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Do Firms in the Islamic Index Differ from Others? Evidence of Cost of Debt in Sharia Firms in Indonesia

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Abstract: This study investigates the effect of sharia firms on the cost of debt in the Indonesian market. We use OLS regression to examine the relationship by applying 1870 data observations of nonfinancial companies registered on the Indonesia Sharia Stock Index (ISSI) during 2012–2018. We found that sharia firms are negatively related to the cost of debt, and sharia firms with a higher percentage of independent commissioners are not associated with the cost of debt. These findings indicate that a more significant number of independent commissioners sitting on the board will not stimulate a sharia firm's position to get a lower cost of debt. Furthermore, our results are robust after performing the endogeneity test. Based on this study, we suggest that independent commissioners who represent aspects of governance also need to be developed using firm characteristics as other moderating variables. Sharia firms are viewed by lenders as having corporate behaviors that are ethical and worthy to get low interest on the debt. Even though the financial structure of sharia firms has lower leverage than non-sharia firms, it does not mean that they are seen as closed firms.

Keywords: cost of debt; independent commissioners; sharia firms

1. Introduction

The cost of debt is one of the factors associated with the good or bad of corporate governance. Lenders will likely give a high cost of debt to a firm with poor governance. This phenomenon can be seen in previous studies that discussed the cost of debt with agency cost (Beatty et al. 2012; Chod 2017; Kim and Sorensen 1986; Mello and Parsons 2016). Other studies explained that information asymmetry is seen as a high risk which will increase the cost of debt. Information asymmetry can be minimized with the presence of the board of directors along with their characteristics (Anderson et al. 2004; Bradley and Chen 2015; Tee 2019), auditor selection (Cano-Rodríguez et al. 2016; Pittman and Fortin 2004), and the proportion of firm ownership (Boubakri and Ghouma 2010; Sánchez-Ballesta and García-Meca 2011). Moreover, the cost of debt is also associated with "corporate behavior," which will affect the firm's sustainability in the future. This can be seen from the extent of the firm's disclosure (Nikolaev and Lent 2005; Sengupta 1998), level of religiosity, and carbon risk issue (Jung et al. 2018; Palea and Drogo 2020; Pizzutilo et al. 2020; Putra et al. 2020). From these studies, it can be seen that good governance, firm characteristics, transparency of information, and risk become the factors that influence the cost of debt.

Ethical and religious firms are also seen as characteristics that support the creation of good governance. Religious firms operate with moral or ethical incentives to positively impact their governance. One type of firm categorized as a religious firm is a sharia firm. A sharia firm is a firm that tries to comply with Islamic values, among which, is not to engage in fields that have a negative impact. The firm must also meet quantitative requirements that do not allow non-halal income (do not conflict with sharia principles) and avoid risks of having too much debt.

The issue of debt becomes an interesting topic to be discussed. Firms that have a high debt structure have a risk of bankruptcy. Moreover, firms that have limited interactions

with banks are seen as closed and having no transparent information, so they are considered to have more risks. Furthermore, firms that have limited access to the banks will have a high cost of debt. Three factors primarily determine the value of a particular company's debt problems; first, the required rate of return on debt without risk (in the event of default) (for example, government bonds or very high-quality corporate bonds); second, the various conditions and limitations contained in the indenture (e.g., maturity date, coupon rate, call terms, default seniority, sinking fund); and third, the company will not fulfill part or all of the indenture (i.e., possible default) (Merton 1973). Recent research has looked at how corporate governance relates to the cost of debt (Cremers et al. 2007; Klock et al. 2005). Hence, this study argues that Sharia firms that are considered to have aspects of religiosity have an impact on good governance.

Previous studies have shown mixed results, explaining that countries with a higher religiosity tend to be less likely to use debt financing (Cai and Shi 2019; Chen et al. 2016). Likewise, religious entrepreneurs also pay low costs of debt (Li et al. 2019). Some of these studies prove a relationship between the level of religiosity and the cost of debt borne. This fact confirms that lenders trust the credibility of entrepreneurs, which is represented by a high level of religiosity. The religious factor of a firm is also seen as a positive trait worthy of a low cost of debt (Jiang et al. 2018); however, the following study shows a different result. On the contrary, sharia firms that have identical levels of religiosity receive a high cost of debt. The higher sharia level of the firms will influence the higher cost of debt (Satt et al. 2020). It is argued that sharia firms have limited access to finance (debt restrictions), which makes this position less transparent and riskier, and thus it is natural for them to receive a high cost of debt.

There are contradictive conditions in sharia firms: on the one hand, they are categorized as religious firms, but, on the other hand, there are limitations regarding the debt. Previous studies tested the level of compliant sharia firms on the cost of debt (Satt et al. 2020); however, there has been no research on companies included in the shariah index associated with the cost of debt. This research is essential to find out the debt structure of the sharia firm and prove the company's compliance with Financial Services Authority (OJK) regulations. This study uses a more reliable method because the determination of sharia firms is based on an index that the OJK has set. In addition, there is an additional analysis that strengthens this research and distinguishes it from previous research.

The data used in this study are all firms listed on the Indonesia Stock Exchange (IDX) in 2012–2018 and firms listed in the Indonesia Sharia Stock Index (ISSI). There are 1870 observational data, and the hypothesis testing method uses OLS regression with the STATA application.

The results of this study show that firms listed in the sharia stock index have a lower cost of debt compared with the firms that are not. We also found that the large percentage of independent commissioners does not influence the low cost of debt. These findings strengthen the idea that the sharia stock index's firms influence the low cost of debt. This study can provide empirical evidence that firms with sharia attributes, as well as complying with interest-based debt limits, also have a low cost of debt. This evidence shows that sharia firms are seen as having good ethics; hence, they deserve low debt interest. Another finding is that the presence of an independent director does not influence the cost of debt. This result further strengthens the policy of the Financial Services Authority (OJK), which does not require the existence of an independent director in a firm's organizational structure based on effectiveness considerations, and has not since 2018.

This paper will be divided into several parts, namely: Section 2, which is the literature review and hypothesis development; Section 3 describes the sample and variable; Section 4 shows the empirical model, primary results, and the results of the sensitivity test; and Section 5 details the discussion and conclusion.

2. Literature Review

A sharia firm is a firm listed in the sharia stock index that meets the provisions of the Financial Services Authority (OJK) qualitatively and quantitatively. OJK will conduct a series of screenings, including business and financial screenings. Qualitative screening is related to the firm's primary activities. Firm activities do not conflict with sharia principles such as gambling, usury financial services, buying and selling uncertain things, producing, distributing, trading, or providing prohibited goods. As for financial screening, a firm can still have an interest-based debt of no more than 45% and a non-halal income of no more than 10%.

Firms listed in the sharia stock index will be evaluated regularly by OJK twice a year. Firms must align the conventional financial necessities of our modern economies with the fundamental obligations of sharia in order to be sharia-compliant. As a result, this influences firm financing decisions (Haron 2016; Satt et al. 2020); therefore, their position could exit or enter the list in the index. This condition will make the status of the firms listed in the sharia stock index impermanent or temporary. The leading cause of a firm's exit is that it does not meet the financial ratios determined by OJK; hence, the attention to the amount of interest-based debt, including the cost of a firm's debt, becomes a very important factor.

Firms included in the sharia index are not allowed to have a large proportion of interest-based debt, including non-halal income. Low debt, or not being too dependent on banks, is considered less transparent, so information could be covered up (Satt et al. 2020). This condition was thought to cause information asymmetry, leading to the complexity of agency problems; however, what happened was the opposite. Even though there was a debt limit, the company still got a low cost of debt. Thus, the sharia label can be associated with religious factors that were considered to represent good governance practices (Chen et al. 2016). Based on institutional theory, the change of a company into a company included in the sharia index will be followed by a change in company behavior. This change was made to comply with OJK regulations as a company with the status of a sharia company.

Several studies related to the cost of debt found that firms listed in the sharia stock index apparently have shorter debt periods than firms not listed in the Islamic index (Katper et al. 2017). This is relevant to a study that stated that religious firms avoid risks (Hilary and Hui 2009). Another study viewed religiosity as the firms' commitment to conduct business in honest and conservative ways. Firms that behave ethically or religiously will get a low cost of debt (Jiang et al. 2018). Moreover, religious firms are less likely to not to engage in inappropriate behavior (Callen and Fang 2015; Dyreng et al. 2012). Culture, belief, or religion are intangible factors that banks can use to evaluate loans. The impact of religion can be used to measure certain economic activities; for example, the effect of religiosity on corporate governance (Ghoul et al. 2012; Jia et al. 2017). Another study looked at the stock market environment and discovered that Islamic portfolios are less susceptible to interest rate risk (Shamsuddin 2014). OJK regulations regarding interest-based debt limits will make firms listed in the sharia stock index have limitations in choosing financial instruments when facing financial difficulties. In general, if situation firms are free to choose financial instruments when they need funding, then it does not apply to sharia firms; therefore, firms must make the right decision or show good performance to get a low cost of debt.

Moreover, another study shows that the higher the sharia level of a firm, the higher the cost of debt will be. This is because firms that have a small amount of debt also have a lower degree of banking access. This condition causes firms to be considered less transparent and as having covered and risky information; thus, they get a high cost of debt (Satt et al. 2020).

Assessing the performance of a sharia firm cannot be based only on a consideration that the firm had been indexed in sharia stock; however, it needs a deeper comparison between the performance of sharia firms listed in the sharia stock index and those not listed. Despite that, sharia attributes can represent good corporate governance so that the firm is

deemed worthy of deserving a low cost of debt; therefore, the hypothesis of this research is formulated as follows:

Hypothesis 1 (H1): *Sharia firms have a lower cost of debt compared to non-sharia firms.*

This study is also deepened by proving the relationship between independent commissioners and sharia firms. The variable of independent commissioners interacts with the variable of a sharia firm. Independent commissioner (IND COM) is one of the indicators of the implementation of good governance practices; therefore, its existence is linked to the firm's performance. The existence of independent commissioners in Indonesia is mandatory, meaning that, if the company has one board of commissioners, the board of commissioners is an independent commissioner, and if there are two members of the board of commissioners, one of them is an independent commissioner. The independent commissioner is chosen as a variable that will interact with sharia compliance because the existence of an independent commissioner strengthens the functioning of the checks and balances mechanism in a corporation (Lukviarman 2016). The position of the independent commissioner is closely related to the company's performance, so the presence of an independent commissioner who interacts with sharia compliance is expected to trigger better financial performance. Previous studies have shown that the number of the board of commissioners influences the low cost of debt (Joni et al. 2020). The main task of the board of commissioners is to conduct monitoring within the firms (Nasih et al. 2019); therefore, when the supervisory duty is carried out properly, it will reduce the firms' risks and make lenders see that the firms deserve to get low cost of debt. Thus, the second hypothesis is formulated as follows:

Hypothesis 2 (H2): *The higher percentage of independent commissioners in sharia firms will influence the low cost of debt.*

3. Research Methodology

The data used in this research are all firms listed on the Indonesia Stock Exchange (IDX) and firms that are listed in the Indonesia Sharia Stock Index (ISSI) during 2012–2018. The year 2012 was chosen because it was the first time that the ISSI was established as a stock index that accommodates all firms deemed to meet the criteria of OJK. The firms listed in the sharia stock index were obtained from the annual announcement from OJK. Moreover, other data were obtained from OSIRIS. In this study, the topic of the financial industry is not included because it has different characteristics. Overall, there are 1870 observational data in this study.

Research model:

$$\begin{aligned} COD_{i,t} = \ &\beta_0 + \beta_1 ISSI_{i,t} + \beta_2 DIR_{i,t} + \beta_3 COM_{i,t} + \beta_4 AUDCOM_{i,t} + \beta_5 INDCOM_{i,t} + \beta_6 INDDIR_{i,t} + \beta_7 BIG4_{i,t} \\ &+ \beta_8 LEVERAGE_{i,t} + \beta_9 SIZE_{i,t} + \beta_{10} AGE_{i,t} + \beta_{11} ROA_{i,t} + \beta_{12-18} YEAR_{i,t} + \beta_{19} - \beta_{28} INDUSTRY_{i,t} + \varepsilon_{i,t} \end{aligned} \quad (1)$$

$$\begin{aligned} COD_{i,t} = \ &\beta_0 + \beta_1 ISSI_{i,t} + \beta_2 ISSI_{i,t} * INDCOM_{i,t} + \beta_3 DIR_{i,t} + \beta_4 COM_{i,t} + \beta_5 AUDCOM_{i,t} + \beta_6 INDCOM_{i,t} + \beta_7 INDDIR_{i,t} \\ &+ \beta_8 BIG4_{i,t} + \beta_9 LEVERAGE_{i,t} + \beta_{10} SIZE_{i,t} + \beta_{11} AGE_{i,t} + \beta_{12} ROA_{i,t} + \beta_{13} - \beta_{19} YEAR_{i,t} + \beta_{20} - \beta_{29} INDUSTRY_{i,t} + \varepsilon_{i,t} \end{aligned} \quad (2)$$

This research uses the cost of debt (COD) as the independent variable. The cost of debt is measured by interest expense in a year divided by the average of short-term debt and long-term debt at the beginning and end of a year (Bliss and Gul 2012; Harymawan 2018; Le 2020). Sharia firms become the independent variable in this research. More specifically, for the comparison, only firms that are consistently listed in the sharia stock index are considered to represent the criteria for this research.

The control variables in this research are the existence of the board of commissioners measured by the natural algorithm of the number of the board of commissioners, the board of the directors measured by the natural algorithm of the number of the board of the directors, audit committees measured by the natural algorithm of the number of audit committees, independent commissioners and independent directors measured by the

percentage of independent commissioners, and the percentage of independent directors. BIG4 is measured by the services of public accounting firms used, whether Ernst & Young, Deloitte, Price Water Coopers, or KPMG, and is rated 1; otherwise, it is rated 0. Leverage is obtained by dividing debt and total assets. The firm size uses total assets, firm age is measured by calculating when the firm was founded (until the end of 2018), and profitability uses ROA and ROE proxies. The detail of variable definition is shown in the following Table 1.

Table 1. Variable Definition.

Variable	Definition	Source
Dependent		
COD	Interest expense in year t divided by the average of short-term debt and long-term debt at the beginning and end of year t (Harymawan 2018)	OSIRIS
Independent		
ISSI	Dummy variable, 1 for a firm consistent in the ISSI index	IDX/OJK
Control:		
DIRECTOR	Number of directors	OSIRIS
COMMISSION	Number of commissions	OSIRIS
AUDCOM	Number of audit commissions	OSIRIS
INDCOM	Percentage of number of independent commissions	OSIRIS
INDDIR	Percentage of number of independent directors	OSIRIS
BIG4	Dummy variable, 1 for a firm appoints a Big 4 auditor, otherwise 0	OSIRIS
LEV	Total liabilities divided by total assets	OSIRIS
SIZE	Natural logarithm total assets	OSIRIS
AGE	Natural logarithm of firm age in year	OSIRIS
ROA	Total return divided by total assets	OSIRIS

4. Results and Discussion

This section will present an empirical analysis that demonstrates the link between the cost of debt and companies featured in the sharia stock index. The results of the OLS regression for the main sample are shown in the first part. The outcomes of ruling out self-selection bias issues, both for difficulties driven by observed and unobserved variables, will be described next. Finally, some further analysis is performed as a robustness check.

4.1. Descriptive Statistics

Table 2 shows the sample selection process. There are incomplete data from all the data obtained, including removing finance institutions from observation because of their different characteristics. Table 3 shows the distribution of firms consistently listed in the Indonesia Sharia Stock Index (ISSI) and those not listed in sharia firms (NON-ISSI), from 2012 until 2018. For further data processing, category 6 (finance) is excluded from the data processing because of its different characteristics. With the exclusion of category 6, the observational data to test the hypotheses became 1870 observational data. From the existing sample, the most observed data are in the construction industry sector (2).

Table 2. Sample Selected.

	Firm-Year Observations
Firm-year observations	
Firm-year observations	3460
Exluded by :	
Missing data	(1402)
SIC 6 (Financial Institutions)	(188)
Final observations	1870

Table 3. Sample Distribution Based on Industry.

SIC	ISSI		NON ISSI		TOTAL	
	N	**%**	**N**	**%**	**N**	**%**
0	25	34	49	66	74	4
1	85	28	223	72	308	16
2	175	39	275	61	450	24
3	172	51	163	49	335	18
4	80	26	233	74	313	17
5	77	40	116	60	193	10
7	26	16	136	84	162	9
8	14	40	21	60	35	2
Total	654	35	1216	65	1870	100

Table 4 shows descriptive statistics of the research sample. The average cost of debt is 41.153%. The average ROA is 5.213%, whereas the ROE is 7.775%. The number of the board of directors in every firm is 4.765%, whereas the number of the board of commissioners on average is 4.29%. The average number of independent commissioners is 1.611, and the number of independent directors is 0.656%. The average number of firms that choose to use BIG4 auditors is 39.1%. The average firm that has leverage is 0.475%, whereas the total assets are Rp. 83,000,000 million, and the average age is 30.983 years.

Table 4. Descriptive Statistics.

	Mean	**Median**	**Minimum**	**Maximum**
COD	41.153	38.818	0.201	116.456
ROA	5.213	4.39	-22.27	41.06
ROE	7.775	9.235	-104.42	74.17
ISSI	0.35	0	0	1
COM	4.29	4	2	10
DIR	4.765	5	2	11
AUCOM	3.089	3	2	5
INDCOM	1.611	1	0	4
INDDIR	0.656	1	0	2
BIG4	0.391	0	0	1
LEV	0.475	0.48	0.031	0.904
SIZE	8.36×10^9	2.56×10^9	14,410,000	1.78×10^{11}
AGE	30.983	29	3	114

Table 5 is the result of the Pearson correlation. The correlation of firms listed in the Indonesia Sharia Stock Index (ISSI) with the cost of debt (COD) shows negative results, meaning that firms that are listed in the sharia stock index have a low cost of debt. This table shows the Pearson correlation for all research samples, with a significance level of * 10%, 5% for **, and *** for %.

Table 5. Pearson Correlation Matrix.

	COD	ROA	ROE	ISSI	COM	DIR	AUCOM	INDCOM	INDDIR	BIG4	LEV	SIZE	AGE
COD	1.000												
ROA	−0.246 ***	1.000											
	(0.000)												
ROE	−0.183 ***	0.863 ***	1.000										
	(0.000)	(0.000)											
ISSI	−0.286 ***	0.229 ***	0.181 ***	1.000									
	(0.000)	(0.000)	(0.000)										
COM	−0.154 ***	0.123 ***	0.116 ***	0.205 ***	1.000								
	(0.000)	(0.000)	(0.000)	(0.000)									
DIR	−0.109 ***	0.169 ***	0.161 ***	0.131 ***	0.505 ***	1.000							
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)								
AUCOM	0.006	0.085 ***	0.091 ***	0.048 **	0.195 ***	0.174 ***	1.000						
	(0.810)	(0.000)	(0.000)	(0.039)	(0.000)	(0.000)							
INDCOM	0.034	−0.055 **	−0.073 ***	−0.013	0.027	0.071 ***	0.020	1.000					
	(0.138)	(0.018)	(0.002)	(0.563)	(0.240)	(0.002)	(0.390)						
INDDIR	0.067 ***	−0.083 ***	−0.093 ***	−0.124 ***	−0.205 ***	−0.316 ***	−0.030	0.162 ***	1.000				
	(0.004)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.197)	(0.000)					
BIG4	−0.220 ***	0.184 ***	0.166 ***	0.204 ***	0.359 ***	0.302 ***	0.149 ***	0.026	−0.088 ***	1.000			
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.261)	(0.000)				
LEV	0.199 ***	−0.309 ***	−0.221 ***	−0.260 ***	0.012	0.062 ***	0.027	−0.022	−0.062 ***	−0.017	1.000		
	(0.000)	(0.000)	(0.000)	(0.000)	(0.611)	(0.008)	(0.241)	(0.332)	(0.007)	(0.458)			
SIZE	−0.034	0.128 ***	0.127 ***	0.104 ***	0.540 ***	0.545 ***	0.266 ***	0.088 ***	−0.150 ***	0.444 ***	0.129 ***	1.000	
	(0.140)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)		
AGE	−0.095 ***	0.070 ***	0.068 ***	0.097 ***	0.119 ***	0.070 ***	0.069 ***	0.039 *	0.043 *	0.071 ***	0.025	0.168 ***	1.000
	(0.000)	(0.002)	(0.003)	(0.000)	(0.000)	(0.002)	(0.003)	(0.090)	(0.065)	(0.002)	(0.276)	(0.000)	

This table shows the Pearson correlation for all research samples, with a significance level of * 10%, 5% for **, and *** for %.

Table 6 is a *t*-test that was conducted to compare two different characteristics. They are the characteristics of the sample of firms listed in the sharia stock index and unlisted firms in the sharia stock index, used for dependent and independent variables. From Table 6, it can be seen that all variables show significant differences. Sharia firms have a low cost of debt and leverage, but they also have higher profits, more directors, commissioners, and audit committees, use more BIG4 auditors, have larger firm sizes, and longer ages.

Table 6. Independent *t*-Test.

	ISSI	NON ISSI	Coef	*t*-Value
COD	30.671	46.791	−16.120 ***	−12.906
ROE	13.642	4.992	8.650 ***	7.414
ROA	8.289	3.415	4.873 ***	9.930
COM	1.488	1.319	0.169 ***	9.065
DIR	1.558	1.452	0.106 ***	5.715
AUCOM	1.130	1.115	0.015 **	2.331
BIG4	0.528	0.318	0.209 ***	9.028
LEV	0.404	0.514	−0.110 ***	−11.617
SIZE	21.907	21.549	0.358 ***	4.707
AGE	3.357	3.235	0.122 ***	4.206

Results of means t-tests and Wilcoxon (z-tests) are displayed. **,*** Significant at the 5, and 1 percent levels, respectively.

4.2. Ordinary Least Squares Regression Test

In Table 7, for models 1 and 2, it is evident that sharia firms (ISSI) have lower cost of debt with the coefficients of 9.645 and 10.035 with a negative sign, in the significance level of 0.01. The control variables in this regression show that the financial performance (ROA, ROE), firm age, number of directors, number of commissioners, and BIG4 public accounting services influence the low cost of debt. Moreover, leverage, firm size, and audit committees do not reduce the cost of debt. The results are insignificant in an additional analysis that connects sharia firms with independent commissioners. This means that the low cost of debt is not influenced by the existence of independent commissioners, but rather, due to the firms' position as listed firms in the sharia stock index (models 3 and 4).

Table 7. Multiple Linear Regression Analysis.

	(1) COD	(2) COD	(3) COD	(4) COD
CONSTANT	6.781	6.497	7.738	7.317
	(0.62)	(0.59)	(0.70)	(0.66)
ISSI	−9.645 ***	−10.035 ***	−10.394 ***	−10.679 ***
	(−7.30)	(−7.57)	(−6.58)	(−6.73)
ISSI_INDCOM			1.814	1.554
			(0.87)	(0.74)
DIR	−3.232 *	−3.833 **	−3.267 *	−3.865 **
	(−1.67)	(−1.98)	(−1.69)	(−1.99)
COM	−5.702 ***	−5.483 ***	−5.823 ***	−5.585 ***
	(−3.06)	(−2.92)	(−3.11)	(−2.97)
AUCOM	8.315 *	8.025 *	8.519 *	8.198 *
	(1.79)	(1.72)	(1.83)	(1.75)
INDCOM	3.909	4.621	2.484	3.404
	(0.86)	(1.01)	(0.52)	(0.70)
INDDIR	−0.477	−0.815	−0.464	−0.805
	(−0.10)	(−0.17)	(−0.10)	(−0.17)
BIG4	−9.353 ***	−9.712 ***	−9.315 ***	−9.681 ***
	(−6.89)	(−7.12)	(−6.85)	(−7.09)
LEV	11.350 ***	14.606 ***	11.386 ***	14.652 ***
	(3.55)	(4.65)	(3.56)	(4.67)
SIZE	2.245 ***	2.181 ***	2.224 ***	2.162 ***
	(4.28)	(4.13)	(4.23)	(4.09)
AGE	−3.732 ***	−3.925 ***	−3.702 ***	−3.900 ***
	(−3.82)	(−4.00)	(−3.79)	(−3.97)
ROA	−0.344 ***		−0.346 ***	
	(−5.43)		(−5.45)	
ROE		−0.079 ***		−0.079 ***
		(−3.01)		(−3.01)
R^2	0.206	0.197	0.206	0.197
N	1870	1870	1870	1870

Regression models relating to the cost of debt. Sharia firm and control variable. All continous variables are winsorized at the 1 per cent and 99 per cent levels. *t* statistics in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

4.3. Robustness Test

The endogeneity issue cannot be removed from this study, as it cannot be detached from other studies in the business and management setting (Reeb et al. 2012). As business and management variables are not randomly picked, an issue that has become a significant concern of business and management research for some years has arisen. We use Coarsened Exact Matching (CEM) regression and the Heckman test to reduce this issue in our study results.

4.3.1. Coarsened Exact Matching Regression

One aspect of endogeneity is that the observation sample chosen is not comparable. If the qualities of one observation do not match those of another, the conclusion may be skewed. The matching method includes Coarsened Exact Matching (CEM) regression, which is a common strategy used in business and management studies (Blackwell et al. 2009). We divide the sample into two groups in this study, treatment and control, depending on the mean value of each of the variables that we are interested in (ISSI). Each observation in these groups will be matched to the next based on the three strata of control variables we used. When the mean of ISSI is employed as the treatment variable, we find a consistent outcome between our CEM and baseline regression for ISSI (coefficient = −10.873, *t* = −8.11). Our CEM regression result is provided in Table 8 below.

Table 8. Coarsened Exact Matching.

	COD
CONSTANT	33.242 **
	(2.49)
ISSI	−10.873 ***
	(−8.11)
DIR	−3.257
	(−1.45)
COM	−6.292 ***
	(−3.07)
AUCOM	10.299
	(1.57)
INDCOM	8.357
	(1.57)
INDDIR	1.520
	(0.25)
BIG4	−5.891 ***
	(−4.00)
LEV	23.820 ***
	(6.04)
SIZE	0.542
	(0.85)
AGE	−4.451 ***
	(−3.66)
Industry dummies	Include
Year dummies	include
R^2	0.199
Adjusted R^2	0.187
N	1495

All continuous variables are winsorized at 1 percent and 99 percent levels. **,*** Significant at the 5, and 1 percent levels, respectively.

4.3.2. Self-Selection Bias

This study's conclusions could be skewed by a self-selection bias (Heckman 1979). A simple OLS estimation in Table 7 ignores this self-selection bias, which could lead to inconsistency in regression coefficients in the future. This possible problem will be corrected by developing a two-stage selection model (Leuz and Verrecchia 2000).

Firms that are included in the sharia stock index are companies that register as sharia firms or firms that pass the OJK screening as sharia firms. This condition can cause selection bias. Unobserved characteristics can be correlated with the dependent or independent variables. The results studied will be biased due to self-selection if this is the case. To solve this problem, using a two-step Heckman model, similar to past studies (Kim and Zhang 2016), is advised.

All regression parameters in this study, t and z statistics below the coefficient, are based on the corrected standard error for the grouping of firms and years, according to Petersen (2009).

Determinants of Listed and Unlisted Companies in the Sharia Stock Index (First Stage Regression)

The outcomes of the first and second stage regressions on addressing the self-selection bias problem are presented in Table 9. In this section, empirical testing on relationships was conducted. AVEISSI is the probability of a firm reflecting its industry peers when they enter the sharia index. Other companies may reflect their strategy by joining the index.

Table 9. Result Heckman two-stage model.

	First-Stage	Second-Stage
	ISSI	**COD**
CONSTANT	−2.520 ***	33.209 *
	(−3.41)	(1.92)
AVEISSI	2.870 ***	
	(3.04)	
ISSI		−10.537 ***
		(−8.29)
MILLS		−16.677 **
		(−2.46)
DIR	−0.066	−3.797 *
	(−0.62)	(−1.74)
COM	0.599 ***	−12.768 ***
	(5.49)	(−3.78)
AUCOM	0.147	7.285
	(0.54)	(1.41)
INDCOM	−0.049	6.000
	(−0.19)	(1.31)
INDDIR	−0.791 ***	9.366
	(−3.01)	(1.41)
BIG4	0.344 ***	−14.293 ***
	(4.50)	(−6.84)
LEV	−2.294 ***	43.551 ***
	(−13.27)	(3.99)
SIZE	0.013	2.187 ***
	(0.41)	(3.43)
AGE	0.252 ***	−7.234 ***
	(4.41)	(−4.78)
Industry dummies	Included	Included
Year dummies	Included	Included
Pseudo R^2	0.176	0.181
N	1870	1870

All continuous variables are winsorized at 1 percent and 99 percent levels. *,**,*** Significant at the 10, 5, and 1 percent levels, respectively.

The higher the average number of companies entering a particular industry, the higher the chance that the firm will be registered as a sharia firm. Nevertheless, there is no apparent reason why this variable will affect the interest rate. The results of the first stage probit regression are reported in Table 9. In this case, AVEISSI is the exclusion constraint variable. The results show that companies included in the sharia stock index are more likely to concentrate in specific industries, have more boards of commissioners, use financial services BIG 4, and be older. On the other hand, companies in the sharia stock index have fewer independent directors and less leverage.

Second Stage Regression

The second stage of regression is needed to investigate the relationship between companies included in the sharia stock index and the cost of debt. The cost of debt is COD and ISSI is a sharia firm. The Inverse Mills ratio is formed by entering this ratio into second stage regression due to Equation (Mills). The coefficient should be negative and significant if sharia firms have a profitable COD. This model/s control variables are drawn from past research (Harymawan 2018). Year dummies and industrial dummies based on single digit SIC codes are also included in this model. The findings of the second stage of the regression are presented in Table 9. The inverse Mills ratio from AVEISSI shows that the COD coefficient is negative (16.677) and significant at the level of 5%. Table 9 reveals that larger enterprises and firms with more leverage are strongly associated with higher interest debt levels in the control variables (Harymawan 2018). The cost of debt is much

higher in companies with a younger age. The inverse Mills ratio's coefficient is significant. This study found a negative association between COD and ISSI.

Sharia firms may be perceived as firms that run business activities ethically; hence, loan owners do not consider them risky companies (Chen et al. 2016). This result is in line with a previous study which proves that firms that behave ethically and religiously will get a lower cost of debt (Cai and Shi 2019; Jiang et al. 2018). In the primary activities of sharia firms, they are strictly limited to certain types of business, such as not entering businesses that involve gambling, selling prohibited or non-halal foods, selling products that bring adverse impact (cigarettes), as well as avoiding speculation and high risk. This condition is viewed by the lenders as corporate "behaviors" that are ethical and worthy to get low interest on debt. Even though the financial structure of sharia firms has lower leverage than no-sharia firms, it does not mean that they are seen as closed firms; on the contrary, the research shows that the firms are explained to be capable of getting lower cost of debt instead. This means that lenders do not view any high risk because of the firms' low cost of debt.

In the whole model, it is also found that independent commissioners and independent directors do not significantly influence the cost of debt. This means that the existence of independent commissioners cannot make the firms get a low cost of debt. The increasing percentage of independent commissioners will make the monitoring process complex because they represent many concerns from the owners, which the lenders view as a separate risk. In addition, a large number of independent commissioners leads to excessive supervision (Baysinger and Butler 1985; Nasih et al. 2019).

Independent directors do not influence the low cost of debt. The existence of directors in transition countries such as China shows poor performance. This is caused by selecting an independent director, which is more bureaucratic than professional (Hu et al. 2020; Kordsachia 2021). Indonesia itself applies a two-tier board system. There is a separation between the management board, namely, the board of directors, and the supervisory board, namely, commissioners. The existence of independent directors who also function as supervisors is felt to somewhat overlap with the board of commissioners. For this reason, in mid-2018, OJK eliminated the obligation to have an independent director in an organizational structure. This study further confirms the role of an independent director, which does not influence the cost of debt.

5. Conclusions

This study analyzes sharia firms that are consistently listed in the sharia stock index and their influence on the cost of debt from 2012 until 2018. Sharia firms are identified as firms that meet the criteria of OJK as firms that comply with sharia laws, including having primary activities in the non-prohibited sectors. The following criterion is to meet the limitation by not having a maximum interest-based debt of 45% and a maximum income of 10%. This study shows that sharia firms have a lower debt cost than non-sharia firms. The existence of independent commissioners who represent good corporate governance is not proven to make sharia firms have a low cost of debt. These results show that the low cost of debt is influenced by the firms' position as sharia firms. These results also show that sharia firms that are consistently listed in the sharia stock index have indeed met the provisions of OJK. Our findings are robust because we used various endogeneity tests to reduce self-selection bias.

Although sharia firms have lower leverage than non-sharia firms, it turns out that they can get a low cost of debt. Having a low cost of debt does not cause the firms to be perceived as closed firms, as the lenders actually look at the sharia attributes related to the firms' ethical behavior. These results contribute to the development of the sharia finance literature by giving empirical evidence of the influence of sharia firms on the cost of debt.

Firms that do not have access to banking or have little debt are considered closed companies. In agency theory, this condition is considered risky for the lender; however, sharia firms that have limited debt show the opposite performance. Sharia firms are proven

to have lower debt costs than firms not included in the sharia stock index. The lenders view sharia firms as having corporate behaviors that are ethical and worthy to get low interest on the debt. Even though the financial structure of sharia firms causes them to have lower leverage than non-sharia firms, it does not mean that they are seen as closed firms.

Research on sharia firms is still very open to seeing other aspects besides performance and cost of debt. Independent commissioners who represent aspects of governance also need to be developed using firm characteristics as other moderating variables. As with the previous recent paper, this research focuses on corporate governance and the cost of debt; other factors may influence this and are not included in the research model.

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