WHAT ARE THE CONTRIBUTING FACTORS FOR FIRMS CONSIDERING ISSUING SUKUKS

by

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WHAT ARE THE CONTRIBUTING FACTORS FOR FIRMS CONSIDERING ISSUING SUKUKS

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Abstract

Thirty years ago, in response to the demand for the Shariah-compliant financial security, Sukus was introduced in Malaysia in the form of debt securities as certificates resembling a conventional bond backed by securitized assets. I will examine in this study, the different financial performance areas and firm characteristics that motivate issuers to issue sukus tested through the logistic regression. I will also consider how the financial crisis of 2008 may have impacted the decision process of issuers choosing to issue sukus and which industries are relevant to these companies. Findings from my paper suggest there are several internal characteristics of the firm and financial performance areas a firm considers before issuing a Sukuk.
Acknowledgments

First and foremost, I would like to express my sincerest gratitude to Ryerson University for making this research possible.

I would like to begin thanking and expressing my sincerest gratitude to Dr. Ayse Yuce, my supervisor who supported, guided and motivated me in the development of this thesis; this research would not be where it is at today without her generous support and encouragement.

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Special thanks to my MScM / MBA professors for the fantastic academic literature they brought to the classroom and their applications in real-life scenarios bringing an idealistic experience and challenging me to think theoretically and analytically.
Dedication

I dedicate this research and findings to Dr. Ayse Yuce, my supervisor, who supported and guided me and made this research possible.
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Chapter 1 | Introduction

1.0 What is a Sukuk?

I define a Sukuk as a Shariah-compliant financial security certificate securitizing an asset representing a form of ownership in the underlying asset for the investors in the expectation for a periodic return based on a predetermined rate. This security has also been termed as an “Islamic Bond” since its structuration is similar to a conventional bond; however, it is a unique form of financial security since an SPV third party companies often issue the certificates. In addition to the returns generated from profit/loss contracts, which I will explain further in section 1.2, this security forbids interest payments.

1.1 Sukuk background

Historically the development of sukuks initiated in the late 1990s in response to the demand for shariah-compliant security for the investor and issuer, in which the financial security design was introduced as certificates, western conventional style structure granting partial ownership in the underlying asset. No doubt, this security has gained popularity across many international capital markets from Asia, the Middle East, and parts of Europe. Since the first informal issuance from Malaysia, Shell MDS, in 1990, this financial security soon gained its governing bodies and standards set by the Accounting and Auditing Organization for Islamic Financial Institutions, AAOIFI; Islamic Financial Services Industry, IFSI, in the Spring of 2003 (Zulkhibri, 2015). Malaysia, of course, is still home to the largest global share of Sukuk issuances by 50.5% in 2019, while setting the example of a dual-market with a transparent and regulatory framework to host Sukuk and conventional bond issuances. Their Security Commission has also eased the transaction
process to be more efficient and accessible for a retail investor in 2018 (IIFM, 2019; Zulkhibri, 2015).

1.2 Sukuk Contracts

Sukus are issued based on shariah-compliant contracts that determine the profit/loss for the investor based on the type structure for the securitization of the assets for the industry’s not related to pork, alcohol gambling, or weaponry. As (Radzi, 2018; Latham & Watkins LLP, 2015; Zulkhibri, 2015; Majercakova, Slahor & Mittelman, 2017) paper mentioned assets securitized must be shariah-compliant; in addition to the prohibition of gharar “uncertainty,” riba “interest” in the transaction. According to (Latham & Watkins LLP, 2015; AAOIFI, 2015) in the event, the outcomes are based entirely on chance “speculation” or where one party can gain a beneficial opportunity because they knew more then the other “ignorance” is also unpermitted in a transaction. Each Sukuk, of course, has its structure, and limitations set under shariah requirements. Below in the sections, I mention the contracts that are popular with Sukuk issuers, and of course, these contracts can be used in the form of hybrids; although, hybrids are not a focus of my research.

1.2.1 Sukuk Al-Ijara (Leasing)

Al-Ijara is a more common contract where the first party, i.e., the originator will assign ownership to a third party SPV for leasable assets and will lease the assets from the SPV until its maturity. The SPV will then distribute the periodic payments to the Sukuk holders based on a present benchmark, most commonly LIBOR. Appendix Figure A includes a sample theoretical structure of the Ijara contract from a government Sukuk issuance example.
1.2.2 Sukuk Al-Wakala (Agency based)

Al-Wakala contract is a two-party agency based contract between an investor and the agent in which the agent will invest the money on behalf of the investor in the best interests of the investor in a tangible asset that will bring profits into the venture. Usually, a third party SPV company is created to collateralize the assets and distribute the profit or losses to the Sukuk holders. Appendix Figure B includes a theoretical sample followed by an issuance of Sukuk al-Wakala structure by the agency Dar Al-Arkan Sukuk Company Ltd.

1.2.3 Sukuk Al-Mudarabah (Equity based partnership)

Al-Mudarabah is a venture type contract in which one party will provide the capital while the other party provides the labour, more similar to the agency-based agreement. Of course, both parties will work on a predetermined basis, including determining profit ratio in written and will issue the Sukuk certificates from a third party SPV company by collateralization of assets. Appendix Figure C includes a sample of the theoretical structure and a sample by Latham & Watkins of the Mudarabah structure for ADIB Capital Invest I Ltd as the agency.

1.2.4 Sukuk Al-Murabaha (Cost plus markup)

Al-Murabaha is a contract that is less common among Sukuk issuances; though, it is theoretically a cost-plus markup from a transaction. The issuer will purchase the commodities at a predetermined price and time from the supplier and sell them to the originator. Appendix Figure D is an example structure in the theory of this Sukuk with a sample of another sample with the Mudarabah structure as a hybrid model.
1.2.5 Sukuk Al-Musharakah (Joint Venture)

Al-Musharakah is a joint venture agency contract between two or more parties that will either provide the labour or capital in the partnership contract that must be predetermined in advance for each partner share and profit ratio. Appendix Figure E includes a sample structure of the Musharakah structure with RVOS as the agency issuing the certificates.

1.2.6 Sukuk Al-Istisna (Manufacturing Finance)

The Al-Istisna structure is the structure that funds are required for the construction of a project, or financing is required to produce a specific good or tangible asset for a future date. This contract requires that price and particular characteristics must be agreed in advance while the funds will only be used for construction or manufacturing of specific goods.

1.3 Sukuk structure & securitization

The diagram I illustrate in Figure 1.0 visually shows how the different types of contracts are differentiated based on their type of structure. Each contract has specific requirements in investing in tangible assets, whether it is commodities, construction, or fixed assets, of which the contract determines specific structuration. In most cases, the SPV will collateralize the assets of a company. In the examples I provided above, these were structures applied in industry, demonstrating the chain of parties involved in the structuration of this security. Of course (AAOIFI, 2015) designated many forms of contracts and structures. In the following, I will mention the types of structures more common among issuers.
1.3.1 Debt-like Sukuk

The debt-like structure is the most common structure type used among issuers since this structure is the constant stream of inflows generated from the lease or sale based on a predetermined fixed-rate. Typical kinds of contracts encompassed in this structure Murabaha, Istisna, and Ijara.

1.3.2 Equity-like Sukuk

This structure is the principle of profits generated from a prearranged profit ratio that stems from the inflows generated from the partnership. Two contracts commonly associated with this structure are the Mudarabah and Musharakah contracts.

1.3.3 Agency-based Sukuk

The structure resembles the example of a Mudarabah structure with the exception that the structure is an agency agreement between the investor and the agent and making a return based on the predetermined ratio. For example, the Wakala structure is an agency agreement between the principle and the agent to act in the interests of the principle.

1.3.4 Other Sukuk Structures

Two structures, *Istithmar* and *manafa*, are fewer common structures used in issuances since they typically concede as hybrid models in other structures. Of course, Sukuk issuers have the flexibility to issue a hybrid model combining contracts based on their structural requirements. Hybrids, of course, as I mentioned earlier, is not the focus of this study. My thoughts on a hybrid structure depend on the company’s project, which may require them to issue a hybrid form contract.
Figure 1.0: Diagram of Sukuk structures & classifications
1.4 Research Motivations

My research is motivated to understand the various factors that affect a corporation in their choice between issuing a Sukuk versus a conventional bond from a series of firm characteristics and financial performance metrics. Secondly, I examine what industries are relevant to Sukuk issuers and how did the financial crisis of 2008 affect the decision process. Therefore, I propose the following overarching research question in section 1.5.

1.5 Research Question

Overarching RQ: What are the motivating factors affecting a firm’s decision to issue sukuks?

I developed this research question to understand how the different performance metrics and firm characteristics affect the decision-making process for firms to issue a Sukuk. These factors are several financial performance metrics, and firm characteristics developed from the data obtained from Bloomberg for each firm. In Chapter 3, I will go over in more detail the specific parameters used in the models and testing the chapters to follow.
2.0 Modigliani and Millers M&M Proposition

According to Modigliani and Miller’s theory under proposition I, a firm’s value is unaffected by its capital structure under the assumption of a “perfect world market.” More simply, the capital structure is independent of firms' value ignoring costs of financial distress, transaction costs, taxes (Titman, 2002; Jaros & Bartosova, 2015). The theory suggests that a firm value independent of capital structure would be cheaper, neglecting the costs of financing. Although, firms financing with debt find it less expensive than equity because of the transaction costs involved to go public because Proposition II suggested the tax benefits. Sukus are asset-backed debt securities that give them the benefits of a conventional bond in smaller transaction costs rather than going public according to the *pecking order theory*. Secondly, being asset-backed security has tax benefits; however, each country has specific laws and regulations regarding its fiscal policy so that it may vary from country-to-country.

2.1 Asymmetric information & agency costs

Asymmetric information is a situation when one party has more information than the other, with moral hazard and adverse selection as two popular theories. While the first theory of moral hazard is more popular with the insurance market, adverse selection is more popular with lemon products. A paper by (Akerlof, 1970) describes the market of lemon products with probabilistic models. His paper explains from the example from the automobile market suggests that purchasers face a cost of uncertainty when buying a lemon car because they would not know more than the information the dealer has. There comes the point when lemon products outweigh the market for
higher quality. The example he provides is consistent with (Klein & Weills, 2016) paper that some firms may collateralize their least performing assets in the Sukuk market.

A few notable studies were conducted in papers by (Halim, How & Verhoeven, 2017; Nagano, 2017; Klein & Weill, 2016; Alam et al., 2013; Godlewski et al., 2013) to investigate agency cost theories and its connection to Sukuk issuances. Findings by these researchers suggested that firms choose to finance from the Sukuk market when information asymmetry exists mainly because of the complexity of the structure of the sukuks when a third party is entrusted with safeguarding the assets of a firm.

Secondly, the term agency agreement is an agreement between two parties to act in good faith, such as between shareholders and management to invest in positive NPV projects for a return. The agency dilemma, however, is the most common concern for a firm when the administration does not act in the best faith of its shareholders, typically investing in negative NPV projects. There have been a significant number of papers on this issue in particular with free cashflow since it can favour the opportunistic behaviour in favour of management. A paper by (Jensen, 1986) explains debt-based financing can be beneficial in offsetting the agency cost of free cash flow in his “control hypothesis” by theory by setting future cashflow payments in the form of interest and principal payments. However, it increases the agency costs of debt depending on how much risk of liability the firm can uphold. A paper by (Halim, How & Verhoeven, 2017) findings suggested that underinvested firms with higher free cashflow would issue a Sukuk over a conventional bond because of agency costs.
2.2 Sukuk literature overview

A paper by (Zulkhibri, 2015) builds on the theoretical background in the development of sukuks from a qualitative study. His paper mentions the development of the Sukuk saying the religious theories from the interpretations from a religious context, and the types of Sukuk papers that exist in academia. Papers on sukuks continue to evolve since this security is still new in the market, and scholars are developing the papers on this security. The development of these papers is from many different research tests and methodologies with the logistical and CAARS analysis as a more popular methodology followed by GARCH modelling.

2.3 Effects of the Financial Crisis

According to (Rosman et al., 2014; Asmild et al., 2018) papers, western banks, and the world economy was disarrayed from the financial crisis of 2008. Though, Islamic financial institutions had been proven to be unaffected by the subprime meltdown and remained efficient while global economies fell. Their findings suggested capitalization and profitability were probable causes to Islamic institutions being unaffected in the Middle East and Asia. Similarly, (Asmild et al., 2018) study suggests a similar case for Bangladesh, where Islamic banks outperformed conventional banks' by efficiency.

A paper by (Alexakis et al., 2019) suggests that Islamic banks have higher costs associated with the Shariah Supervisory board and with the development of their complex shariah-compliant products. Besides, from a revenue comparison, both Islamic and conventional banks are complementary by the system; whereas, (Alexakis et al., 2019) mentioned it took Islamic Banks longer to catch up with traditional banks in terms of profitability. Of course, as (Smaoui & Ghouma, 2020) paper suggested that the performance of Islamic Banks had led them to create a
competitive nature and hold riskier portfolios in recent development. However, the papers for Islamic Banks indicates that the performance during the financial crisis was more efficient compared to conventional banks; mainly because of the types of portfolios undertaken by Islamic Banks were far less risky than traditional banks. Additionally, and indicators, including ROA and capital ratios, proved that IBs were not affected by the financial crisis.

2.4 Securitization, SPV

Sukus use SPV’s, third party companies, agencies that are involved in the collateralization of the physical assets. These securities structures have complex structures given the involvement of the different parties. Sukus are issued as asset-backed; of which investors have partial ownership in the underlying asset or asset-based; which allows the investor the beneficial ownership in the underlying asset (Zulkhibri, 2015; Sherif & Erkol, 2017; Majercakova, Slahor & Mittelman, 2017; Alswaidan, Daynes & Pasgas, 2017).

A paper by (Hahn, 1995) mentions a vital role of Special Purpose Vehicles as a means of securitization by separating the assets from the originator to minimize or eliminate the risk for the assets and cash flow generated from the assets in the event of insolvency from the originator. He mentions characteristics for these “bankruptcy-remote companies,” which make them unique from the parent company, one of which the SPV acts as a separate entity in the interests of the originator. In the case of sukukS, banks, and financial institutions, or even third-party companies, serve as the party to collateralize the assets to buy them from the supplier and supply them to the firm. Depending on the type of contract, the assets can be repurchased at the end of the term.
2.5 Sukuk signalling effect

Papers by (Godlewski et al., 2013; Alam et al., 2013; Modirzadehbami & Mansourfar, 2011; Sherif & Erkol, 2017) suggests a negative shareholders wealth effect from a CAR’s test. This test indicates that while a bond issued does not have a relationship to the stock market while a Sukuk seems to return a negative CAR in the example of a dual market. These papers did also mention that when the company is weak financially, the negative CAR seems to suggest some company’s setup adverse selection and moral hazards types of behaviours in the market.

Chapter 3 | Hypothesis Development & Potential Decision Factors

Within this chapter, I will cover the development of potential factors that affect the decision-making process for firms to issue sukuks.

3.0 Research Question

Overarching RQ: What are the motivating factors affecting a firm’s decision to issue sukuks?

I again come back to the main research question in this chapter to develop a testable hypothesis based on the identified research gap for developing the research on what motivates issuers to issue sukuks. In Section 3.2, I categorize the metrics by firm performance and characteristics metrics, and I will test the models to confirm which factors are significant in the chapters to follow. Also, a few sub-research questions are emphasizing the grey areas of current research on sukuks I considered developing my model are by as follows. How did the financial crisis of 2008 affect the decision process for issuers considering issuing sukuks? Was there any significant change in the
performance that influenced the decision process of issuers? What industries are substantial to Sukuk issuers?

3.1 Hypothesis Development

In this section, I hypothesize that internal performance and firm characteristics affect the decision process of firms to consider issuing a Sukuk. In section 3.2, I specify the proposed contributing factors, which are the combination of firm-specific characteristics and performance metrics. In Chapter 4, I will introduce the data characteristics and descriptive that will be used in model testing in the chapters to follow.

According to a paper by (Husna & Satria, 2019), a larger size company is a sign of growth opportunities and was proven to have a positive effect on firm value. While I agree with the paper, I believe the larger the company is, the more sensitive it is to change on the financial markets. For example, companies issuing bonds are affected by changes in interest rates. In contrast, sukuks are not affected by changes in interest, but as (Al-raeai et al., 2018) paper mentioned, macroeconomic factors are affecting the development of the Sukuk markets in the GCC countries. Secondly, according to AAOIFI, there are specific tangibility requirements each Sukuk contract is required to maintain. In Figure 1.0, I mentioned the types of tangibility requirements for the six popular contracts used in sukuks. For these reasons, I hypothesize in my first hypothesis that larger corporations with more physical assets have a better chance to issue sukuks over a conventional bond.

H1: Companies larger in size with more physical assets have a higher probability to issue a Sukuk.
In my second hypothesis, I hypothesized that companies that have issued in larger sizes have a higher likelihood to issue the Sukuk over a conventional bond. My thoughts on issue size depend on the demand for capital from debt. In the paper by (Nagano, 2017), his findings suggested that a borrower is more likely to approach to Sukuk market if the demand is too large for a bank to fulfill. Secondly, according to the pecking order theory, the debt market is a second choice over internal financing. In my opinion, this theory is viewed favourably by firms needing to finance with debt not only as a second choice but firms that need access to capital as an alternative market source. Therefore, this leads me to believe that sukuks can be the alternative to conventional bonds when there are higher capital requirements, and when sourcing from the bond market becomes difficult.

H2: Companies that issue larger issue size have a higher likelihood to issue a Sukuk.

According to an article by (Vizcaino, 2014) the cost to issue a Sukuk in Asian countries such as Malaysia and Indonesia are higher than a conventional bond because of high advisory costs from the involved structures. Recalling (Alexakis et al., 2019) paper, they had also mentioned that the shariah advisory board results in higher costs. However, as his article says, the profit in bps on sovereign sukuks is much higher as a trade-off. On the other hand, according to (Salaam Gateway, 2019), Saudi Arabia reduced the cost to issue a Sukuk to promote local demand for this financial security. Meanwhile, as (Al-raeai et al., 2018) paper mentioned that macroeconomic factors such as oil price and political instability affect the demand for sukuks in the GCC countries. My thoughts on their papers suggest that the need for this security would change with market conditions in the Middle East, and a higher profit would be in Asian countries.

Also, (Halim, How & Verhoeven, 2017) paper mentioned that issuers with higher free cashflows are motivated to issue sukuks. I have two opinions from free cashflow, first that free
cashflow gives an internal motive to management to issue the Sukuk because it is the capital accounting for all projects (Halim, How & Verhoeven, 2017; Wang, 2010; Jensen, 1986) paper mentioned. Second, there are different methodologies to describe free cashflow; however, it is connected to operating profit. It leads me to believe that even firms with higher free cashflow are profitable aside from ROA as a more applicable method for estimating return. Also, as (Rosman et al., 2014; Asmild et al., 2018) paper mentioned Islamic Banks were profitable during the financial crisis because of the portfolios they have taken were less risky than that of conventional banks. Therefore, I hypothesize in my third hypothesis that companies are more profitable and have demonstrated higher financial performance have a better chance of issuing a Sukuk over a conventional bond.

H3: Profitable corporations with higher financial performance have a higher probability to issue a Sukuk.

3.2 Testable motivators

To understand the motivations of corporations on their decision to issue sukuk I proposed a series of testable factors by firm characteristic and the firm’s financial performance to understand that which factors are relevant and affect the decision making the process of these issuers to issue sukuk.

3.2.1 Firm Characteristics

3.2.1.1 Firm Size

As I displayed in Tables 1, 2, and 3, the Sukuk market is composed of various size issuers that develop the market. The size of the corporation is a vital firm characteristic because, as previous papers suggested that a larger corporation indicates stability and growth opportunities (Husna &
proxy firm size as the logarithm of total assets as prior studies employed this method (Smaoui & Ghouma, 2019; Dang et al., 2018; Husna & Satria, 2020). I expect that the larger the firm, the larger the probability they will issue a Sukuk.

3.2.1.2 Issue Size

This variable is a proximation to analyzing the relevance of a size of debt issued. The issue size is vital as a firm characteristic because the larger debt size suggests that there is more demand for debt because it is cheaper than going public according to the pecking order theory. I proxy debt size as the logarithm of the issue size. I expect from the results that the larger the issue size, the higher the probability companies will issue a Sukuk.

3.2.1.3 Tangibility

Tangibility is a vital firm characteristic since there is minimum standards collateralization. The collateralization requirements for each Sukuk issuance are designated by AAOIFI and the necessary governing bodies under each contract (Salah, 2011; AAOIFI, 2015; Godlewska et al., 2013; Halim, How & Verhoeven, 2017; Mohamed et al., 2015). A paper by (Maskus et al., 2012) findings suggested that tangibility does affect the issuers' choice of issuing debt or private financing because, as past papers indicated that firms with physical assets preference debt financing over equity. As such, I believe a firm having more physical assets in the composition of total assets would motivate the firm’s decision-making process and affect their choice to issue a Sukuk. I estimate this variable as the ratio of tangible fixed assets scaled by total assets as did (Halim, How & Verhoeven, 2017). I am predicting that the higher the physical assets the firm has, the higher the probability the firm will issue a Sukuk.
3.2.2 Firm Performance Metrics

3.2.2.1 Debt Ratio

I proximate leverage as the debt-to-asset ratio, which suggests how the firm’s assets are leveraged. Of course, with Sukuk issuers, we expect them to carry a higher debt ratio. According to (Godlewski et al., 2013) paper, sukuk have a greater 30% debt-to-assets ratios compared to 20% conventional bonds; whereas, their equity-to-asset ratios are approximately half of bond issuers. This performance metric leads me to believe it is a significant influencer on the choice to issue a Sukuk because, as past papers have indicated that Sukuk issuers tend to take on higher debt to finance their assets. Therefore, I expect that the higher the debt ratio, the higher the probability the corporation will issue a Sukuk.

3.2.2.2 Free Cashflow

According to papers (Halim, How & Verhoeven, 2017; Wang, 2010; Jensen, 1986), Free Cashflow has been extensively known to be misused by management as a means of investing into negative NPV projects because it is the leftover cashflow after accounting for projects creating an opportunistic behaviour for management. Of course, this is known as the agency dilemma of free cash flow. I do not believe this agency behaviour is relevant to a majority, but a minority of firms, because management may very well invest into a positive NPV project, and there may be a few companies that might demonstrate this behaviour. However, their papers lead me to expect that free cashflow itself is an incentive for management to motivate them to invest in the project and issue the Sukuk. This variable is performance metric approximated as Free Cashflow, operating income before depreciation less interest expense, taxes, preferred dividends, and common
dividends scaled by Sales as did (Halim, How & Verhoeven, 2017). I expect that the higher the free cashflow available to management, the higher the likelihood a Sukuk will be issued.

3.2.2.3 Market-to-Book

market-to-book ratio determines as a very significant financial performance metric according to past papers, because it is the determination of growth opportunities for higher market-to-book ratios. I approximate this variable as the market value of equity scaled by the book value of equity as employed by (Halim, How & Verhoeven, 2017). I would expect from the results that issuers with a higher market-to-book ratio, the higher the probability firms will be influenced in the decision-making process to issue a Sukuk.

3.2.2.4 ROA

Prior studies have emphasized firms profitable will follow the example of the pecking order theory to finance internally and source externally from capital markets as needed. Financing externally comes at a cost in the form of transaction and search costs to issue debt or go public (Jensen, 1986; Mohamed et al., 2015). I proxy ROA as a financial performance metric estimated as the ratio of EBITDA, Earnings before interest, tax, depreciation, and amortization scaled by total assets (Mohamed et al., 2015; Halim, How & Verhoeven, 2017). I predict that a firm that considers issuing a Sukuk can generate a return from the venture, and the higher yields will motivate the firm’s decision making process to source capital from the Sukuk market as needed. Therefore, I expect from the results that a firm with higher profitability will have a higher chance of issuing a Sukuk.
3.2.3 Industry Dummy Variables

In this study, I am also controlling for industry dummy variables to analyze which industries are relevant to sukuks. There are ten industry dummy variables I control to test the relevance of each sector. There have been a few studies on the development of sukuks in the GCC with papers by (Grassa & Gazdar, 2014; Al-raeai et al., 2018) suggesting that macroeconomic factors significantly affect the development for sukuks in the market in the GCC countries. My thoughts on their paper are it is highly likely that a sovereign issuer would prefer the issue of a Sukuk from the oil and gas industry; however, I believe this would change for a corporate issuer. I am expecting that companies from the financial sector, health care, materials would have a higher probability to issue a Sukuk as a corporate issuer.
Chapter 4 | Data Collection

Within this chapter, we begin introducing our data and characterizations.

4.0 Data overview


In Table 1, I displayed the data spread across the years and types of industries for Sukuk issuances and conventional bond issuances; meanwhile, in Table 2, I mentioned the summary statistics for the size of issuances spread across by year. In Table 3, I displayed the distribution of the sampled corporations for Sukuk and conventional bond issuances by country. Variables derived from Bloomberg are measured in USD United States Dollar or unless otherwise stated.

Table 1
Sample distribution of issuances
The following table provides an overview of our sample distribution by year, and industry for conventional bond and sukuk issuances.

<table>
<thead>
<tr>
<th>Years</th>
<th>Bond</th>
<th>Sukuk</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>328</td>
<td>239</td>
</tr>
<tr>
<td>2006</td>
<td>395</td>
<td>326</td>
</tr>
<tr>
<td>2007</td>
<td>279</td>
<td>373</td>
</tr>
<tr>
<td>2008</td>
<td>192</td>
<td>416</td>
</tr>
<tr>
<td>2009</td>
<td>181</td>
<td>309</td>
</tr>
<tr>
<td>2010</td>
<td>103</td>
<td>213</td>
</tr>
<tr>
<td>2011</td>
<td>143</td>
<td>174</td>
</tr>
<tr>
<td>2012</td>
<td>154</td>
<td>232</td>
</tr>
<tr>
<td>2013</td>
<td>246</td>
<td>271</td>
</tr>
<tr>
<td>2014</td>
<td>307</td>
<td>160</td>
</tr>
<tr>
<td>2015</td>
<td>478</td>
<td>212</td>
</tr>
<tr>
<td>2016</td>
<td>442</td>
<td>332</td>
</tr>
<tr>
<td>2017</td>
<td>708</td>
<td>302</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Industry</th>
<th>Bond</th>
<th>Sukuk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communications</td>
<td>98</td>
<td>79</td>
</tr>
<tr>
<td>Consumer Discretionary</td>
<td>416</td>
<td>602</td>
</tr>
<tr>
<td>Consumer Staples</td>
<td>111</td>
<td>317</td>
</tr>
<tr>
<td>Energy</td>
<td>127</td>
<td>254</td>
</tr>
<tr>
<td>Financial</td>
<td>2,397</td>
<td>622</td>
</tr>
<tr>
<td>Health Care</td>
<td>114</td>
<td>61</td>
</tr>
<tr>
<td>Industrial</td>
<td>204</td>
<td>938</td>
</tr>
<tr>
<td>Material</td>
<td>344</td>
<td>139</td>
</tr>
<tr>
<td>Technology</td>
<td>33</td>
<td>184</td>
</tr>
<tr>
<td>Utilities</td>
<td>112</td>
<td>365</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3,956</strong></td>
<td><strong>3,561</strong></td>
</tr>
</tbody>
</table>
As displayed in Table 1, a majority of issuances for bond issuers are within the Financial sector. In contrast, Sukuk issuers are focused more on the industrial sector, and second within the financial industry. Also, the table displays that while the Sukuk market is more distributed across other sectors, companies from the bond market are primarily from the financial industry.

Furthermore, my research emphasizes corporations that issue sukuks, while sovereign sukuks and bonds are not a focus of my research. It means that while some industries such as the oil & gas industry may or may not be significant in my testing.

In Chapter 5, I will develop dummy variables to confirm the significance of sectors relevant to corporate Sukuk issuers.
4.1 Data summary statistics

In Table 2, I displayed the issue size in USD millions by year for sukuks and conventional bonds. I would like to mention that the table shows the estimable data collected accounting for firms that did not display any financial performance in the data collection process. Therefore, there may be a slight variation in the market size for the data I collected in Table 2 and the actual market size.

As I expected from the summary statistics, the market for conventional bonds is significantly strong compared to the Sukuk market. Although, the data statistics I mention in Table 2 do suggest that the Sukuk market is just as competitive in the number of issuances spread across the years. For example, during the financial crisis of 2008 for the periods, 2008 – 2009, the number of issues for sukuks were significantly more than the number of bond issuances.

<table>
<thead>
<tr>
<th>Sample Countries</th>
<th>Conventional Bonds</th>
<th>Sukuks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Asian</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malaysia</td>
<td>125</td>
<td>154</td>
</tr>
<tr>
<td>Indonesia</td>
<td>73</td>
<td>10</td>
</tr>
<tr>
<td>Singapore</td>
<td>18</td>
<td>3</td>
</tr>
<tr>
<td>Pakistan</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Turkey</td>
<td>81</td>
<td>5</td>
</tr>
<tr>
<td><strong>Middle East (GCC)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UAE</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>1</td>
<td>16</td>
</tr>
<tr>
<td>Kuwait</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Qatar</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Bahrain</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Oman</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td><strong>European</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>314</td>
<td>27</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>628</strong></td>
<td><strong>227</strong></td>
</tr>
</tbody>
</table>

Secondly, of the 227 corporate Sukuk issuers in Table 3, Malaysia, as I expected, is the largest market for these securities, as did previous papers also emphasized Malaysia’s significance in the global Sukuk market as a dual market for both sukuks and conventional bonds. Meanwhile, the
United Kingdom is the second-largest host and the only one in Europe to issue these financial securities, followed by Saudi Arabia as the third largest. My thoughts on the number of companies issuing in the GCC countries were less compared to the UK. It does suggest that the UK is an attractive market for companies issuing sukuks after Malaysia.

4.2 Criterion for issuances

The data I collected was a raw dataset composed of a series of issuances from corporations issuing the Sukuk or conventional bond. Also, within the collected data, I gathered the companies balance sheet and income statement items for financial performance and firm characteristics. In Chapter 5, I will go into further detail on the specific financial performance and firm characteristics metrics in the model that will be tested. Secondly, the collected data I obtained was for all Sukuk contracts and sukuks and bonds from emerging markets and the default data provided by Bloomberg for the periods from 2005 – 2017.

During the data collection process, I eliminated pieces of data for Hybrids, agency issuances, dual issuances, defaulted issuances, junk bonds. Also, companies that issued both a Sukuk and conventional bond had been excluded from the data. I even cleaned, and any pieces of data that did not yield information was eliminated to remove any inconsistency; noting the estimable data in Table 1, 2, and 3. Table 5 in Chapter 5 highlights the descriptive statistics for the data being tested in the model.
Within this chapter, I will define my methodology and development of the logistic regression model design to be tested for the proposed factors based on firm characteristics and financial performance.

5.0 Logistic Regression Methodology

To test the proposed factors and prove my hypothesis I mentioned in Chapter 3, I employ a logistic regression method. The model will estimate the variables that will be significant to my tests at a minimum of ten percent significance for the sample of 227 corporate sukuks and 628 bond issuances from the period of 2005 - 2017. Because my tests require a model that was specific to a binary dependent variable, the logit model was a more meaningful choice for confirming the hypothesis proposed given the size of the dataset over the probit model. Secondly, I have also chosen the logit model over the probit model because I had wanted to test my model as did past researchers analyzing this area of research used logistic regression in their research papers.

Within my proposed tests, my aim is also to examine the predictors to understand the motivations of the corporations issuing them. The methodology I recommend performs the analysis using the logit design, regressors reported through the F-Values of the tested models. The logit model design allows for me to estimate the dependent variable sukuks as a binary variable, and our explanatory predictors as the factors for corporations to issue sukuks over conventional bonds to understand what factors motivate the decision process of firms choosing to issue sukuks.
5.0.1 Testing models with different sub-periods

According to (Cornett et al., 2011) paper demonstrates that with the unpredictability of the TED spread from July 2007 to April 2009, peaked in October 2008, there was a fall in mortgage-backed and asset-backed securities, and the freezing of the interbank markets, conventional banks faced a liquidity problem. They had to adapt conservative lending strategies. Of course, as papers by (Rosman et al., 2014; Asmild et al., 2018; Smaoui & Ghouma, 2020) indicated Islamic Banks were unaffected by the financial crisis because of the portfolios have taken were less risky compared to conventional banks. In response to the financial crisis, I argue that the intervention period, i.e., the financial crisis, will be tested for the periods 2008 and 2009 when the TED Spread had reached its peak, and conventional banks had faced a liquidity shock. I will also check a pre-crisis period that will be testing the data from 2005 – 2007 with a post-crisis period testing from 2010 – 2017 to analyze if there is any significant trend or changes because of specific periods.

5.1 Logistic model development

In this section, I develop the logistic regression testable models to understand the factors that motivate corporate issuers to issue sukuks. I mentioned in Chapter 3, and as did previous papers by (Halim, How & Verhoeven, 2017; Klein & Weill, 2016; Nagano, 2016), have used this modelling technique to analyze motivations of issuers. In these models, I am also examining the effect of different sub-periods, i.e., the financial crisis as did previous papers by (Nagano, 2016; Godlewski et al., 2013; Alam et al., 2013). I, therefore, predict the following models to be tested;

5.1.1 Model 1 – Full Sample 2005 – 2017

\[
\Pr(S_i > 0) = \text{Size}_i \beta_1 + \text{Issue}_i \beta_2 + \text{Debt Ratio}_i \beta_3 + \text{Free Cashflow}_i \beta_4 + \text{MarketToBook}_i \beta_5 \\
+ \text{ROA}_i \beta_6 + \text{Tangibility}_i \beta_7 + \text{Industry\_Dummies}_i \beta_8
\]
\[ \Pr(S_i > 0) = \text{Size}\beta_{1,i} + \text{Issue Size}\beta_{2,i} + \text{Debt Ratio}\beta_{3,i} + \text{Free Cashflow}\beta_{4,i} + \text{MarketToBook}\beta_{5,i} + \text{ROA}\beta_{6,i} + \text{Tangibility}\beta_{7,i} + \text{Industry Dummies}\beta_{8,i} \]

5.1.3 Model 1 – Estimating periods 2008 – 2009 (Financial Crisis)
\[ \Pr(S_i > 0) = \text{Size}\beta_{1,i} + \text{Issue Size}\beta_{2,i} + \text{Debt Ratio}\beta_{3,i} + \text{Free Cashflow}\beta_{4,i} + \text{MarketToBook}\beta_{5,i} + \text{ROA}\beta_{6,i} + \text{Tangibility}\beta_{7,i} + \text{Industry Dummies}\beta_{8,i} \]

5.1.4 Model 1 – Estimating periods 2010 – 2017
\[ \Pr(S_i > 0) = \text{Size}\beta_{1,i} + \text{Issue Size}\beta_{2,i} + \text{Debt Ratio}\beta_{3,i} + \text{Free Cashflow}\beta_{4,i} + \text{MarketToBook}\beta_{5,i} + \text{ROA}\beta_{6,i} + \text{Tangibility}\beta_{7,i} + \text{Industry Dummies}\beta_{8,i} \]

Where, \( S_i \) is the dependent variable denoted for sukuks. If \( S_i \) equals 1 the company had issued a Sukuk; otherwise, 0 the bond was issued. The Explanatory motivators are as follows; Size is measured as the logarithm of Total Assets. The next independent variable, Issue Size, is a proximation of the logarithm of the issue size. The Debt Ratio is estimated as total debt scaled by total assets. Free Cashflow is approximated as the disposable cashflow at the discretion of management after all projects are accounted for divided by total revenue. Market-to-Book is estimated as the market value of equity scaled by the book value of equity. ROA, Return on Assets is the proximation of Earnings before Interest Taxes and Depreciation and Amortization, EBITDA over Total Assets. Tangibility is the ratio a firm Tangible Fixed Assets scaled by total assets. Finally, Industry Dummies are the dummy variables for the ten industries sampled; Telecommunications, Cons. Discretionary, Cons. Staples, Energy, Financial, Health, Industrial, Material, Technology, and Public Utilities.
5.2 Multicollinearity

As I displayed in Table 4, I wanted to check for multicollinearity to confirm the model’s independent variables do not have a strong correlation to each other; otherwise, I would have to adjust the model accordingly.

As the table displays, the correlation among the independent variables in the second column and the variance inflation factor in the third column. The correlation among the independent variables has a minimal relationship among them, which is a good sign that there is higher accuracy in the models.

Secondly, in the third column, the VIF for all the testable variables is below 5, which, according to papers by (Alin, 2010; Salmeron et al., 2018), confirms that there is minimal multicollinearity among the independent variables tested.

Therefore, the preliminary results that I tested for multicollinearity confirm that I can continue with the proposed models because there is less chance for error.

Table 4

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log Size</td>
<td>1</td>
<td>0.289</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Log Issue Size</td>
<td>1</td>
<td>0.289</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Debt Ratio</td>
<td>-0.122</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Free Cashflow</td>
<td>-0.014</td>
<td>-0.029</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Market-to-Book</td>
<td>-0.0011</td>
<td>0.048</td>
<td>0.117</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROA</td>
<td>0.021</td>
<td>0.000</td>
<td>-0.029</td>
<td>-0.029</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tangibility</td>
<td>-0.0021</td>
<td>-0.011</td>
<td>-0.028</td>
<td>-0.067</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This table displays the correlation between our explanatory variables that will be used in our models for the sample period of 2005-2017.

The definitions of the explanatory variables are displayed in Appendix Figure F.
5.3 Descriptive Statistics

In Table 5, I displayed the descriptive statistics for each explanatory variable that was proposed earlier in Chapter 3. As I expected, the Sukuk market is relatively consistent with the bond market by firm characteristics. In the financial performance, I would like to mention, market-to-book is considerably higher for both bond and Sukuk issuances on average, bond issuances on average indicates a significantly higher amount of growth opportunities with a significantly much higher standard deviation. Secondly, the descriptive data demonstrates that as I expected, Free Cashflow is much higher for Sukuk issuers compared to bond issuers. As newer financial security on the market, I was expecting these types of results for financial performance since the bond market is older than the Sukuk market by age. Nevertheless, I think descriptive statistics are a good indication that the Sukuk market is reasonably healthy and growth-oriented.

<table>
<thead>
<tr>
<th>Table 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Descriptive statistics for each explanatory variable</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variables</th>
<th>Sukuk Issuances</th>
<th>N</th>
<th>Mean</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. (Log) Size</td>
<td>3,561</td>
<td>3.912</td>
<td>1.496</td>
<td>9.174</td>
<td>1.088</td>
<td></td>
</tr>
<tr>
<td>2. (Log) Issue Size</td>
<td>3,561</td>
<td>7.057</td>
<td>4.829</td>
<td>9.477</td>
<td>0.656</td>
<td></td>
</tr>
<tr>
<td>3. Debt Ratio</td>
<td>3,561</td>
<td>33.803</td>
<td>0.316</td>
<td>558.883</td>
<td>17.782</td>
<td></td>
</tr>
<tr>
<td>4. Free Cashflow</td>
<td>3,561</td>
<td>295.051</td>
<td>-89.713</td>
<td>103,405</td>
<td>5,472.693</td>
<td></td>
</tr>
<tr>
<td>6. ROA</td>
<td>3,561</td>
<td>0.053</td>
<td>-0.198</td>
<td>0.624</td>
<td>0.068</td>
<td></td>
</tr>
<tr>
<td>7. Tangibility</td>
<td>3,561</td>
<td>0.088</td>
<td>-0.636</td>
<td>0.612</td>
<td>0.111</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variables</th>
<th>Bond Issuances</th>
<th>N</th>
<th>Mean</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. (Log) Size</td>
<td>3,956</td>
<td>4.159</td>
<td>-0.019</td>
<td>9.174</td>
<td>1.271</td>
<td></td>
</tr>
<tr>
<td>2. (Log) Issue Size</td>
<td>3,956</td>
<td>7.206</td>
<td>4.521</td>
<td>9.397</td>
<td>0.857</td>
<td></td>
</tr>
<tr>
<td>3. Debt Ratio</td>
<td>3,956</td>
<td>36.809</td>
<td>0.196</td>
<td>234.066</td>
<td>21.544</td>
<td></td>
</tr>
<tr>
<td>4. Free Cashflow</td>
<td>3,956</td>
<td>1.339</td>
<td>-56.700</td>
<td>1.772</td>
<td>40.536</td>
<td></td>
</tr>
<tr>
<td>6. ROA</td>
<td>3,956</td>
<td>0.082</td>
<td>-0.753</td>
<td>0.482</td>
<td>0.089</td>
<td></td>
</tr>
<tr>
<td>7. Tangibility</td>
<td>3,956</td>
<td>0.065</td>
<td>-0.724</td>
<td>0.842</td>
<td>0.087</td>
<td></td>
</tr>
</tbody>
</table>

This table displays the summary statistics for our explanatory variables for the sample of 227 corporate sukuk, and 628 corporate bond issuances for the period of 2005 – 2017. The definitions of the explanatory variables are noted in Appendix Figure F.
Chapter 6 | Logistic Regression Results

Within this chapter, my goal is to analyze the results statistically significant in the models tested for the regression models for our sample of 227 corporate Sukuk issuances and 628 corporate bond issuances from our logit models. In Chapter 5, I proposed four models. I performed the test through the logit regression, reported in F-Values analyzing them to confirm the proposed hypothesis that affects the decision process for issuers as outlined in Chapter 3.

6.0 Regression Results

6.0.1 Firm Characteristics

The results I displayed in Table 6 are reported in the F-values for model 1 tested for the three periods. I will begin with the logarithm of firm size estimate in the full sample the F-value (58.831) statistically significant. The result confirms that the significantly large positive F-value indicates a positive correlation of firm size to the dependent variable. Firm size, therefore, is a significant essential determinant for the choice of issuing a Sukuk versus a conventional bond for a firm since it is significant across all three periods tested. The result confirms that the larger size of a corporation, there will be higher the likelihood of motivating the issuers’ decision to issue a Sukuk for the periods tested from 2005 – 2017.

The logarithm of the issue size estimated the F-value (34.129) with a positive correlation to the dependent variable, and statistically significant across the full sample period 2005 – 2017 tested. It confirms that the issue size is also an essential determinant of issuers’ choice. It suggests that the larger the issue size, the higher probability for a Sukuk to be issued for the periods tested from 2005 – 2017.
Table 6
Logit regression model results

<table>
<thead>
<tr>
<th>Dependent Variable: Sukuk</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Firm Characteristics</strong></td>
</tr>
<tr>
<td>1. Log(Size)</td>
</tr>
<tr>
<td>2. Log (Issue Size)</td>
</tr>
<tr>
<td>3. Tangibility</td>
</tr>
<tr>
<td><strong>Firm Performance</strong></td>
</tr>
<tr>
<td>1. Debt Ratio</td>
</tr>
<tr>
<td>2. Free Cashflow</td>
</tr>
<tr>
<td>4. ROA</td>
</tr>
<tr>
<td><strong>Industry Dummies</strong></td>
</tr>
<tr>
<td>1. Telecommunications</td>
</tr>
<tr>
<td>2. Cons. Discretionary</td>
</tr>
<tr>
<td>3. Cons. Staples</td>
</tr>
<tr>
<td>4. Energy</td>
</tr>
<tr>
<td>5. Financial</td>
</tr>
<tr>
<td>6. Health Care</td>
</tr>
<tr>
<td>7. Industrial</td>
</tr>
<tr>
<td>9. Technology</td>
</tr>
<tr>
<td>10. Public Utilities</td>
</tr>
<tr>
<td><strong>CONSTANT</strong></td>
</tr>
<tr>
<td><em>Adjusted R²</em></td>
</tr>
<tr>
<td><em>P &gt; Chi²</em></td>
</tr>
<tr>
<td><em>F</em> statistic</td>
</tr>
<tr>
<td><em>N</em></td>
</tr>
</tbody>
</table>

The table displays the estimates for model 1 reported in F-Values for the sample of 225 sukuk issuances. The dependent variable is 1 if the sukuk was issued; otherwise, 0 for a conventional bond. Significance levels are reported as ‘***’ as 1%, ‘**’ as 5%, and ‘*’ 10%. The definitions of the explanatory variables are noted in Appendix Figure F.

Tangibility estimates the F-value (3.626) statistically significant in the full sample model for the periods tested from 2005 – 2017, positively correlated to the dependent variable. The estimate from the financial crisis model confirms that for the periods tested from 2008 – 2009, the estimate (9.397), there is a higher probability that a company with more physical assets will issue a Sukuk. The result suggests we can confirm that firms with more tangible fixed assets affect the issuers'
decision to issue a Sukuk, and companies had more physical assets during the financial crisis of 2008.

6.0.2 Firm Performance

The debt ratio estimated the F-value (8.434) statistically significant for the financial crisis model and positively correlated to the dependent variable for the periods tested from 2008 – 2009. It confirms that firms with a higher debt ratio are likely to issue sukuk during the financial crisis of 2008.

Furthermore, Free cashflow estimated the F-value (13.371) for the full sample testing periods 2005 – 2017; however, testing for the crisis period, the result significantly increased to (57.389) both positively correlated to the dependent variable. It confirms that for the full sample tested, firms with a higher free cashflow ratio will most probably issue a Sukuk for the periods tested from 2005 – 2017. On the other hand, tested for the financial crisis 2008 period, the result suggests that a much higher free cashflow ratio motivates issuers to issue sukuk. Therefore, the result confirms as expected, there is a positive correlation that exists between an issuers' choice to issue between a Sukuk versus a conventional bond. Free cashflow is a confirmed determinant to motivate the issuers' decision because the results confirm that firms with higher free cashflow motivate the issuers' decision to issue a Sukuk.

Also, Market-to-Book is statistically significant across all three periods tested and displays the F-value (30.530) in the full sample positively correlated to the dependent variable. It suggests that firms with a higher market-to-book are more likely to issue a Sukuk for the periods from 2005 –
2017. It also means that a firm with higher growth opportunities motivates the issuer’s decision to issue a Sukuk.

Moreover, ROA estimates the F-value (158.946) in the full sample positively correlated to the dependent variable, and statistically significant across all three periods tested. The result, therefore, confirms a higher probability that firms with a higher ROA are motivated to issue sukuks. Meanwhile, ROA tested in the crisis period estimates (3.689), which is far less than the full samples estimate. It instead suggests that firms with a higher ROA motivate the issuers’ decision to issue sukuks; however, there may be a higher sample of firms less profitable during the financial crisis of 2008.

In response to H1 and H2, I will accept the hypothesis because, as I expected that companies larger in size with more physical assets has higher chances to issue a Sukuk versus a conventional bond. As the results confirm for firm characteristics, the size of the company and tangibility are a significant motivation for the issuers’ choice to issue a Sukuk. In contrast, companies issuing during the financial crisis had more physical assets.

Secondly, I will also confirm H3 because the results for financial performance confirm that firms with higher free cash flow, market-to-book, and ROA, the better the financial performance, the more likely the company will issue the Sukuk. On the other hand, companies with a higher debt ratio and free cashflow during the financial crisis of 2008 had a higher chance of issuing a Sukuk.
6.0.3 Industries

As I expected from the results, the financial industry dummy yielded (11.543) statistically significant for the full sample from 2005 – 2017 while in addition to statistically significant across all three periods tested. It confirms from the results that there is a more substantial probability that companies from the financial sector are more likely to issue sukuks over a conventional bond confirming H4.

Secondly, the healthcare industry dummy resulted (4.252) statistically significant for the full sample from 2005 – 2017 and significant for all three periods tested. It confirms my expected finding that corporations from the healthcare sector are more likely to issue sukuks over the conventional bond, confirming H5.

Finally, the Materials industry yielded the estimate (12.434) statistically significant across all three periods tested from 2005 – 2017. The result confirms my expected finding that a company from the materials industry is more likely to issue a Sukuk over a conventional bond confirming H6.

Chapter 7 | Conclusions & Findings

I will complete my study in this chapter and conclude my findings.

7.0 Summary of research

In summary, in my research paper, I have tested the seven factors that affect the decision-making process of a firm to issue sukuks. The factors examined included three firm characteristics; firm size, the issue size, and tangibility in addition to four financial performance metrics; debt
ratio, free cashflow, market-to-book, ROA alongside industry dummy variables. These factors were examined through the logit regression in F-statistics since my dependent variable was binary, 1 if a Sukuk was issued and 0 for a conventional bond. I will conclude my findings below in section 7.1 from my research.

7.1 Key findings

My paper suggests that of the factors mentioned above, they are all significantly crucial for firms to decide on issuing a Sukuk. First, by firm characteristics, as expected, I have confirmed that the larger the size of the firm and more physical assets, the firm has a higher probability in the decision-making process to issue a Sukuk. Secondly, I also confirmed that the larger the issue size, the larger the likelihood for the firm to issue the Sukuk. In my testing, I found that corporations issuing sukuks had more physical assets during the crisis period. This finding makes sense to me since earlier papers suggested that IB’s had taken less risky portfolios during the financial crisis of 2008.

Furthermore, of the four financial performance metrics tested, I find firms with a higher free cash flow ratio motivates the issuers' decision-making process to issue the Sukuk. It means companies with higher disposable cash available at the discretion of management for every dollar of sales earned was an influential factor in the decision-making process. Especially during the financial crisis of 2008, companies issuing sukuks had substantially higher free cashflow in comparison to earlier periods tested. The market-to-book confirmed that as I expected, firms with higher growth opportunities are more likely to issue a Sukuk. Third, more profitable firms are more likely to issue a Sukuk. However, when I tested the crisis model, I did find that during the financial
crisis 2008 periods tested, ROA had reduced significantly, which suggests that firms were affected by the financial crisis of 2008.

Within our results, I am not saying a company has to be perfect to issue a Sukuk. However, for those variables, I tested statistically significant they are all critical factors that affect the decision process for firms to consider issuing sukuks based on their characteristics and performance. Of all the variables I tested, my findings did suggest the size of the company, the issue size, free cash flow, and profitability were the most influential factors of all the variables tested.

Also, I tested industries relevant to corporations, and I find that of the ten sampled sectors, sukuks are more likely to be issued by corporations in the financial, healthcare sector, and materials. It does suggest that while the oil & gas industry is more popular with sovereign issuers as previous papers suggested, my findings suggest companies from the financial, healthcare, and materials sector have a higher probability of issuing a Sukuk.

7.2 Conclusion

In conclusion, several factors affect the decision-making process as I had expected. My research findings conclude that Sukuk issuers are financially capable of meeting their obligations, and companies larger in size that has issued larger size debt has more physical assets. Companies with stronger financial performance will prefer to issue a Sukuk over a conventional bond. Meanwhile, companies from the financial, healthcare, and materials sector have a stronger probability of issuing the Sukuk over the conventional bond as a corporate issuer.
Appendices

Appendix A: Sample diagram of Al-Ijara Sukuk Structure

Theoretical Example

*Sukuk Al-Ijara*

![Diagram of Al-Ijara Sukuk Structure]

1. Originator sells the assets to the SPV
2. The SPV collects the cash from the holders and issues the certificates.
3. The rental payments are collected from the lessee.
4. The SPV will distribute the periodic payments to the holders.
5. The lessee will buyback the assets from the SPV upon maturity.

The structure of an al-Ijara is a more commonly used debt-like structure that provides fixed periodic payments from the lease in the form of rental payments. The SPV distributes the lease payments to the holders as per their fixed rate. The Ijara structure can also be formed as a hybrid with other contracts. A more realistic example is provided below from Latham & Watkins LLP advisor to the sovereign issuer government of Dubai’s USD 5 billion real-estate projects.
Example of an Ijara issued Sukuk advised by Latham & Watkins LLP

Source: Latham & Watkins LLP, 2015
Appendix B: Sample diagram of Al-Wakala Sukuk Structure

Theoretical Sample

*Sukuk Al-Wakala*

1. SPV collects the cash from investors and issues the certificates.
2. The agent i.e. Wakeel / Trustee acts in the interests of the investors to invest the capital into the shariah compliant companies, contracts..etc.
3. The payments are collected from the investment.
4. The periodic payments are distributed to the holders.

Note: In some cases the SPV might appoint the wakeel or might act as the wakeel itself, the contract structure depends on the issuance type.

In theory, the structure is more simplified than the example of an issuer's structure since the structure depends on numerous factors. The al-Wakala structure is an agency structure in which the agent acts in the interests of the investors to generate a return. The agent can invest in a Sukuk contract, into shariah-compliant companies to generate the profit. This structure is formed as a hybrid by investing in other structures or combinations. The following page includes an example by Latham & Watkins advisory to Dar Al-Akran Real Estate Development Company for USD 1.8 Billion.
Example of a Wakala issued Sukuk advised by Latham & Watkins LLP

Source: Latham & Watkins LLP, 2015
Appendix C: Sample diagram of Al-Mudarabah Sukuk Structure

Theoretical Sample

**Sukuk Al- Mudarabah**

1. The SPV ‘Trustee’ will collect the capital from the investors ‘rab-ul-mal’.
2. The SPV ‘Trustee’ will provide the capital to the Mudarabah company.
3. The Originator ‘Mudarib’ will provide the management skills to the enterprise.
4. The ‘Mudarib’ will be paid by performance fees in accordance with the Mudarabah agreement.
5. Any profits made by the enterprise will be divided according to the predetermined profit ratios and agreements.
6. The SPV ‘trustee’ will payout the periodic payments when profited.

Sukuk al-Mudarabah is structured as an equity-like partnership where one party provides the capital, and the other party provides the labour. It is common to use this type of structure in project management, where the enterprise will generate a profit from the assets. Depending on the type of enterprise, and its requirements, the arrangement would very well reflect it. Attached is the following page is an example of Abu Dhabi Islamic Bank by Latham & Watkins.
Example of a Mudaraba issued Sukuk advised by Latham & Watkins LLP

Source: Latham & Watkins LLP, 2015
Appendix D: Sample diagram of Al-Murabaha structure

Theoretical sample

*Sukuk Al- Murabaha*

1. A buyer for a commodity appoints an SPV as the trustee.
2. Capital is raised from the investors ‘rab-ul-mal’.
3. The supplier is paid of the commodity is paid by the ‘trustee’ at spot rate, and now will become the seller for the buyer.
4. The commodities or goods are now delivered to the “trustee”.
5. The buyer buys the goods from the ‘trustee’ at a cost plus markup rate in accordance with their predetermined Murabaha agreement.
6. The buyer makes its deferred installment payments as per their agreement.
7. The differed price payments are distributed to the sukuk holders as per their agreed installments.

This form of debt-like structure is less common with issuers because of its characteristics. However, this structure, as Latham & Watkins example demonstrates in the figure below, it is more commonly used as a hybrid with other structures. The structure is simply the trustee acting in the interests of the buyer to buy the goods on behalf of them and sell it to them on a financing condition.
Example of a Murabaha issued Sukuk advised by Latham & Watkins LLP

Source: Latham & Watkins LLP, 2015
Appendix E: Sample diagram of Musharakah Sukuk Structure

Theoretical sample

*Appendix E: Sample diagram of Musharakah Sukuk Structure*

The theoretical example above is how Islamic Banks, Firms would typically structure their sukuk since the case above only shows one originator. However, in a Musharakah agreement; there is more than one originator that will create a partnership with the trustee. A manager will be appointed to invest in assets or real-estate where the Musharakah can be long-term until the partners dissolve it, or it can be “diminishing Musharakah” more common example of rent to own.
Example of a Musharakah issued Sukuk advised by Latham & Watkins LLP

Source: Latham & Watkins LLP, 2015
### Appendix F: Definition of variables

#### Table 7
Definition of variables
This table provides the definition of the variables used in our analysis.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Explanation</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent Variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sukuk</td>
<td>Binary variable equals 1 if the <em>corporate</em> agency issued a sukuk; otherwise, 0 a conventional bond was issued in time $t$.</td>
<td>Bloomberg</td>
</tr>
<tr>
<td><strong>Independent Variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Log (Size)</td>
<td>Estimated as the logarithm of total assets.</td>
<td>Bloomberg</td>
</tr>
<tr>
<td>2. Log (Issue Size)</td>
<td>Estimated as the logarithm of Amount of debt issued USD.</td>
<td>Bloomberg</td>
</tr>
<tr>
<td>3. Debt Ratio</td>
<td>A ratio of total debt scaled by total assets.</td>
<td>Bloomberg</td>
</tr>
<tr>
<td>4. Free Cashflow</td>
<td>A ratio of Free Cashflow, operating income before depreciation less interest expense, taxes, preferred dividends, and common dividends divided by revenue.</td>
<td>Bloomberg</td>
</tr>
<tr>
<td>6. ROA</td>
<td>Return on assets are estimated as EBITDA, <em>Earnings before interest taxes depreciation and amortization</em> divided by Total Assets.</td>
<td>Bloomberg</td>
</tr>
<tr>
<td>7. Tangibility</td>
<td>A ratio estimating the ratio of total fixed assets divided by total assets.</td>
<td>Bloomberg</td>
</tr>
</tbody>
</table>
Reference List


<table>
<thead>
<tr>
<th>Term</th>
<th>Abbreviation / Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAOIFI</td>
<td>Accounting and auditing organization for Islamic financial institutions – Encourages the standards for Shariah-compliant securities for Islamic financial institutions.</td>
</tr>
<tr>
<td>IFSI</td>
<td>Islamic Financial Services Industry – regulating body setting the standards for Islamic contracts and products for both the Islamic Capital and Money Markets; corporate and trade finance.</td>
</tr>
<tr>
<td>SPV</td>
<td>Special Purpose Vehicle – a bankruptcy-remote company, created in the interests of the originator to safeguard the assets and issue the certificates to the Sukuk holders.</td>
</tr>
<tr>
<td>CAR &amp; CAARs</td>
<td>Cumulative Average Return &amp; Cumulative Average Abnormal Return is a term used in the papers for the signalling effect.</td>
</tr>
<tr>
<td>USD</td>
<td>United States Dollar – a common standard to measure the dollar amount for the size of the issue of debt.</td>
</tr>
<tr>
<td>ROA</td>
<td>Return on assets – measures profitability by estimating the return on total assets.</td>
</tr>
<tr>
<td>IB</td>
<td>Islamic Bank – a financial institution that transacts shariah-compliant securities.</td>
</tr>
</tbody>
</table>