sukuk and financial performance and stability and also based on the determinants of the financial stability. Thus, this paper employed the capital adequacy ratio (CAR) (Karim et al., 2018; Mimouni, Smaoui, Temimi, and Al-Azzam, 2019), risk-weighted assets to total assets (RWATA) as a proxy for financial riskiness (Karim et al., 2018; Mimouni et al., 2019), and the bank size (SIZE) which is determined by total assets (Karim et al., 2018; Mimouni et al., 2019).

Therefore, the estimation variables are:

Dependent variable: Z-score.

Independent variables: SUKUK .

Control variables: CAR, RWATA, and SIZE.

III. 3. Estimating model:

This research examined the impact of Sukuk on the financial stability of Islamic banks in Malaysia. According to Čihák and Hesse (2010), by employing the Z-score model, they found that Islamic banks have the ability if achieving financial stability. Thus, following Čihák and Hesse (2010), Berger et al. (2017), Fiordelisi and Mare (2014), and Kabir and Worthington (2017), this paper is employing the Z-score model as a measurement for the financial stability of Islamic banks in Malaysia, Sukuk is the main independent variable with other internal bank-specific variables in the following model:

$$Z - score_{it} = \alpha_0 + \alpha_1 SUKUK_{it} + \alpha_2 CAR_{it} + \alpha_3 RWATA_{it} + \alpha_4 SIZE_{it} + \xi_{it} \quad (2)$$

In which α_0 is a constant term, α_i are coefficients. ξ_{it} is an error term. The dependent variable is the financial stability of Islamic banks in Malaysia, the independent variable is SUKUK, and the control variables are CAR, RWATA, SIZE.

III. 4. Econometric methodology:

Following the study of Jiang et al. (2019) by adopting the quantile regression process to estimate the link between the capital buffer and bank risk-taking, this experimental study employed quantile regression to examine and investigate whether Sukuk financing is enhancing the financial stability of Islamic banks in Malaysia. This experimental study applied quantile regression with the bootstrap technique over 100 replications for a robust estimation which omits the heteroskedasticity problem in regression (Machado and Silva, 2013; Machado et al., 2019).

The quantile regression methodology is introduced by Koenker and Bassett (1978). It is hired in many practical applications that provide a robust estimation free from the regression heteroskedasticity problem when the interest variables hypothetically have diverse effects on the dependent variable's conditional distribution (Mello and Perrelli, 2003; Machado and Silva, 2013; Machado et al., 2019).

Following Koenker and Bassett (1978), the conditional distribution's τ quantile of Y_i given X_i is:

$$Q_\tau(Y_i|X_i) = X_i' \alpha_\tau \quad (3)$$

The constraint vector of the τ quantile among the conditional distribution is valued by:

$$\hat{\alpha}_\tau = \arg \min \sum_{i=1}^N \rho_\tau(Y_i - X_i' \alpha) \quad (4)$$

Where the quantile loss function $\rho_\tau(\cdot)$ is well-defined as:

$$\rho_\tau(u) = (\tau - 1)u \text{ for } u < 0 \quad (5)$$

$$\rho_\tau(u) = \tau u \text{ for } u \geq 0 \quad (6)$$

Eq. (4) displays that the method of quantile regression permits for constraint heterogeneity with diverse values for τ in the interval (0,1) which are the minimum weighted deviations sum, allowing us to get a whole picture of the bond between an exogenous variable and endogenous variable (J. a. F. Machado et al., 2019).

Furthermore, the quantile regression method is robust to outliers and extreme distributions because it can adjust the weight through the loss function. Unlike the OLS regression, the quantile regression does not limit to the standard error term (J. a. F. Machado et al., 2019).

The estimated model using the quantile regression in this study is as follows:

$$Z - score_t = \alpha_\tau + \alpha_{\tau 1}SUKUK_t + \alpha_{\tau 2}CAR_t + \alpha_{\tau 3}RWATA_t + \alpha_{\tau 4}SIZE_t, \tau \in (0,1) \quad (7)$$

In which α_τ is the constant term. While $\alpha_{\tau 1}$, $\alpha_{\tau 2}$, $\alpha_{\tau 3}$ and $\alpha_{\tau 4}$ are coefficients, t is the quarter, Z -score is a dependent variable, $SUKUK$ is the main independent variable, CAR , $RWATA$ and $SIZE$ are the control variables.

This study applied the quantile regression with an adjustable minimum weighted deviation sum of 0.25, 0.5, and 0.75 quantiles with bootstrap technique over 100 replications to understand the total link between Sukuk financing ($SUKUK$) which is the main independent variable on the financial stability of Islamic banks (Z -score) which is the dependent variable.

IV- Results and discussion:

To choose the optimal quantiles values for running the regression, this study performed the `QRQREG` command of Azevedo (2011) to display the data spreading over quantiles. Thus, Figure. 2 provides the graph of checking how the effects of Sukuk financing spread over quantiles, which indicates that the optimal quantiles for running regression are on low quantiles (0.25 quantiles) which refers to low Sukuk financing with low financial stability, the middle quantiles (0.5 quantiles) which refers to intermediate Sukuk financing with intermediate financial stability, and the high quantiles (0.75) which refers to high Sukuk financing with high financial stability. Thus, the regression is performed in three cases to get robust evidence about the effect of Sukuk financing on the financial stability of Islamic banks.

Based on Table. 2 which shows the bootstrap quantile regression results, the Sukuk financing ($SUKUK$) have a positive effect on financial stability (Z -score) all over 0.25, 0.5, and 0.75 quantiles under a level of significance under 5% (0.25 quantiles: p -value of Sukuk financing ($SUKUK$)= 0.040 < 0.05, 0.5 quantile: p -value of Sukuk financing ($SUKUK$)= 0.021 < 0.05, and 0.75 quantiles: p -value of Sukuk financing ($SUKUK$)= 0.048 < 0.05), which indicates that Sukuk financing ($SUKUK$) is enhancing the financial stability of Islamic banking in Malaysia at the low, the intermediate, and the high quantiles. Thus, this finding confirmed the validity of the hypothesis that Sukuk financing is affecting positively the financial stability of Islamic banks in Malaysia, which determines that Malaysia is a successful experiment in the contribution of Sukuk financing to the financial stability of Islamic banks.

Whereas other internal bank-specific variables (CAR , $RWATA$, and $SIZE$) were not statistically significant in achieving the financial stability of Islamic banks (Z -score) all over 0.25, 0.5, and 0.75 quantiles. Concerning the constant coefficient, it is insignificant all over 0.25, 0.5, however, at the 0.75 quantiles, the constant term is statistically significant in a significance level of 5%, which means that high quantiles of financial stability in this model are affected by other omitted variables.

Regarding the estimated model diagnostics based on Koenker and Machado (1999), quantile regression requires to test the slope equality examination of Koenker and Bassett (1982), symmetric quantile assessment of Newey and Powell (1987), and Ramsey Reset test of stability by Ramsey (1969) (Table. 3).

Table. 3 reported that the Chi-square statistic value of the slope equality test is 2.931661, which is statistically insignificant (probability of Chi²: 0.9386 > 0.05). So, according to the Wald test, we accept the slope equality at a 5% significance level, which means that slope equality is not different across quantiles. Besides, Table. 3 reported that the Chi-square value of the symmetric quantile test is 0.680981, which is not statistically significant at a 5% significance level. There is evidence of symmetry (the p-value is 0.9840 > 0.05) which leads to conclude that the individual coefficient restriction test value shows no evidence of asymmetry across the quantiles (0.25, 0.5, and 0.75) that are not significant. As well, concerning the Ramsey reset test, Table. 3 reported that the null hypothesis cannot be rejected because of the high insignificant p-value at the 5% level (p-value: 0.5758 > 0.05). Thus, all the coefficients on all powers are jointly insignificant in the quantile regression, for this reason, the estimated model is stable and accurate against any misspecification of autocorrelation and heteroskedasticity problems.

By performing the diagnostic tests of the slope equality examination of Koenker and Bassett (1982), symmetric quantile assessment of Newey and Powell (1987), and the stability of Ramsey (1969) in the bootstrap quantile regression, this study proved that the estimated results are accurate and robust to answer the research question whether Sukuk financing is enhancing the financial stability of Islamic banks in Malaysia.

V-Conclusion:

The main objective of this paper is to investigate empirically the role of Sukuk financing in endorsing the financial stability of Islamic banks in Malaysia. By applying the bootstrapped quantile regression method at 0.25, 0.5, and 0.75 quantiles, the results showed that Sukuk financing is positively significant to financial stability in Malaysia. The bootstrap quantile regression approach confirmed that Sukuk financing explains the positive effect on the financial stability of Islamic banking in Malaysia at the low, the intermediate, and the high quantiles. As well, to answer the main question, the findings indicated that Sukuk financing is effective in enhancing the financial stability of Malaysia. Besides, the empirical results of this paper are reliable with the findings of Čihák and Hesse (2010), Taoual (2016), Selim (2015) Ahmad and Radzi (2011) in which Sukuk financing through Islamic banks or Sukuk markets development has a positive effect on achieving financial stability and the economic stability in general.

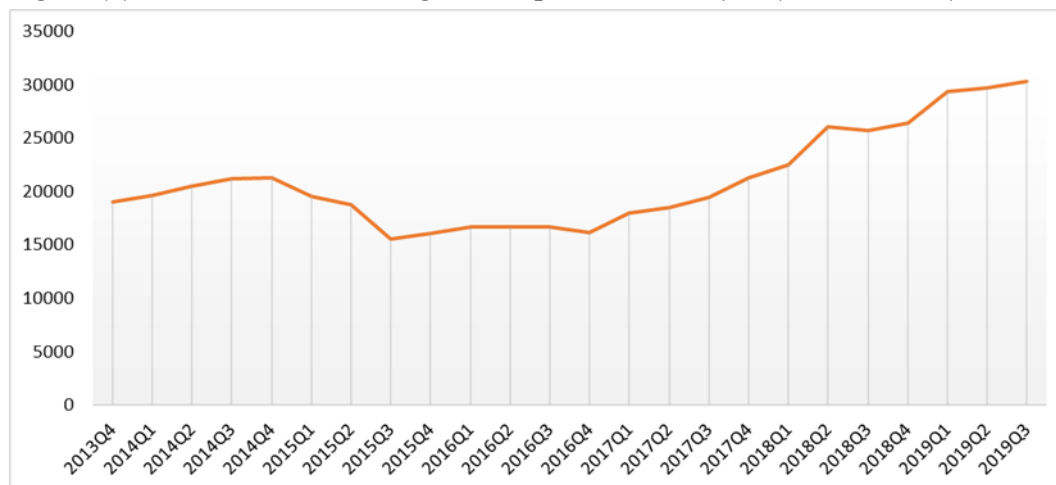
Based on previous research, Sukuk-based monetary policy is comparatively more successful in rising production, wages, and holding inflation stable, without having negative side effects on the economy. Sukuk financing is essential for economic stability by financing infrastructure and facilitating industrial investment. Furthermore, Sukuk and Islamic shares have the potential to improve financial stability if they abide by the Sharia (Islamic Law) rules of wealth ownership, risk-sharing and accountability while resisting efforts to be similar to traditional bonds. Also, Sukuk and Islamic securitization remain a relatively untapped method of structured finance that can and should be seen as a potentially useful contribution to the stabilization of the financial system. Besides, the benefit and loss sharing structure (PLS) in Sukuk will help maintain a distribution of resources in the scheme that will prevent it from failure. As financial inclusion grows along with the internationalization of Islamic finance, development in the Sukuk sector is set to lead to a more systemic process of growth while at the same time improving financial stability.

In conclusion, this study delivers important evidence for financial researchers, decision-makers, policymakers, and associated authorities that Sukuk financing is enhancing the financial stability of Islamic banks in Malaysia, which brings global attention to the significant role of Sukuk financing as an important instrument of Islamic finance in advancing financial stability of Islamic banking in Malaysia. Thus, the outcome of this paper stimulates financial researchers, decision-

makers, and policymakers across countries to the necessity of merging Sukuk (Islamic securities) in the financial markets as a major player alongside conventional securities to finance investments which empower the economic stability and financial stability especially in the Muslim countries which contain a remarkable Islamic population who trust Islamic finance and banking.

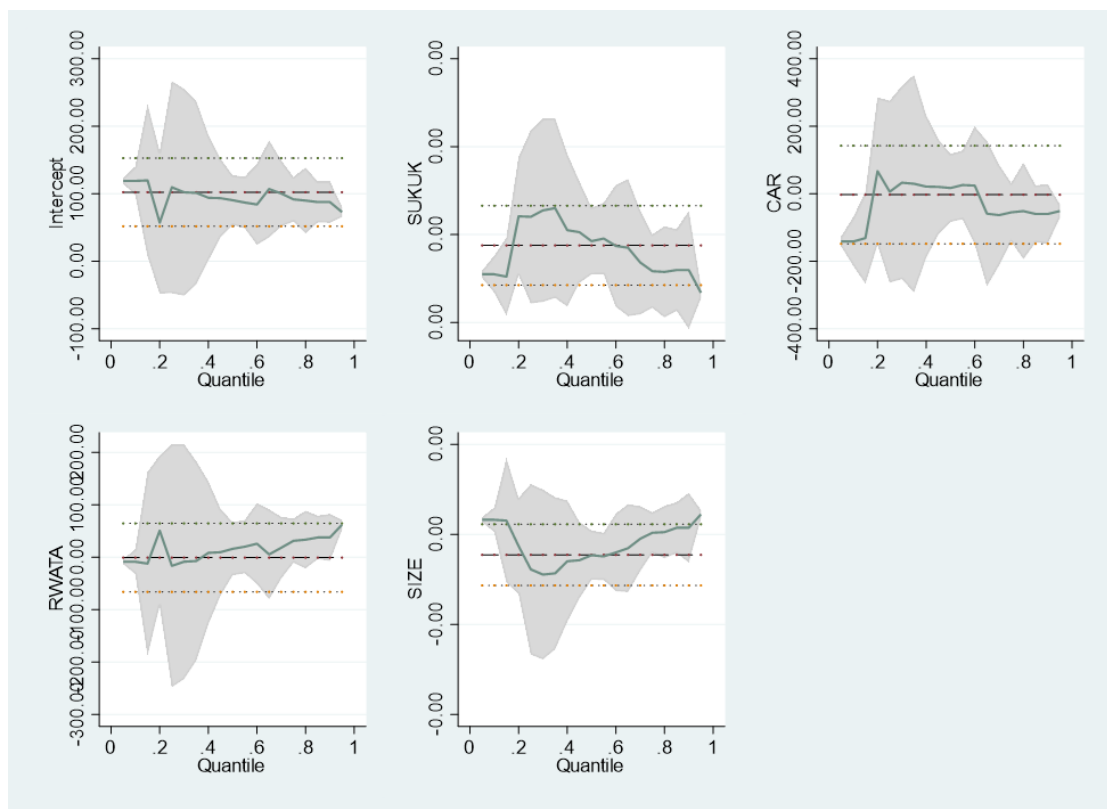
Appendices:

Figure (1): Sukuk finance holdings development in Malaysia (USD Million)



The source: Prepared graph from Ledhem (2020).

Figure (2): Graph of data spreading over quantiles



The source: Prepared graph from Ledhem (2020).

Table (1): Descriptive statistics summary of the research variables

Variable	Obs	Mean	Std. Dev.	Min	Max
Z-score	25	104.4303	1.88762	100.7631	107.2002
Sukuk	25	21465.93	4916.017	15520.37	31424.05
CAR	25	.1612909	.0104859	.1386601	.1786531
RWATA	25	.5052914	.0254795	.4629566	.5404926
SIZE	25	571951.4	121474.4	399424.5	794649.8

The source: Descriptive statistics summary prepared by authors

Table (2): Descriptive statistics summary of the research variables

Bootstrap replications (100)

Number of obs = 25

Dependent variable:	Coef.	Bootstrap Std. Err.	t	P > t	[95% Confidence	Interval]
Z-score						
0.25 Quantiles						
SUKUK	0.0006012	.0002735	2.20	0.040*	0.0000307	0.0011717
CAR	6.069676	134.0142	0.05	0.964	- 273.4791	285.6184
RWATA	-16.54686	65.89823	-0.25	0.804	-154.0082	120.9144
SIZE	-0.0000194	0.0000145	-1.34	0.196	-0.0000497	0.0000109
Constant	109.7039	53.58973	2.05	0.054	-2.082317	221.4901
0.5 Quantiles						
SUKUK	0.0004628	.0001851	2.50	0.021*	0.0000766	0.0008
CAR	17.03419	99.65137	0.17	0.866	-190.8349	224.9033
RWATA	15.96127	63.01834	0.25	0.803	-115.4927	147.4152
SIZE	-0.0000116	0.0000134	-0.86	0.399	-0.0000396	0.0000164
Constant	90.50942	45.83763	1.97	0.062	-5.106211	186.125
0.75 Quantiles						
SUKUK	0.0002921	0.0001386	2.11	0.048*	2.92e-06	0.0005812
CAR	-54.81512	67.82566	-0.81	0.428	-196.297	86.66674
RWATA	31.24491	66.06835	0.47	0.641	-106.5712	169.0611
SIZE	9.01e-07	.0000161	0.06	0.956	-0.0000326	0.0000344
Constant	91.78783	41.79974	2.20	0.040*	4.5951	178.9806

Note: * significant at the 0.05 level

The source: Quantile regression outputs prepared by authors using STATA16 software

Table (3): Bootstrapped quantile regression diagnostics

Slope equality test			
Null Hypothesis: Slope equality is not different			
<i>Test summary</i>	<i>Chi2 Stat</i>	<i>Chi2. D.F</i>	<i>Prob</i>
<i>Wald Test</i>	2.931661	8	0.9386
Symmetric quantiles test			
Null hypothesis: There is no asymmetry in quantiles			
<i>Wald test</i>	0.680981	5	0.9840
Ramsey Reset test of stability			
Null Hypothesis: No misspecification in the model			
QLR L-statistic	0.313153	1	0.5758

The source: Bootstrapped quantile regression diagnostics prepared by authors

Referrals and references:

1. Ahmad, N., Daud, S. N. M., and Kefeli, Z. (2012). Economic forces and the sukuk market. *Procedia-Social and Behavioral Sciences*, 65, 127–133.
2. Ahmad, W., and Radzi, R. M. (2011). Sustainability of sukuk and conventional bond during financial crisis: Malaysia's capital market. *Global Economy and Finance Journal*, 4(2), 33–45.
3. Al-Ali, S. (2019). *Raising Capital on Şukūk Markets: Structural, Legal and Regulatory Issues* (1st ed.). Springer International Publishing; Palgrave Macmillan.
4. Al-Raeai, A. M., Zainol, Z., Rahim, A. K. bin A., and Khilmy, A. (2018). The role of macroeconomic factors on sukuk market development of gulf cooperation council (gcc) countries. *International Journal of Economics and Financial Issues*, 8(3), 333–339.
5. Azevedo, J. P. (2011). GRQREG: Stata module to graph the coefficients of a quantile regression. In *Statistical Software Components*. Boston College Department of Economics. Retrieved from <https://ideas.repec.org/c/boc/bocode/s437001.html>
6. Berger, A. N., Klapper, L. F., and Turk-Ariss, R. (2017). Bank competition and financial stability. In *Handbook of Competition in Banking and Finance*. Edward Elgar Publishing.
7. Boyd, J. H., De Nicolò, G., and Jalal, A. M. (2006). *Bank risk-taking and competition revisited: New theory and new evidence*.
8. Cakir, S., and Raei, F. (2007). *Sukuk vs. Eurobonds: Is there a difference in value-at-risk?*
9. Čihák, M., and Hesse, H. (2010). Islamic Banks and Financial Stability: An Empirical Analysis. *Journal of Financial Services Research*, 38(2), 95–113. <https://doi.org/10.1007/s10693-010-0089-0>
10. DinarStandard. (2020). *State of the Global Islamic Economy Report 2019/20*. DinarStandard. Retrieved from DinarStandard website: <https://www.salaamgateway.com/SGIE19-20>
11. Echchabi, A., Aziz, H. A., and Idriss, U. (2018). The impact of Sukuk financing on economic growth: The case of GCC countries. *International Journal of Financial Services Management*, 9(1), 60–69. <https://doi.org/10.1504/IJFSM.2018.089920>

12. Fiordelisi, F., and Mare, D. S. (2014). Competition and financial stability in European cooperative banks. *Journal of International Money and Finance*, 45, 1–16.
<https://doi.org/10.1016/j.jimonfin.2014.02.008>
13. Haini, H. (2019). Examining the relationship between finance, institutions and economic growth: Evidence from the ASEAN economies. *Economic Change and Restructuring*.
<https://doi.org/10.1007/s10644-019-09257-5>
14. Islam, R., Sumon, S. M., Ahmed, R., and Yousuf, M. (2019). Financial Stability of Islamic Banks of Bangladesh: An Empirical Study. *Journal of Islamic Finance*, 8(1), 015–022.
15. Jiang, H., Zhang, J., and Sun, C. (2019). How does capital buffer affect bank risk-taking? New evidence from China using quantile regression. *China Economic Review*, 101300.
<https://doi.org/10.1016/j.chieco.2019.04.008>
16. Kabir, M. N., and Worthington, A. C. (2017). The ‘competition–stability/fragility’ nexus: A comparative analysis of Islamic and conventional banks. *International Review of Financial Analysis*, 50, 111–128.
17. Karim, N. A., Alhabshi, S. M. S. J., Kassim, S., and Haron, R. (2018). Measuring Bank Stability: A Comparative Analysis Between Islamic and Conventional Banks in Malaysia. *Proceedings of the 2nd Advances in Business Research International Conference*, 169–177. Springer.
18. Koenker, R., and Bassett, G. (1978). Regression Quantiles. *Econometrica*, 46(1), 33–50. JSTOR. <https://doi.org/10.2307/1913643>
19. Lahsasna, A., Hassan, M. K., and Ahmad, R. (2018). *Forward Lease Sukuk in Islamic Capital Markets: Structure and Governing Rules* (1st ed.). Springer International Publishing; Palgrave Macmillan.
20. Ledhem, M. A. (2020). Does Sukuk financing boost economic growth? Empirical evidence from Southeast Asia. *PSU Research Review, ahead-of-print*(ahead-of-print).
<https://doi.org/10.1108/PRR-09-2020-0028>
21. Machado, J. a. F., Parente, P. M. D. C., and Silva, J. M. C. S. (2019). *QREG2: Stata module to perform quantile regression with robust and clustered standard errors*. Boston College Department of Economics. Retrieved from
<https://ideas.repec.org/c/boc/bocode/s457369.html>
22. Machado, J. A., and Silva, J. (2013). Quantile regression and heteroskedasticity. *Https://Jmcss. Som. Surrey. Ac. Uk/JM_JSS. Pdf. Accessed*, 5(7), 2015.
23. Mello, M., and Perrelli, R. (2003). Growth equations: A quantile regression exploration. *The Quarterly Review of Economics and Finance*, 43(4), 643–667.
[https://doi.org/10.1016/S1062-9769\(03\)00043-7](https://doi.org/10.1016/S1062-9769(03)00043-7)
24. Mimouni, K., Smaoui, H., Temimi, A., and Al-Azzam, M. (2019). The impact of Sukuk on the performance of conventional and Islamic banks. *Pacific-Basin Finance Journal*, 54, 42–54. <https://doi.org/10.1016/j.pacfin.2019.01.007>
25. Sakti, M. R. P., and Mohamad, A. (2018). Efficiency, stability and asset quality of Islamic vis-à-vis conventional banks. *Journal of Islamic Accounting and Business Research*.
26. Selim, M. (2015). Effectiveness of Sukuk as a tool of monetary policy. *Journal of Islamic Economics, Banking and Finance*, 113(3142), 1–14.
27. Smaoui, H., and Nechi, S. (2017). Does sukuk market development spur economic growth? *Research in International Business and Finance*, 41, 136–147.
<https://doi.org/10.1016/j.ribaf.2017.04.018>

28. Taoual, S. (2016). *Sukuk: A potential for stability and development in the GCC*.
29. Yıldırım, S., Yıldırım, D. C., and Diboglu, P. (2020). Does Sukuk market development promote economic growth? *PSU Research Review, ahead-of-print*(ahead-of-print). <https://doi.org/10.1108/PRR-03-2020-0011>

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