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Sharia-Compliance, Internal Capital Allocation and Investment Policy: Evidence from Malaysia

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ABSTRACT

This study provides novel evidence of the impact of Sharia-compliance on the efficiency of internal capital allocation. Methodology/approach: We apply a generalized method of moments (GMM) estimation technique to analyze the results. The data covers 178 Malaysian listed firms for the period of 2008 to 2017. Findings: Our findings show that Sharia compliance plays a significant role in determining investment decision. In particular, Sharia-compliance firms are associated with less dependence on their internally generated funds when undertaking new investment projects. The results also reveal that Sharia-compliance is a nature of business that improves investment efficiency. Conclusion: The findings show that adopting Islamic business principles affects corporate investment, suggesting that Sharia compliance can reduce financial constraints and improve efficient capital allocation. Investors in Malaysia can draw on these results to evaluate and locate good investment opportunities.

INTRODUCTION

Starting from the assumption of a perfect capital market in which internal and external funds are perfect substitutes, Modigliani and Miller (1958) formulate their irrelevance proposition theorem that firm's investment decisions are not related to its financial decisions. However, by relaxing the assumption of perfect capital markets, different financing alternatives are no longer substitutable for each other in terms of firms' financing decisions. Therefore, the investment-financing decision should be jointly discussed. Significant progress has been made to understand the determinants of the financing choice of firms, which has resulted in voluminous empirical works related to various theories such as information asymmetry (Myers and Majluf, 1984) and agency theory (Jensen, 1986). Market imperfections, such as asymmetric information and agency costs, derive a discrepancy between the costs of external and inter-

nal funds. Firms facing higher market imperfections are less likely to access external financing, and therefore are more financially constrained. Consequently, they rely more on their internal funds when undertaking new investment projects. As stated by Fazzari et al. (1988), the sensitivities of capital expenditures to availability of internal cash flow are a monotonically increasing function of financial constraints.

However, in a subsequent study, Kaplan and Zingales (1997) present a critique of Fazzari et al. (1988) and of related articles. Using the subsample of firms used by Fazzari et al. (1988), Kaplan and Zingales (1997) analyze both quantitative and qualitative information on firms and find that investments in less financially constrained firms exhibit more sensitivity to changes in cash flow. Subsequent contributions, such as Gomes (2001), provide mixed conclusions about the role of financing constraints in generating high ICF sensitivities. Therefore, whether a firm's ICF sensitivity is a reliable indicator of financing constraints remains an unresolved empirical issue. Alternatively, financial constraints create severe problems for constrained firms to undertake feasible investment opportunities due to higher external financing cost (Islam and Luo, 2018). Market frictions raise problems of suboptimal investment decision (Ding et al., 2018). Managers with excess cash flow are always inclined to waste funds in projects that benefit themselves at the expense of shareholders' interests (Jensen, 1986). Myers and Majluf (1984) attribute suboptimal investment to adverse selection problems associated with information asymmetry. Since these problems increase the cost of external financing, managers, who have superior information and represent the interests of existing shareholders, will prefer to forego projects with positive net present values (NPV) rather than sell under-valued securities to finance the investment. However, despite the abundant literature on the investment policy of conventional firms, there is little evidence on the financing behavior of firms which operate under Islamic principles. Based on the theory of Islamic finance, firms complying with Sharia are subject to several restrictions to sustain their compliance status. More specifically, these firms have limited access to external financing and hence are more constrained in their financing choices (Alnori and Alqahtani, 2019).

The business community has witnessed a dramatic growth of Islamic funds during the last few years. Islamic finance has attracted a fair amount of interest from stock market participants. In Malaysia, Islamic finance has been witnessed with the robust growth. Actually, it is the fastest growing segment in the global financial industry. Sharia-compliant securities have been the prominent products in Malaysian capital market. The average growth rate of Islamic Capital Market (ICM) in Malaysia is 13.6% per annum over the ten-year period between 2000 and 2010 (Haron and Ibrahim, 2012). Abd Sukor et al. (2018) report that 80% of Malaysian publicly listed firms are Sharia-compliant. This increasing market share of Sharia-compliant firms in Malaysia offers an interesting platform to study their financial policy. Thus this paper seeks to fill the gap in the literature by examining whether the responsiveness of firms' investment to cash flow and investment opportunities differs according to the compliance with Sharia rules in Malaysia. The present study addresses this concern and poses the following two questions. First, does Sharia-compliance alter the sensitivity of investment to internal funds? Second, does Sharia-compliance improve the investment efficiency?

There are several important areas where this study makes an original contribution to the related literature. First, it provides further understanding of the financing modes of investment projects of firms identified as being SC compared to their non-compliant peers. Particularly, this research explores the implication of relevant Islamic principles on the allocation of internal funds. We argue that financial constraints faced by SC firms are such that these firms are at a disadvantage relative to their SNC counterparts to access financial markets. Second, this study focuses on an emerging Malaysian economy where the regulatory and institutional constraints are different from other developed and emerging economies. In particular, the majority of Malaysian firms adopt Islamic principles as a core element of their business activity. This provides an interesting setting to examine corporate financial decision under different cultural and value systems. Finally, the findings serve practitioners and firms that would like to operate under Islamic principles. The remainder of this paper is organized as follows. Section 2 reviews theoretical and empirical literature and develops the hypotheses. Section 3 discusses the sample and the methodology. Section 4 analyses the empirical results. Section 5 discusses the results, and section 6 concludes.

1. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

1.1 Sharia-Compliance and ICF Sensitivity

Considered as one of the fastest growing financial systems, Islamic finance around the world has experienced exceptional growth during the last few years. Robinson (2007) reports that the total Sharia-compliant assets have grown by more than 30% annual rate over the past decade. The Malaysia International Islamic Financial Centre estimates the total assets of the Islamic financial industry to \$ 2 trillion at the end of 2014. Its estimation of Islamic assets growth rate is 17.3% over the period of 2010 to 2014. Considering the Malaysian context, Haron and Ibrahim (2012) report that the Islamic finance industry has experienced rapid growth in the last decade and is expected to reach RM 2.9 trillion by 2020.

The expansion of Islamic finance in Malaysia raises the question of whether the compliance to Sharia rules has an influence on corporate financial decisions. Among the screening criteria to be SC firm is to have low leverage, low cash and interest bearing securities, and low account receivables (Dow Jones Islamic Market Index)¹. These financial characteristics of SC firms lead to more reliance on internal funds. First, owing to the leverage restriction, the availability of limited financing channels decreases the supply of funds available to SC corporations. In Malaysia, Bursa Malaysia imposes a fixed level of debt ratios to comply with Sharia principles. The interest-related income shall not exceed 10% of a firm's total income (Bursa Malaysia, 2012). As argued by Alnori and Alqahtani (2019), this restriction induces an increase in the cost of financing of SC firms. Therefore, these corporations face a significant gap in the supply of external debt financing which would affect the sensitivity of investment to internal funds. Ahmed (2007) aligns with this argument and suggests that SC firms have preference for internal financing. Second, limited cash reserves make firms more dependent on their cash flow to undertake new projects. In a similar vein, Arslan et al. (2006) argue that investment expenditures of cash-poor firms are very sensitive to the availability of internal funds.

Accordingly, from the above discussion, our first hypothesis would stand as:

H1: Sharia-compliant firms exhibit higher investment-cash flow sensitivity than Sharia non-compliant firms.

1.2 Sharia-Compliance and Investment Efficiency

Scholars have widely discussed a variety of frictions and distortional forces that prevent managers from making better investment decisions. In this case, companies deviate from their optimal levels of investment (Benlemlih and Bitar, 2018). The rationales behind are information asymmetry and agency problems. According to Myers and Majluf (1984), information asymmetry between managers and shareholders raises the cost of external funds. Under these circumstances, an underinvestment scenario occurs because firms reject some profitable projects due to fund constraints.

From the agency view, self-interested managers tend to maximize their welfare by choosing investment opportunities that are not systematically in the interest of shareholders. Substantial divergence between managers' control and cash flow rights can lead them to inefficiently invest shareholders' capital (Jensen, 1986). Thus, an overinvestment problem occurs due to the conflict between managers and shareholders.

To meet the Islamic regulations, SC firms are more selective in raising funds. Consequently, they face more constraints to access financial markets. According to Hovakimian (2011), easy access to external capital and free cash flow are expected to aggravate the allocation inefficiencies by facilitating investment spending. Since debt financing has to be asset backed, a main constraint faced by SC firms is the maintaining of debt ratio that cannot exceed the ratio of tangible assets to total assets. Therefore, any expansion in operations requires partly expansion of firm's tangible assets because debt constraints

¹The Dow Jones Islamic Index imposes five financial tests. Among these tests, one is that SC firms must have leverage ratio, cash ratio, and liquidity ratio below 33%.

imply that funds are not available in form of debt from bank. This restricts the amount of capital under managers' discretion and restrains them from overinvesting, which improves the efficiency of capital allocation.

On the other hand, studies including Alshammari (2014) argue that the adoption of Islamic principles improve firms' information quality. According to the author, applying Islamic business principles may generate more benefits to shareholders by implementing higher quality of corporate governance mechanisms. Thus, adopting Islamic business principles can serve as an effective governance mechanism to protect shareholders' interest, reduce information asymmetry and improve investment decision efficiency.

H2: Sharia-compliance improves corporate investment efficiency.

2. DATA DESCRIPTION AND METHODOLOGY

2.1 Data Sources and Sample

For the purpose of our empirical investigation, we consider Sharia-compliant and Sharia non-compliant firms listed on Bursa Malaysia for which all data were available. We follow the classification adopted by the Malaysian Securities Commission's Sharia Advisory Council to distinguish between Sharia-compliant and Sharia non-compliant firms. The classification used consists of two screening processes. Firstly, the proportion of Sharia non-compliant activities (such as conventional banking and insurance, gambling, pork and pork-related activities) to the total revenue and profit before tax of the company is limited to 5%. Moreover, the contribution of the following activities: share trading; stock broking business; rental received from Sharia non-compliant activities; and other activities deemed non-compliant according to Sharia should not exceed 20%. The second screening process adopted by the Sharia Advisory Council consists of the following financial ratios:

- (i) Cash over total assets: cash only includes cash placed in conventional accounts and instruments;
- (ii) Debt over total assets: debt only includes interest-bearing debt.

Each ratio, which is intended to measure *riba* and *riba-based* elements within a company's statements of financial position, must be less than 33%. This study uses a 10-year period data from 2008 until 2017. The year 2007 serves to calculate some parameters that are variations. We collect firms' stock prices, returns, and firms' financial data, available in Thomson Reuters Datastream. We exclude financial companies because of differences in their businesses and regulatory environment. We also exclude firms with missing information. The final sample due to data availability for the entire period is 143 Sharia-compliant and 35 Sharia non-compliant firms. To classify firms into more constrained and less constrained, we use dividend payout (Fazzari et al., 1988; Hubbard, 1998; Gupta and Mahakud, 2019) measured by the ratio of cash common dividends to net income. High dividend paying firms (less constrained firms) are those with dividend payouts greater than the median value of the overall sample payout ratio. Low dividend paying firms (more constrained firms) are those with dividend payouts lesser than the median value of the overall sample payout ratio.

2.2 Empirical Specifications and Estimation Methods

2.2.1 Empirical specifications

Q-model:

Following Gupta and Mahakud (2019), Tran and Le (2017), and Love (2003), the Q-model is specified as:

$$\left(\frac{I}{K}\right)_{it} = \alpha + \beta_1 \left(\frac{I}{K}\right)_{it-1} + \beta_2 Q_{it} + \beta_3 \left(\frac{CF}{K}\right)_{it} + \vartheta_i + \lambda_t + \mu_{it} \quad (1)$$

Where, I represents net investment, K is capital stock at the beginning of the period, Q is Q-ratio, CF is the internal cash flow of the firm. ϑ_i is the firm specific effect, λ_t is the time specific effect, μ_{it} is white noise. The subscripts i and t represent the firm and time respectively.

To examine the effect of financial constraints on ICF sensitivity, we split the sample into two groups based on the median value of dividend payouts. Considering the study of Fazzari et al. (1988), it has been argued that high dividend paying firms are treated as less financially constrained firms and low dividend paying firms are treated as more financially constraints.

This study examines the effect of Sharia-compliance on corporate investment in terms of its influence on financing constraints. Considering the effect of Sharia-compliance on ICF sensitivity and the direct effect of Sharia-compliance on corporate investment, the model is specified as follows:

$$\begin{aligned} (I/K)_{it} = & \alpha + \beta_1(I/K)_{it-1} + \beta_2Q_{it} + \beta_3(CF/K)_{it} + \beta_4(CF/K)_{it} \times SHAR_{it} + \beta_5SHAR_{it} + \vartheta_i + \lambda_t \\ & + \mu_{it} \end{aligned} \quad (2)$$

Where SHAR is a dummy variable that takes the value 1 if the firm meets Dow Jones requirements to be classified as Sharia-compliant.

The interaction term in equation (2) captures the effect of Sharia-compliance on the sensitivity of investment to internal funds. The magnitude of this effect is captured by $(\beta_3 + \beta_4 \times SHAR)$.

Further, we examine whether a firm's compliance with Sharia principles affects how efficiently it distributes the available capital between alternative investment projects.

Therefore, we estimate the following model:

$$\begin{aligned} (I/K)_{it} = & \alpha + \beta_1(I/K)_{it-1} + \beta_2Q_{it} + \beta_3(CF/K)_{it} + \beta_4Q_{it} \times SHAR_{it} + SHAR_{it} + \vartheta_i + \lambda_t \\ & + \mu_{it} \end{aligned} \quad (3)$$

The interaction term in equation (3) captures the effect of Sharia-compliance on the investment efficiency. The magnitude of this effect is captured by $(\beta_2 + \beta_4 \times SHAR)$.

Euler's equation:

As discussed by Gupta and Mahakud (2019), the Euler equation in the linear form is specified as:

$$(I/K)_{it} = \beta_0 + \beta_1(I/K)_{it-1} + \beta_2(S/K)_{it} + \beta_3(CF/K)_{it} + \vartheta_i + \lambda_t + \mu_{it} \quad (4)$$

The above equation is estimated for the overall sample, less constrained and more constrained firms.

Considering the effect of Sharia-compliance on ICF sensitivity and the direct effect of Sharia-compliance on corporate investment, the model is specified as follows:

$$\begin{aligned} (I/K)_{it} = & \beta_0 + \beta_1(I/K)_{it-1} + \beta_2(S/K)_{it} + \beta_3(CF/K)_{it} + \beta_4(CF/K)_{it} \times SHAR_{it} + SHAR_{it} + \vartheta_i + \\ & \lambda_t + \mu_{it} \end{aligned} \quad (5)$$

The interaction term in equation (5) captures the effect of Sharia-compliance on the sensitivity of investment to internal funds. The magnitude of this effect is captured by $(\beta_3 + \beta_4 \times SHAR)$. Further, considering the effect of investment opportunities on corporate investment of SC and SNC firms in the Euler's equation, we specify the following equation:

$$\begin{aligned} (I/K)_{it} = & \alpha + \beta_1(I/K)_{it-1} + \beta_2(S/K)_{it} + \beta_3(CF/K)_{it} + \beta_4(S/K)_{it} \times SHAR_{it} + SHAR_{it} + \vartheta_i \\ & + \lambda_t \\ & + \mu_{it} \end{aligned} \quad (6)$$

The interaction term in equation (6) captures the effect of Sharia-compliance on the investment efficiency. The magnitude of this effect is captured by $(\beta_2 + \beta_4 \times SHAR)$.

2.2.2 Estimation methods

We estimate the above equations using first-difference GMM (Arellano and Bond, 1991). To ensure that Arellano-Bond estimator is appropriate for investment models, we use the Sargan-test. To perform tests of serial correlation in the error terms, we employ Arellano-Bond AR(1) and AR(2) tests. To ensure that all the lags of the dependent variable and other instrumental variables are strictly exogenous, the residual terms of the first difference equation must be correlated in the first-order test but not in the second-order.

3. REGRESSION RESULTS

3.1 Descriptive Analysis

Table 1 provides descriptive statistics (mean and standard deviation) for the regression variables: investment to capital ratio, sales to capital ratio, cash flow and Q ratio. It presents summary statistics for the entire sample as well as for subsamples of firms grouped according to dividend payout and compliance with Sharia principles. The results show that cash flow, Q ratio and sales to capital ratio of SC firms are higher than those of SNC firms. Mean and median investment ratios differ considerably between SC firms and SNC firms' sub-samples. Despite their low values of investment opportunities, SNC firms spend more on investment compared to SC firms. This suggests that SNC firms in Malaysia may be potential over-investors.

The behavior of the previous ratios suggests traits of more constrained (low dividend paying) firms that differ from less constrained (high dividend paying) firms. First, more constrained firms generate less internal funds relative to those with less financial constraints. This exacerbates financial problems by increasing the needs for external financing. Second, Q ratio and sales to capital ratio of financially constrained firms are lower than those of financially unconstrained firms. This suggests that the existence of financial constraints can obviously have important effects on the firm's ability to grow and stay in the market.

Table 1. Summary Statistics of Key Variables

	<i>I/K</i> Mean (Std.) (1)	<i>CF/K</i> Mean (Std.) (2)	<i>Q</i> Mean (Std.) (3)	<i>S/K</i> Mean (Std.) (4)
All firms	0.17 (0.31)	0.08 (0.09)	1.97 (1.42)	0.83 (0.58)
Sharia-compliant firms	0.13 (0.15)	0.07 (0.07)	2.12 (1.77)	0.88 (0.63)
Sharia non-compliant firms	0.21 (0.36)	0.09 (0.10)	1.81 (0.71)	0.76 (0.51)
High dividend paying firms	0.19 (0.37)	0.09 (0.09)	2.08 (1.73)	0.86 (0.49)
Low dividend paying firms	0.16 (0.22)	0.07 (0.08)	1.93 (1.34)	0.81 (0.45)

Next, to ensure the lack of multicollinearity among the explanatory variables, this study conducts collinearity diagnostics. Two tests were performed: the pairwise correlation matrix among the explanatory variables and the variance inflation factor (VIF). The presence of a multicollinearity problem among the independent variables implies non-correct results from the regressions. According to Kennedy (1985), if the correlation among the independent variables is greater than or equal to 0.80, then multicollinearity problem is assumed to exist. As shown in Table 2, the Pearson correlation coefficients show that there is no correlation between the variables that reaches 0.8. The low magnitude of correlations among the explanatory variables indicates that multicollinearity is not a problem for the sample.

Furthermore, we use the "Variance Inflation Factor (VIF)" to test the existence of multicollinearity. As highlighted in Table 2, all VIF values of explanatory variables are less than 4, supporting the previous conclusion that there are no significant multicollinearity issues in the data. If the VIFs exceed 4, this war-

rants further investigations. However, if the VIFs exceed 10, this is a sign of serious multicollinearity requiring correction (O'Brien, 2007).

Table 2. Correlation Matrix of Key Variables

	<i>I/K</i>	<i>CF/K</i>	<i>Q</i>	<i>S/K</i>	VIF
<i>I/K</i>	1				
<i>CF/K</i>	0.107***	1			1.32
<i>Q</i>	0.143**	0.177*	1		1.28
<i>S/K</i>	0.038**	0.139*	0.032**	1	1.22

The coefficient that are significant at 10% are followed by *, those at 5% and 1% by ** and *** respectively.

3.2 Baseline Regression

This section presents the GMM estimation results obtained from estimating Equation (1) and Equation (4) focusing on the relationship between investment and cash flow. Columns (1 and 2), (3 and 4) and (5 and 6) of Table 3 provide the results of both investment function (Q-model and Euler equation) for the whole sample, less constrained firms and more constrained firms, respectively. The results reported in Table 3 show that the *p* values of AR(1) and AR(2), the Sargan test and Wald test support the use of GMM estimation. As reported in Table 3, the lagged investment variable has a positive and significant coefficient. This implies a persistence effect in firms' investment undertaken, that is, current investment depends on past investment, in the sense that a higher investment in the previous year is followed by a higher investment in the current year. These findings are consistent with those presented by Love (2003), Tran and Le (2017) and Gupta and Mahakud (2019).

Table 3. Estimation Results of the Baseline Investment Models

Variables	Whole sample		Less constrained firms		More constrained firms	
	Q-Model (Eq.1)	Euler Eq. (Eq.4)	Q-Model (Eq.1)	Euler Eq. (Eq.4)	Q-Model (Eq.1)	Euler Eq. (Eq.4)
$(I/K)_{it-1}$	0.301*** (9.61)	0.286*** (9.30)	0.328*** (5.63)	0.329*** (5.64)	0.191*** (4.43)	0.208*** (4.76)
Q_{it}	0.021* (1.74)		0.019* (1.88)		0.036* (1.90)	
$(S/K)_{it}$		0.0211** (2.23)		0.029** (2.37)		0.078** (2.52)
$(CF/K)_{it}$	0.384*** (4.11)	0.406*** (4.39)	0.285*** (4.48)	0.280*** (4.46)	0.571*** (4.56)	0.543*** (4.32)
Constant	-0.002 (-0.94)	-0.003 (-1.31)	-0.005 (-0.13)	-0.007 (-0.16)	-0.011** (-2.05)	-0.011** (-2.29)
Sargan test	(0.77)	(0.75)	(0.17)	(0.22)	(0.36)	(0.38)
AR test: H ₀ : AR(1) = 0	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
H ₀ : AR(2) = 0	(0.46)	(0.45)	(0.26)	(0.25)	(0.72)	(0.85)
Wald test	107.39	112.99	53.81	53.95	60.67	75.45
N	1780	1780	1210	1210	570	570

The coefficient that are significant at 10% are followed by *, those at 5% and 1% by ** and *** respectively.

The results also indicate that the cash flow has a strong explanatory power in all regressions. It is clear that the sensitivity of investment of internal funds is positive for all firm groups, and is a lot larger for more constrained firms' group. This significant positive coefficient of cash flow reflects the financial frictions in Malaysian capital market. The coefficient associated with cash flow for the overall sample varies between (0.384) and (0.406) implying the strong reliance of Malaysian firms on their generated

cash flow to finance investment projects. This evidence agreed with Love (2003) who finds that investment is more sensitive to cash flow for firms in less financially developed countries.

More interestingly, investment responds strongly to movements in internal funds for groups of firms perceived a priori to face financing constraints. More constrained firms' group shows higher sensitivity of investment to cash flow (0.571 and 0.543) than less constrained firms (0.285 and 0.280). Thus, in the presence of financial frictions, it is more difficult and costly for firms to finance investments with external funds than with internal funds.

3.3 The Effect of Sharia-Compliance on ICF Sensitivity

In our next set of regressions, we seek to formally test whether ICF sensitivities are affected by the adoption of Sharia principles. The interaction between cash flow and Sharia-compliance captures the impact of adopting Islamic business principles on financial constraints. We control for the direct effects of Sharia-compliance and cash flow on investment to make sure that these direct effects do not drive the estimate of β_4 . The estimation results are reported in Table 4 (columns 4, 5 and 6). Contrary to our prediction, the interaction coefficients between Sharia-compliance and cash flow in both investment models are negative and significant. For the whole sample, the effect of cash flow on corporate investment is $(0.391 - 0.133) = 0.258$ for SC firms, weaker than 0.391 for SNC firms. This suggests that implementing Islamic business principles may generate more benefits by reducing the financial constraints faced by the firm.

Additionally, the effect of Sharia-compliance on ICF sensitivity is more (less) prominent for high (low) dividend paying firms. For less constrained firms, the coefficients associated with the interaction variables between cash flow and Sharia-compliance are -0.228 and -0.209. However, these coefficients are -0.136 and -0.119 for more constrained firms. This indicates that less constrained firms benefit more from implementing Islamic business principles.

Table 4. Estimation Results of the Impact of Sharia-Compliance on ICF Sensitivity

Variables	Whole sample		Less constrained firms		More constrained firms	
	Q-Model (Eq.1)	Euler Eq. (Eq.4)	Q-Model (Eq.1)	Euler Eq. (Eq.4)	Q-Model (Eq.1)	Euler Eq. (Eq.4)
$(I/K)_{it-1}$	0.304*** (9.65)	0.290*** (8.67)	0.282*** (4.99)	0.281*** (4.97)	0.195*** (4.47)	0.212*** (4.79)
Q_{it}	0.024* (1.77)		0.016* (1.92)		0.038* (1.76)	
$(S/K)_{it}$		0.012** (2.31)		0.021** (2.16)		0.078** (2.53)
$(CF/K)_{it}$	0.391*** (3.88)	0.419*** (4.75)	0.482*** (5.56)	0.475*** (5.57)	0.574*** (4.47)	0.583*** (4.58)
$(CF/K)_{it} \times SHAR_i$	-0.133** (-2.39)	-0.106*** (-3.09)	-0.228*** (-3.03)	-0.209*** (-3.06)	-0.136* (-1.72)	-0.119* (-1.68)
SHAR _i	0.020 (0.84)	0.025 (1.07)	0.033 (0.74)	0.0327 (0.72)	0.035 (0.73)	0.031 (0.66)
Constant	-0.002 (-0.79)	-0.003 (-1.29)	-0.004 (-0.98)	-0.004 (-1.11)	-0.010* (-1.94)	-0.011** (-2.21)
Sargan test	(0.77)	(0.75)	(0.14)	(0.16)	(0.21)	(0.23)
AR test:						
H ₀ : AR(1) = 0	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
H ₀ : AR(2) = 0	(0.49)	(0.50)	(0.29)	(0.26)	(0.65)	(0.85)
Wald test	108.70	114.91	68.83	68.88	61.55	66.09
N	1780	1780	1210	1210	570	570

The coefficient that are significant at 10% are followed by *, those at 5% and 1% by ** and *** respectively.

3.4 The Effect of Sharia-Compliance on Investment Efficiency

Next, we examine whether Sharia-compliance improves investment efficiency by analyzing the effect of adopting Islamic principles on the relationship between corporate investment and investment opportunities. In both investment models, the interaction term between Sharia-compliance and investment opportunity is included. Sargan test indicates the validity of instrumental variables used in the models. The results reported in Table 5 show that the p values of AR(1) and AR(2), the Sargan test and Wald test support the use of GMM estimation.

First, we estimate the Q-model with Tobin's Q which captures investment opportunities. Columns (1), (3) and (5) of Table 5 report the estimation results of Eq. (3) for the whole sample, less constrained and more constrained firms, respectively. We find that Sharia-compliance strengthens the effect of Q on corporate investment. The coefficient associated with Q of SC firms is $(0.012+0.008) = 0.020$ stronger than 0.012 for SNC firms. These results are consistent with the hypothesis 2 that Sharia-compliance increases the firm's investment sensitivity to Q and improves corporate investment efficiency.

The results also reveal that financially constrained firms benefit more from adopting Islamic principles. The coefficients associated with the interaction variable $Q \times SHAR$ are 0.006 and 0.013 for less constrained and more constrained firms, respectively. This reflects the role of Sharia rules in reducing problems associated with investment decision. This role is more prominent for firms that face the greatest wedge between the costs of internal and external funds, i.e. firms that have high financial constraints.

Eventually, the estimation results of Euler model reported in columns (2), (4) and (6) of Table 5 show similar results. When we proxy investment opportunities by the sales to capital ratio, we find a positive and significant coefficient of the interaction variable $(S/K) \times SHAR$. This positive effect is higher for more constrained firms compared to less constrained firms confirming the efficient allocation of capital in SC firms. These results strongly support the hypothesis that investment is more efficient when firms adopt Islamic principles and either when they face tighter financial constraints.

Table 5. Estimation Results of the Impact of Sharia-Compliance Investment Efficiency

Variables	Whole sample		Less constrained firms		More constrained firms	
	Q-Model (Eq.1)	Euler Eq. (Eq.4)	Q-Model (Eq.1)	Euler Eq. (Eq.4)	Q-Model (Eq.1)	Euler Eq. (Eq.4)
$(I/K)_{it-1}$	0.242*** (7.05)	0.216*** (6.12)	0.317*** (5.42)	0.312*** (5.40)	0.195*** (4.46)	0.161*** (3.57)
Q_{it}	0.012* (1.68)		0.009* (1.67)		0.011* (1.91)	
$Q_{it} \times SHAR_i$	0.008* (1.83)		0.006* (1.70)		0.013* (1.88)	
$(S/K)_{it}$		0.054** (2.27)		0.041** (2.05)		0.048** (2.23)
$(S/K)_{it} \times SHAR_i$		0.037* (1.85)		0.021* (1.79)		0.036** (2.42)
$(CF/K)_{it}$	0.388** (2.22)	0.448*** (2.71)	0.288*** (4.52)	0.312*** (4.76)	0.595*** (5.05)	0.643*** (4.22)
SHAR _i	0.006* (1.73)	0.004* (1.66)	0.058* (1.75)	0.034* (1.69)	0.057* (1.92)	0.016 (1.02)
Constant	-0.007** (-2.02)	-0.008** (-2.49)	-0.001 (-0.35)	-0.002 (-0.40)	-0.010** (-1.96)	-0.014*** (-2.77)
Sargan test	0.27	0.34	0.45	0.58	0.24	0.38
AR test:						
H ₀ : AR(1) = 0	0.00	0.00	0.00	0.00	0.00	0.00
H ₀ : AR(2) = 0	0.46	0.50	0.25	0.46	0.70	0.67
Wald test	55.82	65.37	56.84	67.09	20.93	23.41
N	1780	1780	1210	1210	570	570

The coefficient that are significant at 10% are followed by *, those at 5% and 1% by ** and *** respectively.

4. DISCUSSION

The above results suggest that adopting Islamic business principles reduces the sensitivity of investment to internally generated funds. This reduction is more prominent in less constrained firms. These findings are in contradiction with hypothesis 1. A plausible explanation of these findings lies in the development of Islamic banking in Malaysia. Islamic banking has seen sharp growth in this country, and thus Islamic banks in Malaysia became a key component of its financial system. Therefore, given the high penetration of Islamic finance, SC firms easily access to financial instruments, which reduces their reliance on internal funds. Another argument that supports our result is based on agency conflicts. As argued by Alshammari (2014), the adoption of Islamic business principles may generate more benefits to shareholders by implementing higher quality of corporate governance mechanisms. This provides support to the agency theory argument that the sensitivity of investment to cash flow can be alleviated when the interests of managers and investors converge (Hadlock, 1998).

The results also suggest that the adoption of Islamic business principles mitigates the problems associated to corporate investment. On the one hand, it enables a company to take advantage of more investment opportunities, enhancing its capital allocation efficiency. On the other hand, it reduces the overinvestment problems. Compliance with Sharia which has core values of transparency prevents managers from making investment decisions that deviate from the optimal levels. According to Alshammari (2014), adopting Islamic business principles is associated with the high quality of financial reports. Biddle, Hilary and Verdi (2009) show that firms with higher financial reporting quality deviate less from their predicted investment levels. They argue that financial reporting quality serves a role in mitigating information frictions that ultimately hamper investment efficiency. As predicted, adopting Islamic business principles can be an effective governance structure to protect shareholders' interests, reduce information asymmetry and improve corporate investment efficiency.

CONCLUSION

This study examines the association between Sharia-compliance and corporate investment through a financing constraints approach. It focuses on Malaysian economy where the regulatory and institutional constraints are different from developed countries. The Malaysian context is an ideal environment for the study because over 80% of listed firms implement Islamic business principles (Abd Sukor et al., 2018).

Empirical results provide insights into our understanding of the investment decisions of firms operating in emerging markets. We find a high sensitivity of investment to cash flow in Malaysia. This reflects the financial constraints faced by firms operating in Malaysian market. Compared to developed markets, Malaysian firms exhibit higher sensitivity of investment to cash flow. This result is a reflection of higher market imperfections in Malaysian stock market.

Evidence also reveals that the adoption of Islamic principles implies less reliance of firms on their internal cash flow. Particularly, the effect of Sharia-compliance on ICF sensitivity is more prominent in less constrained firms. This suggests that implementing Islamic business principles may generate more benefits by reducing the financial constraints faced by the firm. This conclusion is consistent with the benefits generally associated with the adoption of Islamic rules such as improving governance mechanisms.

Additionally and equally importantly, the estimation results bring to light further evidence for the positive association between investment efficiency and Sharia-compliance. Since the adoption of Islamic business principles reduces financial constraints, it mitigates information asymmetry problems and consequently improves corporate investment efficiency.

Several implications can be derived from this research. From a theoretical perspective, it contributes to the theory in re-validating the investment models (Q-model and Euler model) on SC firms. It helps understand the efficiency of the allocation of internal funds of SC firms in comparison with SNC firms. It highlights some areas where further research on topics related to investment policy of SC firms is needed. From a managerial perspective, the findings show that adopting Islamic business principles affects corporate investment, suggesting that SC can reduce financial constraints and improve efficient capital allocation. Moreover, the study results highlight the issue of efficient management of internal funds in SC

and SNC firms. Investors in Malaysia can draw on these results to evaluate and locate good investment opportunities. Finally, the results from this research could also assist regulators in understanding the importance of enforcing Islamic financial instruments.

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