

# **FIRM RISK AND CORPORATE POLICIES: FROM THE SHARIAH CERTIFICATION PERSPECTIVE**

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## **ABSTRACT**

In this study, we show that Shariah certification leads to risk-reduction benefits. Shariah-compliant firms are negatively related to firm risk; and tolerate lower risk than non-Shariah-complaint firms. This evidence is in line with Shariah principles that prohibit controversial business activities and uncertainties. In brief, excessive risk-taking is discouraged. Therefore, Shariah-compliant firms need to be selective in making investment decisions. We further find that the negative relation applies particularly to Shariah-compliant firms that managed to retain their Shariah-compliant status in the subsequent reviews. This implies that these firms consistently maintain lower level of risk to retain their Shariah status. In terms of the corporate policies, we do not find evidence that Shariah-complaint firms employ conservative financial and operating leverages to mitigate their firm risk. Instead, Shariah-compliant firms emphasize on capital expenditures that lead to lower firm risk. Taken together, our results recommend that Shariah-screening process can be a significant mechanism to mitigate excessive risk.

**Keywords:** Shariah certification; Business ethics; Firm risk; Corporate policies

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## **1. INTRODUCTION**

The concept of Shariah compliance involves a stock screening process that defines and classifies stocks based on a set of Islamic principles. With this certification, investors' compliance concerns and research costs can be reduced. Shariah certification narrows down the number of eligible *halal* stocks for the investors to invest to meet their investment need. In Malaysia, Securities Commission (SC) has started to release the list of Shariah-compliant stocks traded on Bursa Malaysia twice a year since June 1997 and the revised screening criteria was made effective from November 2013. As at 23 November 2017, 76% of 902 firms listed on Bursa Malaysia are listed as Shariah-compliant firms.

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To pass the Shariah-compliance certification, firms must not primarily involve in any of the prohibited business activities and products that contain the elements of usury (*riba*), gambling (*maisir*) and uncertainty (*gharar*). Moreover, *riba* or *riba*-based elements reported in the firms' financial statements should not be more than 33%, specifically for these two financial ratios: (1) cash over total assets and (2) total debt over total assets. Only cash placed in conventional accounts and interest-bearing debt are included in the quantitative assessment. However, cash placed in Islamic accounts or invested in Islamic marketable securities is excluded from the cash ratio calculation. Likewise, debt includes only interest-bearing debt. Islamic financing and sukuk are excluded from the calculation of 33% (Security Commission of Malaysia).

To achieve the Shariah complaint status, firms may have to revise their corporate policies to comply with the guidelines. Firms may adopt more conservative corporate policies to meet the screening criteria. For example, firms may have to divest their business segments that are linked to non-halal activities, including investment projects with excessive risk or uncertainty (*gharar*), or revise the firms' level of leverage to meet the financial criteria. This raises an important question whether the changes made will decrease firm risk. If yes, then Shariah compliant status can be an indirect tool to mitigate firm risk behaviour arising from riskier investment and financing policies. This is because excessive risk taking and mismanagement of risk can lead to expropriation of shareholders' wealth (John, Litov & Yeung, 2008). However, over monitoring can be detrimental to firm value. To certain degree, risk taking is fundamental to firms' survival and growth. Firms have to take risk to innovate and to create economic value in the competitive and complex global economy (Faccio, Marchica & Mura, 2011).

On the other hand, the Shariah-compliant status may not have significant impact on firm risk. This also means that there would be insignificant revision in the corporate policies to achieve the Shariah-compliant status. Malaysian Shariah screening methodology is claimed to be more liberal compared to the leading international Shariah screening providers like Dow Jones Islamic Market (DJIM), Morgan Stanley Capital International (MSCI), Standard and Poor's (S&P) and Financial Time Stock Exchange (FTSE). This is because Malaysian Shariah screening guidelines are more tolerant to firms that are involved in mixed business activities. These firms are required to comply with the permissible business activity benchmarks to attain the Shariah-compliant status. The international Shariah screening providers are more stringent whereby firms in the mixed business activities are excluded from their Shariah-compliant consideration (Engkuchik, 2016).

The mixed arguments raise a fundamental concern as to whether the perceived less stringent Shariah screening criteria do have significant impact on firm risk and corporate policies. Even though, Ashraf (2016) shows that the differences in screening criteria do not significantly affect the performance of Islamic-equity indices; note that the focus of Ashraf (2016)'s study is on the Islamic equity funds, not on the individual firm-level perspective. Furthermore, this study not only examines the direct association of firm risk and Shariah-compliant status, but also considers the corporate policies that may have significant impact on firm risk. We examine the financial policy, investment policy, and operating policy. Specifically, the research questions are; (1) What is the relation between Shariah-compliant status and firm risk? (2) Does a Shariah-compliant firm tolerate less risk compared to a non-Shariah compliant firm? and (3) Which corporate policy does firms utilize to adjust their firm risk to meet the Shariah compliance guidelines.

Our study contributes to the Islamic finance literature in three ways. First, the research questions aim to seek additional insight to add value to Islamic finance literature from the firms' perspective, in addition to the corporate risk literature. We provide consistent and robust findings that Shariah certification leads to overall risk-reduction. This provides a guide for investors to better understand the risk profile of Shariah-compliant firms in comparison to non-Shariah-compliant firms. Investors who are risk-averse should consider Shariah-compliant stocks in their investment portfolio. In addition, our findings indicate no concern of systemic risk arising from the perceived less stringent Shariah screening criteria.

Second, our study differs from those existing studies that recognize firms only by Shariah and non Shariah-compliance (see for example Akguc & Rahahleh, 2018; Farooq & AbdelBari, 2015; Hooy & Ali, 2017). We further identify the Shariah-compliant firms into three groups, which include (1) firms that retain their Shariah status in the subsequent review (*maintain status-quo*); (2) firms that are newly recognized as Shariah-compliant firms (*inclusion into Shariah-compliant list*); and (3) firms that lost their Shariah certification in the subsequent review (*exclusion from Shariah-compliant list*). By doing so, we manage to gauge the different impacts of Shariah status to capture the ongoing effects of Shariah screening process on firm risk. The investors and fund managers who are holding Islamic-based portfolios are required to revise their portfolios if the stocks that they are investing are updated as non-Shariah-complaint stocks. Commonly, these investors are given six months to adjust their shareholdings to comply with the Shariah screening process.

Third, we look into the corporate policies, in which firms can revise to meet the Shariah compliance guidelines. We provide additional insights that Shariah-compliant firms do not practice conservative financial leverage and operating leverage. Moreover, Shariah-compliant firms are found to shift their investment to tangible assets, in line with the Shariah element that prohibits risky investment. Firms that have greater investment in real assets are commonly perceived as acceptable for Shariah-compliant portfolios. In brief, we recommend that Shariah certification can also be a tool to mitigate firm risk, in addition to other debated mechanisms to reduce firm risk.

The remaining of this paper is organized as follows. Section 2 discusses the literature and hypotheses development, followed by data and methodology in section 3. Section 4 presents the main results and robustness analysis, while section 5 concludes the study.

## 2. LITERATURE REVIEW

Prior studies have documented the differences between Islamic and conventional finance from various perspectives (see for example Ashraf, 2016; Hussain, Shamsudin, Salehuddin, & Jabarullah, 2018; Li, Ee, & Rashid, 2016; Yildirim, Masih, Bacha, 2018). To the best of our knowledge, there is yet a specific study that examines the direct impact of Shariah-compliant status on firm risk and the corporate policies that reflect the changes in the firm risk. Therefore, we build our study based on the wider perspective from both the Islamic finance literature and risk-reduction hypothesis. The risk-reduction hypothesis is related to risk management that refers to how firms can mitigate their exposure to financial and business risk. A Shariah-compliant firm is not encouraged to take excessive risk to mitigate uncertainties. Shariah-compliant firms comply with the Shariah certification guidelines to maintain their Shariah status. Any incompliance can cause

the Shariah status to be removed. Therefore, the periodic semi-annual Shariah screening can be an efficient tool to mitigate firm risk.

In general, previous studies provide evidence that Shariah-compliant securities are less risky than non-Shariah-compliant securities. Albaity and Ahmad (2008) show that Bursa Shariah Index is less volatile than the conventional Bursa KLCI Index. Likewise, Chiadmi and Ghaiti (2012) report consistent findings when comparing the volatility of S&P Shariah with the conventional S&P500. These studies claim that Shariah-compliant indices pose lower risk. The indices select stocks based on Islamic principles and are subject to periodic, as well as more stringent screening process than the conventional counterparts. Ashraf, Felixson, Khawaja and Hussain (2017) show that the lower risk is traded off with lower returns. This is because the corporate policies of Shariah-compliant firms are constrained by the quantitative criteria imposed on Shariah-compliant firms. Some studies add that investment in Shariah-compliant stocks discourages speculation and excessive risk-taking activities (Naughton & Naughton, 2000; Obaidullah, 2001). On the contrary, Akhtar and Jahromi (2017) document that Shariah-compliant stocks are mean-variance efficient than non-Shariah-compliant stocks and the market, suggesting that Shariah-compliant stocks can reduce risk of the same level of returns compared to conventional stocks.

In addition to reviewing studies in the Islamic finance, we highlight that the fundamental intention of Shariah certification is consistent with the concept of investment based on ethical belief (Reddy & Fu, 2014). It is argued that key difference of the ethical stocks is the criteria used to screen the firms. For example, the corporate social responsibility (CSR) complaint stocks are screened based on a set of CSR guidelines, while corporate environmental responsibility (CER) compliant stocks are filtered based on the CER screening criteria. On the other hand, the Shariah-complaint stocks are screened based on a set of Islamic principles. Generally, firms that integrate ethics and social responsibility into their strategic planning are found to be associated with lower risk (see for example, Cai, Cui & Jo, 2015; Harjoto & Laksmana, 2016; Jo & Na, 2012; Sun & Cui, 2014).

Harjoto and Laksmana (2016) find that CSR engagement reduces deviations from optimal corporate risk taking. In return, CSR leads to higher firm value. The risk reduction benefit through CSR engagement is found to be more significant among firms in the controversial industry than those in non-controversial industry (Jo & Na, 2012). Controversial industries are defined as unethical or socially irresponsible business activities that include tobacco, gambling, weapon, alcohol and adult entertainment, which is the same as those defined in the Islamic principles. Jo and Na (2012) show that the reported negative relation between CSR engagement and firm risk is associated with risk management improvement that reduces the exposure to financial, social and environment crisis, and therefore lower the firm risk.

In terms of the Shariah certification status, previous studies report significant impact on stock returns associated with the announcement of Shariah-compliant securities (Ashraf, 2016; Lusyana & Sherif, 2017; McGowan & Muhammad, 2010; Ng & Zhu, 2016; Yazi et al., 2015). A firm is subject to periodic Shariah review. If a Shariah-complaint firm fails to meet any of the compliance requirements, the firm will lose its Shariah-compliant status in the subsequent review. In other words, the firm will be excluded from the list of approved Shariah-compliant counters. A firm can also be listed as Shariah-compliant firm for the very first time or manage to maintain its status quo as Shariah-complaint firm in the periodic screening process. Each of the Shariah certification status leads to different impact on the stock returns.

Both the inclusion and exclusion of stocks from the Shariah-compliant index are found to have significant impact on the firm stock returns, mainly in the short run (Ng & Zhu, 2016). Significant positive cumulative average abnormal returns (CAARs) are reported when the affected firms obtain their Shariah-compliant status (Sadeghi, 2011). In contrast, a significant negative stock returns are observed when firms fail to maintain their Shariah-compliant status in the subsequent review. These findings suggest that the Shariah certification status is a significant information for investors. The investors such as the fund managers must revise their investment portfolios based on the updated list of Shariah-compliant firms. They must decide to either buy, sell or hold the affected stocks based on the updated list. Usually, investors are given a grace period of six months to sell non Shariah-compliant stocks from their Islamic-based portfolios.

The portfolio revision contributes to improved liquidity of the Shariah-compliant stocks. Sadeghi (2008) reports higher trading volume and lower bid-ask spread, immediately after the announcement of the list of approved Shariah-compliant stocks. Similarly, Ng and Zhu (2016) show that changes in the Shariah-compliant index composition have significant positive impact on the affected stocks' trading volume in both the short and long run. A liquid stock is also argued to be less risky. Based on the literature review, we therefore, hypothesise that Shariah-complaint firm is less risky compared to its counterpart. Our hypothesis is also backed by the underlying argument of risk-reduction hypothesis. The first hypothesis of this study is stated below:

*Hypothesis 1: Shariah certification is negatively related to firm risk*

Prior studies also show that firms can reduce firm risk through more conservative corporate policies (Serfling, 2014; Sila, Gonzalez & Hagendorff, 2016). To cite an example, Razali and Ibrahim (2012) find that, Shariah-compliant firms quickly adjust their financial leverage policy to meet the target capital structure to attain Shariah-compliant status. Shariah and non-Shariah compliant firms employ difference financial decisions, which include leveraging, dividend payout and working capital (Naz, Shah, & Kutan, 2017). Shariah-compliant firms are also found to engage in lower earnings management than non-Shariah-compliant firms. The Shariah-compliant firms maintain lower debt ratio, lower account receivables and lower cash ratio so that firm managers have lower chances to misreport (Farooq & AbdelBari, 2015). These results also imply that Shariah-stock screening process can act as an external monitoring agent to safeguard the shareholders' interest.

Taken together, we expect Shariah screening guidelines to lead firm to conservative corporate policy that ultimately lower firm risk. On the corporate channels, we examine two possible channels, in which firms can revise to meet the Shariah compliance guidelines. If Shariah certification is negatively related to firm risk, we expect firms to reduce risk through conservative financing and investment policies. Financial leverage is found to be positively related to corporate risk-taking. The higher the financial leverage the higher the riskiness of a firm (Boubakri, Mansi, & Saffar, 2013; Faccio, Marchica, & Mura, 2011; Serfling, 2014). Therefore, to mitigate firm risk, Shariah-compliant firms maintain lower leverage ratios. Shariah-compliant firms can also reduce risk through more conservative investment policies. We examine two mechanisms through which firms can influence the investment policies. Firstly, firms can adjust their policies to reduce investment in fixed costs to lower operating leverage because the performance of firms with higher level of operating leverage are more sensitive to fluctuations in sales, and thus are riskier (Mandelker & Rhee, 1984; Serfling, 2014). Second, higher capital expenditures are also associated

with higher corporate risk taking. We expect Shariah-compliant firms are more likely to decrease their investment in capital expenditures to mitigate firm risk. In short, we hypothesize that:

*H2: Shariah certification is negatively related to financial leverage, operating leverage and capital expenditures.*

### 3. METHODOLOGY

#### 3.1. Sample Selection

The sample consists of 729 non-financial listed firms on Bursa Malaysia stock exchange. Financial firms are excluded from our sample because of the differences in their risk characteristics, financial structure and regulations compared to the non-financial firms. The unbalanced panel dataset covers from the year 2000 to 2016, with 6,618 firm-year observations after excluding observations with missing financial information. To examine the effects of Shariah certification on firm risk and corporate policies, we have to hand-collect the list of Shariah and non Shariah-compliant firms from the SC's website. The Shariah Advisory Council (SAC) of SC is responsible to review and update the list of firms that retain their Shariah status, newly approved Shariah-compliant firms, and firms that lost their Shariah status. Table 1 presents the distribution of the sample by industry. 33.03% of the sample observations are of industrial firms, followed by 23.19% in consumer goods, and approximately 8% each in basic materials, consumer services and technology.

**Table 1: Sample Distribution by Industry**

Industry	Firm-year observation	Percent
Basic materials	515	7.78
Consumer goods	1,535	23.19
Consumer services	495	7.48
Healthcare	123	1.86
Industrials	2,186	33.03
Oil and Gas	111	1.68
Technology	523	7.90
Telecommunication	174	2.63
Others	956	14.45
Total	6,618	100

#### 3.2. Research Methodology

We use multivariate panel data regression, controlling for industry fixed effect because the Shariah certification guidelines are mainly driven by the nature of the firms' business activities. Our regression model also includes year fixed effect to control for temporal effect, if any. The regression model is adjusted for robust standard error clustered at the firm level. The regression specification is written as follows:

$$\begin{aligned} \text{Risk}_{i,t} = & \beta_0 + \beta_1 \text{Shariah}_{i,t} + \beta_2 \text{Financial leverage}_{i,t} + \beta_3 \text{Cash ratio}_{i,t} + \beta_4 \text{Market to book}_{i,t} \\ & + \beta_5 \text{Sales growth} + \beta_6 \text{Profitability}_{i,t} + \beta_7 \text{Tangibility}_{i,t} + \beta_8 \text{Firm size}_{i,t} \\ & + \beta_9 \text{Firm age}_{i,t} + \alpha_i + \varepsilon_{i,t} \end{aligned}$$

### 3.3. Variables Specification

We use three measures to proxy for firm risk. *Total risk* measures the overall riskiness of firms, while *Idiosyncratic risk* measures the firm-specific risk. These two variables measure the equity risk (Serfling, 2014; Sila et al., 2016). *SD(ROA)* is included to measure the degree of firm risk based on operating performance. Riskier corporate operations lead to more volatile earnings (John et al., 2008). The main variable of interest is Shariah certification that is represented by a dummy variable. We include *Cash ratio* as one of the control variables (Serfling, 2014) to measure firm liquidity and ability to meet short-term financing obligations. A firm with a higher cash ratio is considered solvent and thus is less risky. In addition, we control for a set of variables that are commonly found to have significant impact on firm risk (Boubakri et al., 2013; Faccio et al., 2011; Serfling, 2014; Sila et al., 2016). *Market to book* ratio and *Sales growth* are included to control for firm-specific growth opportunities. Firms with higher growth opportunities are found to take more risk (Faccio, et al., 2011; Sila, et al, 2016). Less profitable firms are also found to take more risk to increase the firm returns.

Firms with higher tangible assets have higher liquidation value, thus is expected to be negatively related to risk. Tangibility is also a proxy of pledgeability, which is positively related to firm risk. The higher the degree of pledgeable assets, the higher the capacity to borrow to invest (Almeida & Campello, 2007). Additionally, we control for the effect of firm size and firm age. Smaller firms and younger firms are more risk seeking than larger and older firms (Faccio, et al. 2011; John, et al. 2008). These firms must take more risk to further expand their business operations, thus these firms are riskier. The measures of risk, corporate policies and firm-specific control variables are collected from the Datastream database.

Firm risk can also be reflected in the corporate policies. Financial leverage is used as the proxy of financial policy. For the investment policies, we examine the operating leverage and capital expenditures. Firms with higher degree of financial leverage, operating leverage and capital expenditures tend to be riskier (Serfling, 2014). To mitigate the risk, firms can opt for conservative corporate policies. All continuous variables are winsorized at their 1<sup>st</sup> and 99<sup>th</sup> percentiles to control for any potential bias due to outliers. The description of each variable is summarized in Table 2.

Table 3 summarizes the descriptive statistics of the identified variables. On average, firms are exposed to 51.66% of risk measured by the *Total risk*. The mean of *Idiosyncratic risk* is 50.14%, while operating risk is 4.76%. In terms of the corporate policies, firms maintain an average of 18.80% of debt ratio, 26.01% of operating leverage and 3.7% of additional investment in capital expenditures. For the main variables, 76.88% of the sample consist of Shariah-compliant observations, while the remaining 23.12% are non Shariah-compliant observations Table 4 reports the Pearson correlations of the observed variables. The correlation matrix does not suggest any serious multicollinearity problem.

**Table 2: Variables Definition**

<b>Variable</b>	<b>Definition</b>
<b>Dependent variables:</b>	
<b>Risk taking measures:</b>	
<i>Total risk</i>	Annualized standard deviation of daily stock returns over the last year.
<i>Idiosyncratic risk</i>	Annualized standard deviation of the residuals from the market model regression.
<i>SD(ROA)</i>	Standard deviation of a firm's return on assets (ROA) over three-year overlapping periods. For example, the amount of risk for year 2000 is measured as the volatility of ROA from year 2010 to 2012.
<b>Corporate channels:</b>	
<i>Financial leverage</i>	Total debt to total assets
<i>Operating leverage</i>	Percentage change in earnings before interest and taxes (EBIT) over percentage change in sales
<i>Capital expenditures</i>	Additional capital expenditure divided by total assets.
<b>Independent variables:</b>	
<i>Shariah</i>	Dummy variable is equal to 1 if the firm is a Shariah-compliant firm for the observed year, and 0 otherwise.
<i>Cash ratio</i>	Cash to total assets
<i>Market to book</i>	Market to book ratio
<i>Sales growth</i>	Annual growth rate of sales.
<i>Profitability</i>	Profitability proxy measured by return on assets (ROA).
<i>Tangibility</i>	Net plant and equipment to total asset
<i>Firm size</i>	Natural log of total assets
<i>Firm age</i>	Natural log of the number of years from the establishment of the firm to the year of observation.

**Table 3: Summary Statistics**

<b>Variables</b>	<b>Obs</b>	<b>Mean</b>	<b>Median</b>	<b>Std. Dev.</b>	<b>Min</b>	<b>Max</b>
Total risk	6,618	0.5166	0.4284	0.3395	0.1107	2.1274
Idiosyncratic risk	6,618	0.5014	0.4097	0.3394	0.1053	2.1204
SD(ROA)	6,021	0.0476	0.0257	0.0716	0.0013	0.5079
Shariah	6,618	0.7688	1.0000	0.4216	0.0000	1.0000
Cash ratio	6,618	1.1592	0.0720	4.8135	0.0001	39.3440
Market to book	6,618	1.1905	0.8300	1.2327	-0.1100	8.5900
Sales growth	6,618	0.1309	0.0578	0.5645	-0.8616	3.7133
Profitability	6,618	0.0483	0.0522	0.1011	-0.4143	0.3365
Tangibility	6,618	0.3531	0.3368	0.2262	0.0024	0.9388
Firm size	6,618	12.7124	12.5907	1.5248	9.4940	17.4772
Firm age	6,618	2.3574	2.4849	0.7010	0.6931	3.4012
Financial leverage	6,618	0.1880	0.1522	0.1694	0.0000	0.7239
Operating leverage	6,476	0.2601	0.1389	3.6400	-18.1426	20.5776
Capital expenditure	6,605	0.0370	0.0204	0.0460	0.0000	0.2422

**Table 4:** Correlation Matrix

	Shariah	Cash ratio	MTB	Growth	ROA	Tangibility	Firm size	Firm age	Fin Lev	Op Lev	Cap Ex
Shariah	1										
Cash ratio	0.021	1									
Market to book	-0.069	-0.029	1								
Sales growth	0.009	0.009	-0.007	1							
Profitability, ROA	0.098	-0.122	0.287	0.003	1						
Tangibility	0.157	-0.003	-0.105	0.02	-0.023	1					
Firm size	-0.149	-0.221	0.043	-0.002	0.215	0.058	1				
Firm age	-0.086	-0.034	-0.079	-0.012	-0.031	-0.047	0.352	1			
Financial leverage (Fin Lev)	-0.05	-0.03	-0.066	-0.009	-0.135	0.175	0.224	0.043	1		
Operating leverage (Op Lev)	-0.009	0.021	0.014	-0.012	-0.025	0.001	0.008	0.02	0.006	1	
Capital expenditure (Cap Ex)	0.14	-0.035	0.125	0.019	0.129	0.316	-0.005	-0.211	0.022	-0.005	1

## 4. RESULTS AND DISCUSSION

### 4.1. Univariate Analysis

Table 5 presents the estimates of the univariate analysis. The analysis examines if the risk profiles, corporate policies and firm-level characteristics of Shariah-compliant firms differ from those of non Shariah-compliant firms. We conduct both the mean difference test (t-test) and median difference test (z-test). Based on the t-test, there is insignificant difference in the firm risk between the two groups. However, the z-test shows that Shariah-compliant firms are slightly riskier relative to non Shariah-compliant firms by 1.24% (marginally significant at the 10% level) and 1.83% (significant at the 5% level) measured by *Total risk* and *Idiosyncratic risk*, respectively. Nonetheless, this analysis does not consider other variables that may have significant impact on firm risk. On the riskiness of the operating performance, Shariah-compliant firms are less risky compared to non Shariah-compliant firms. The univariate analysis provides some evidence in support of the hypothesized negative relation between Shariah certification and firm risk.

In addition, Shariah-compliant firms are financially less levered than non Shariah-compliant firms. On average (median), Shariah-compliant firms maintain a debt ratio of 18.33%, (14.94%) whereas non Shariah-compliant firms maintain a higher debt ratio of 20.35% (16.29%). On the investment side, there is insignificant mean difference in the degree of operating leverage between the two groups of firms, but z-test finds a marginally significant difference where Shariah-compliant firms are found to use less operating leverage compared to non Shariah-compliant firms. Instead, Shariah-compliant firms are consistently found to have higher capital expenditures ratio than non Shariah-compliant firms. This finding agrees with the Shariah element that encourages investment in tangible assets.

**Table 5: Univariate Analysis**

	Shariah		Non-Shariah		Shariah – Non-Shariah	
	Mean	Median	Mean	Median	Mean difference	Median difference
Total risk	0.5165	0.4310	0.5169	0.4186	-0.0004	0.0124*
Idiosyncratic risk	0.5020	0.4127	0.4996	0.3944	0.0024	0.0183**
SD(ROA)	0.0441	0.0253	0.0595	0.0277	-0.0154***	-0.0024**
Cash ratio	1.2144	0.0805	0.9755	0.0529	0.2389*	0.0276***
Market to book	1.1439	0.8100	1.3454	0.8800	-0.2015***	-0.0700***
Sales growth	0.1337	0.0613	0.1214	0.0441	0.0123	0.0172
Profitability	0.0537	0.0563	0.0301	0.0361	0.0236***	0.0202***
Tangibility	0.3725	0.3674	0.2885	0.2405	0.084***	0.1269***
Firm size	12.5877	12.4806	13.1272	13.1074	-0.5395***	-0.6268***
Firm age	2.3242	2.3979	2.4679	2.7081	-0.1437***	-0.3102***
Financial leverage	0.1833	0.1494	0.2035	0.1629	-0.0202***	-0.0135**
Operating leverage	0.2429	0.1322	0.3183	0.1654	-0.0754	-0.0332*
Capital expenditure	0.0405	0.0243	0.0253	0.0091	0.0152***	0.0152***

Notes: \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively (two-tailed).

**4.2. Shariah Certification and Firm Risk**

In this section, we discuss the estimates of the multivariate panel data analysis that examines the relation between Shariah certification and firm risk. We hypothesize that Shariah-compliant firms are likely to take less risk than non Shariah-compliant firms, and therefore the coefficient of *Shariah* variable is expected to be negative. Table 6 reports the findings of the analysis. The results in Models 1 to 3 suggest a consistent negative relation between Shariah certification and firm risk. Referring to Model 1 (Model 2) the coefficient of *Total risk* (*Idiosyncratic risk*) indicates that the equity risk of Shariah-compliant firms is lower than non Shariah-compliant firms by 4.45% (4.44%). Both are significant at the 1% level. While in Model 3, the negative coefficient of Shariah variable implies that the volatility of the operating performance is lower by 0.89%, which is significant at the 5% level.

For the control variables, we show that the higher the financial gearing, the greater the risk to equity owners. This is consistent with the trade-off theory, where the marginal cost of debt financing would outweigh the marginal benefit as firms further increases their financial leverage. Additionally, firms may have lower capacity to accept positive net present value investment project due to the higher leverage that causes firms to have lower tolerance of risk (Diamond & He, 2014; Myers, 1977). Cash ratio is insignificant to explain the degree of firm risk in all models reported in Table 5. Conversely, well performing firms and larger firms are associated with less risk taking, indicated by the negative coefficients of *Profitability* and *Firm size*. Firms with higher growth opportunities are associated with lower equity risk, but high growth firms are more to volatile corporate earnings. Additionally, tangibility ratio is negatively related to *SD(ROA)*, but is insignificant when risk is measured by the equity risk. The significant negative relation is in line with the argument that firms with higher tangible assets have more collateral for debt financing and higher liquidation value in the event of bankruptcy; hence the lower firm risk.

Overall, the baseline regression model provides evidence in support of our hypothesis. Shariah certification is negatively related to firm risk, which agrees with the strand of literature that has documented several control mechanisms to mitigate firm risk. Accordingly, firms that engage in Shariah-compliance business are perceived to be less risky by the market in general. The Shariah principles prohibits controversial business activities and/or products that are related to alcoholic beverages, gambling and prostitution. In addition, to comply with the element of uncertainty, Shariah-compliant firms must be more selective with their investment choices. Less risky investment reflects the firms’ vigilant investment policies that promotes the sanctity of a contract.

**Table 6: Shariah Certification and Firm Risk**

	<b>Total risk</b>	<b>Idiosyncratic risk</b>	<b>SD(ROA)</b>
	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>
Shariah	-0.0445*** (0.0027)	-0.0444*** (0.0025)	-0.0089** (0.0230)
Financial leverage	0.2767*** (0.0000)	0.2780*** (0.0000)	0.0073 (0.5179)
Cash ratio	0.0027 (0.1825)	0.0027 (0.1820)	0.0003 (0.6442)

	Total risk	Idiosyncratic risk	SD(ROA)
	(1)	(2)	(3)
Market to book	-0.0086** (0.0151)	-0.0088** (0.0122)	0.0100*** (0.0000)
Sales growth	-0.0099* (0.0967)	-0.0101* (0.0922)	-0.0004 (0.7673)
Profitability	-0.7899*** (0.0000)	-0.7724*** (0.0000)	-0.2687*** (0.0000)
Tangibility	-0.0048 (0.8572)	-0.0007 (0.9787)	-0.0159** (0.0365)
Firm size	-0.0991*** (0.0000)	-0.1028*** (0.0000)	-0.0079*** (0.0000)
Firm age	0.0126 (0.1744)	0.0130 (0.1584)	-0.0007 (0.7457)
Constant	1.8098*** (0.0000)	1.8092*** (0.0000)	0.1641*** (0.0000)
Industry fixed effect	YES	YES	YES
Year fixed effect	YES	YES	YES
Observations	6,618	6,618	6,021
Adjusted R <sup>2</sup>	0.3975	0.4019	0.1948

Notes: \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively (two-tailed).

### 4.3 Shariah Certification and Corporate Policies

The evidence reported in Table 6 captures only the direct effects of Shariah certification on the riskiness of firms. In this section, we examine specific channels that may have indirect effects on the overall firm risk. We examine whether Shariah certification affects corporate financing and investment decisions. We re-estimate the baseline model, but with financial leverage, operating leverage and capital expenditures as the dependent variables. Referring to Model 1 in Table 7, Shariah certification is not significantly related to financial leverage, suggesting that Shariah certified firms do not reduce risk through more conservative financial policies. Instead, the financial gearing of Shariah-compliant firms does not differ from non Shariah-compliant firms.

**Table 7:** Shariah Certification and Corporate Policies

	Financial leverage	Operating leverage	Capital expenditure
	(1)	(2)	(3)
Shariah	-0.0055 (0.2580)	-0.0330 (0.7709)	0.0080*** (0.0000)
Cash ratio	0.0002 (0.7159)	0.0205** (0.0387)	-0.0002* (0.0540)
Market to book	-0.0024 (0.1583)	0.0828** (0.0379)	0.0048*** (0.0000)
Sales growth	-0.0040 (0.2517)	-0.1198 (0.1375)	0.0008 (0.4040)

	Financial leverage	Operating leverage	Capital expenditure
	(1)	(2)	(3)
Profitability	-0.3148*** (0.0000)	-1.1639** (0.0186)	0.0330*** (0.0000)
Tangibility	0.0981*** (0.0000)	0.1246 (0.5548)	0.0649*** (0.0000)
Firm size	0.0300*** (0.0000)	0.0398 (0.2533)	0.0014*** (0.0004)
Firm age	-0.0072** (0.0249)	0.0877 (0.2394)	-0.0140*** (0.0000)
Constant	-0.1345*** (0.0000)	-0.8849 (0.1346)	0.0143** (0.0206)
Industry fixed effect	YES	YES	YES
Year fixed effect	YES	YES	YES
Observations	6,618	6,476	6,605
Adjusted R <sup>2</sup>	0.1282	0.0019	0.1855

Notes: \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively (two-tailed).

We put forward two reasons to justify the insignificant finding. First, the *riba* element only restrict the use of interest-bearing securities. Likewise, the newly introduced financial benchmark that requires firms to maintain a debt ratio below 33% only applies to interest-bearing securities. This means Shariah-compliant firms can continue to utilize financial gearing to finance their investment opportunities by issuing Sukuk bonds. Second, there is convenient access to Islamic capital market. Over the years, the Sukuk market of Malaysia has achieved significant growth and surpassed the conventional bond issuance as a main channel to raise financing need. As at 2017, corporate Sukuk issuance reached MYR133.7 billion surpassing conventional bond issuance of MYR106.4 billion (International Islamic Financial Market, 2018). The easy access to Islamic capital market enables Shariah-compliant firms to conveniently raise the needed fund from Shariah-compliant debt securities.

On the investment policies, we first examine the relation between Shariah certification and operating leverage. Firms with higher operating leverage are related to higher risk (Serfling, 2014). If Shariah-compliant firms are associated with less risk compared to non Shariah-compliant firms, the coefficient of *Shariah* variable is expected to load negative in Model 2. However, the results show that there is insignificant relation between Shariah certification and firm operating leverage, which means Shariah-compliant firms do not use operating leverage as one of the corporate channels to decrease the overall firm risk. The second proxy of corporate investment policies is the capital expenditures and the results are presented in Model 3. The capital expenditures consist of additional investment in the fixed assets over total assets. Instead of decreasing the capital expenditures to reduce firm risk, Shariah-compliant firms are found to increase their investment as indicated by the significantly positive coefficient of the *Shariah* variable at the 1% level. This can be linked to the underlying Shariah principles that emphasize on tangible assets investment. Overall, the results in Table 7 suggest that Shariah-compliant firms do not use financial leverage and/or operating leverage as a tool to change their firms' overall risk. Instead, Shariah-compliant firms place more emphasis on investment in tangible assets to reduce uncertainty in investment.

#### 4.4. Status of Shariah Certification and Firm Risk

In this section, we re-estimate the regression model to examine the different effect of Shariah status on the firm risk and corporate policies. We further classify the Shariah status as *Retain Shariah*, which is a dummy variable that takes the value of one if the firm maintains its status quo as Shariah-compliant firm for the observed year, and zero otherwise. *New Shariah* takes the value of one if it is the first time the firm obtains the Shariah certification, while *Removed Shariah* is also a dummy variable that is equal to one if the firm is excluded from the list of Shariah-compliant firms, and zero otherwise. The results are tabulated in Table 8.

Consistently, firms that retain their Shariah-compliant status is negatively related to firm risk. Based on Model 1, Shariah-compliant firms that can retain their Shariah status in the following years are exposed to lower firm risk by 4.84%. The equity risk measure is significant at the 1% level. For brevity, we exclude the discussion for *Idiosyncratic risk* because the results are highly consistent with those reported using *Total risk* as the dependent variable. When *SD(ROA)* is used as the dependent variable, we also find negative relation between *Retain Shariah* and the riskiness of corporate performance. The volatility of earnings is marginally lower by 0.79%.

In contrast, newly certified Shariah-compliant firms are associated with higher equity risk as presented in Models 2. The equity risk of newly approved Shariah-compliant firms is higher by 7.26%. Potentially, it is due to shifting in demand when investors opt to include the newly certified stock in their Shariah-compliant portfolios. This argument is consistent with prior studies that examine the effects of changes in index composition. Inclusion of stocks in the index could promote better scrutiny from the market participants (Shleifer, 1986). As a result, stock prices and trading volume are significantly affected by the index revision (Bildik & Gulay, 2008; Cheung & Roca, 2013; Ng & Zhu, 2016). However, the coefficient of *New Shariah* loads negative when *SD(ROA)* is the dependent variable. The firm risk is lower by 0.97%. This suggests that the newly certified Shariah firms are exposed to higher equity risk because of the investors' demand shift, but these firms do mitigate their business risk, measured by *SD(ROA)* to meet the Shariah compliance guidelines.

**Table 8:** Different Status of Shariah Certification and Firm Risk

	Total risk			SD(ROA)		
	(1)	(2)	(3)	(4)	(5)	(6)
Retain Shariah	-0.0484*** (0.0008)			-0.0079** (0.0362)		
New Shariah		0.0726** (0.0161)			-0.0097** (0.0459)	
Removed Shariah			0.0067 (0.8802)			-0.0123** (0.0269)
Financial leverage	0.2764*** (0.0000)	0.2780*** (0.0000)	0.2783*** (0.0000)	0.0073 (0.5204)	0.0074 (0.5126)	0.0074 (0.5165)
Cash ratio	0.0027 (0.1799)	0.0027 (0.1755)	0.0027 (0.1797)	0.0003 (0.6430)	0.0002 (0.6570)	0.0002 (0.6563)

	Total risk			SD(ROA)		
	(1)	(2)	(3)	(4)	(5)	(6)
Market to book	-0.0086** (0.0146)	-0.0074** (0.0361)	-0.0074** (0.0346)	0.0100*** (0.0000)	0.0102*** (0.0000)	0.0102*** (0.0000)
Sales growth	-0.0097 (0.1037)	-0.0096 (0.1074)	-0.0099* (0.0971)	-0.0003 (0.7881)	-0.0004 (0.7335)	-0.0004 (0.7510)
Profitability	-0.7870*** (0.0000)	-0.8184*** (0.0000)	-0.8189*** (0.0000)	-0.2695*** (0.0000)	-0.2754*** (0.0000)	-0.2755*** (0.0000)
Tangibility	-0.0037 (0.8884)	-0.0204 (0.4247)	-0.0199 (0.4361)	-0.0164** (0.0316)	-0.0189** (0.0148)	-0.0191** (0.0140)
Firm size	-0.0993*** (0.0000)	-0.0971*** (0.0000)	-0.0971*** (0.0000)	-0.0079*** (0.0000)	-0.0075*** (0.0000)	-0.0075*** (0.0000)
Firm age	0.0123 (0.1841)	0.0132 (0.1562)	0.0135 (0.1472)	-0.0008 (0.7421)	-0.0005 (0.8219)	-0.0005 (0.8236)
Constant	1.8134*** (0.0000)	1.7564*** (0.0000)	1.7579*** (0.0000)	0.1628*** (0.0000)	0.1539*** (0.0000)	0.1540*** (0.0000)
Industry fixed effect	YES	YES	YES	YES	YES	YES
Year fixed effect	YES	YES	YES	YES	YES	YES
Observations	6,618	6,618	6,618	6,021	6,021	6,021
Adjusted R <sup>2</sup>	0.3982	0.3954	0.3948	0.1943	0.1926	0.1925

Notes: \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% levels, respectively (two-tailed).

For firms that have lost their Shariah-compliant status, the coefficient of *Removed Shariah* is reported to be insignificant in Models 3 but is negatively significant in Model 6. From our panel dataset, we find that majority of the firms that are excluded from the list of Shariah-compliant stocks managed to retain their Shariah certification in the following one or two years after the removal. Therefore, firms that are keen to be certified as Shariah-compliant, are unlikely to take up risky business activities to comply with the Shariah certification guidelines. We also examine the relation between Shariah's status and corporate policies. Our results provide further evidence in support of the findings reported in Table 7. The results are not reported for brevity but are available upon request. Similarly, we do not find significant relation between Shariah's status with financial leverage and operating leverage. While firms that retain their Shariah certification are significantly and positively related to capital expenditures.

#### 4.5. Robustness checks

In this section, we discuss the results of the robustness tests that refer to the baseline regression model presented in Table 6. For brevity, the results are not presented, but are available upon request. First, we examine whether there is a potential bias in our reported results caused by the identification of the Shariah-compliant status. SC announces and updates the list of Shariah and non Shariah-compliant stocks twice a year that is once in the first half (May) and another in the second half (November) of the year. Since our dataset consists of annual observations, we identify the Shariah-compliant status based on the list announced at the end of each year. The potential

identification bias could happen if a firm's Shariah-compliant status in the first half of the year differs from the status in the second half of the year. To account for this concern, we screen through the dataset and identify only 31 affected observations. We expect the small number of observations are not going to have much significant impact on the reported results thus far, but we do repeat the analyses presented in Tables 6 to 8. We use the alternative sample that excludes the affected observations to further confirm the findings of this study. Consistently, we find significant negative relation between Shariah certification and firm risk. From the corporate channel's perspective, Shariah-compliant firms do not reduce risk through more conservative financial leverage and operating leverage but increase their investment in tangible assets.

Next, we repeat the baseline panel data regression analysis using the median panel data regression model to consider the differences between the mean and median values presented in Tables 3. Moreover, the mean difference test and median difference test (refer to Table 5) generate inconsistent findings, particularly on the firm risk between Shariah and non Shariah-compliant firms. The reported negative relation between Shariah certification and firm risk remain significant in the quantile regression analysis, and thus providing further evidence in support of the hypothesis. Lastly, we capture the potential growth effect that may affect the reported negative relation between Shariah certification and firm risk. Accordingly, firms with higher growth opportunities have higher incentives take more risk (Faccio, et al., 2011; Sila, et al, 2016). If this is the case then, our results could be driven by firms with lower growth opportunities. Furthermore, in Table 6 the coefficients of *Market to book* and *Sales growth* take negative signs, which contradict with our expectation. Therefore, we perform a subsamples analysis, where the full sample is divided into firms with low and high growth opportunities. Firms with market to book ratio below the 25<sup>th</sup> (above the 75<sup>th</sup>) percentile are considered the low (high) growth opportunities firms. Our results remain consistent and in support of the hypothesis, confirming that the reported results are, as well not affected by growth opportunities.

## 5. CONCLUSION

Several initiatives have been taken to enhance the product and services offerings of Islamic capital markets. One of the many efforts includes the certification of Shariah-compliant stocks. The list of Shariah-compliant firms is updated and announced semiannually beginning June 1997. The screening process is ongoing, which means a firm's Shariah status can be revoked if it fails to meet any of the qualitative or quantitative guidelines. In fact, the concept of Shariah certification is in line with the studies on business ethics and social responsibility, but with different underlying screening criteria. Shariah certification screens firms based on a set of Islamic principles and caters for the need of investors investing in stocks that meet their spiritual values. This study differs from the prior studies on Shariah-compliant firms that mainly focus on the post announcement effects of Shariah certification from the investment perspective such as the effects on stock prices, trading volume and stock liquidity. We take a closer look on the Shariah certification from the corporate finance perspective. We examine whether Shariah certification is associated with risk-reduction. We argue that to comply with the Shariah guidelines, firms must revise their risk-taking preferences through several corporate policies. Consistently, we find evidence in support of the negative relation between Shariah certification and firm risk. Shariah certification does lead to risk-reduction, and in return Shariah-compliant firms pay lower cost of debt. Our study also provide evidence that Shariah-compliant firms are more likely to invest in tangible assets to mitigate

investment uncertainties. In summary, our study contributes to the growing literature on Islamic finance. We provide an implication to the stakeholders, mainly the shareholders and investors that Shariah certification can be an effective mechanism to mitigate excessive firm risk, in addition to the other debated tools such as board of directors, audit committee, management compensation, investor protection, and regulations.

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