

Determinants of Corporate Leverage in Publicly Listed GCC Companies- Conventional vs. Sukuk*

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Abstract: I study the determinants of conventional leverage in a sample of publicly listed corporations based in Saudi Arabia, United Arab Emirates, and Qatar, for a period spanning from 2005 up to end of 2014, and investigate whether those determinants can also explain the utilization of Sukuk by the same corporations in their capital structures. Evidence related to the determinants of conventional leverage is consistent with results from prior studies conducted on corporations based in developed and developing countries. Firm's size, profitability, tangibility, age, and tendency to pay dividends are significant determinants of conventional leverage. However, not all those factors significantly explain the utilization of Sukuk as a financing vehicle. The size of the firm remains to be the most significant factor, in addition to the conformance of those corporations with respect to Shari'a principles measured by their utilization of other Islamic investments and financing instruments. Overall, I conclude that models used to predict conventional leverage are not capable of fully explaining the determinants of Sukuk issuances.

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Keywords: Capital structure; Leverage; Conventional bonds; Islamic finance; Sukuk

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1. Introduction

Islamic finance has been growing rapidly into a boom in the past few years, with increasing global bank penetration rate, and with higher growth in Islamic banks compared to its conventional counterparts.¹ The total Islamic finance assets are projected to reach \$3.25 trillion by 2020². The banking sector denominates the Islamic finance industry, followed by the Sukuk markets. Total value of global Sukuk outstanding at the end of the third quarter of 2014 is \$312.3 Billion, with a growth rate of 34% compared to the end of 2013 (chart 1). Despite all this witnessed and expected growth, theoretical and empirical studies related to Islamic finance in general, and Sukuk specifically, are very limited.

Tapping into Sukuk markets is one of the strategies that will enhance further growth in Islamic finance, and in order to facilitate such strategies, especially in fast growing countries such as the Gulf Cooperation Council (GCC) countries, it is critical to gain a solid understanding of what Sukuk are, how are they different from conventional bonds, and what are the factors behind their issuance.

Corporations based in GCC countries have a unique feature which is that they operate in economies that facilitates and allows the issuance of both conventional and Islamic finance vehicles. Hence, the research objective of my study is to first study the determinants of conventional leverage in publicly listed companies based in GCC countries, and then to explore whether those determinants are also relevant in the firm's decision of including Sukuk in its capital structure.

Several studies in the corporate finance literature study the determinants of capital structure in U.S based companies(for example: Shyam-Sunder et al., 1999; Goyal, 2003; Kayhan et al., 2007; Leary et al., 2010; among others) and some studies examine the determinants of capital structure in

¹ Based on International Monetary Fund and the World Bank's note for the G20 countries (2015).

² Based on Thomson Reuters State of the Global Islamic Economy report 2015/2016.

other international countries (for example: Rajan et al., 1995; Booth et al., 2001; among others). The consensus from all those studies is that there is a set of financial variables that can be used in conventional regressions, or any other models, that explain to a high degree the factors behind the firm's choice of capital structure. Hence in this study, I apply models similar to the robust conventional regressions in attempts to determine the factors that affect GCC listed corporations' choice of financing structure, and to explore whether those factors are similar to the ones that influence the financial choice of other developed and developing countries. Furthermore, I test whether this set of financial variables can also explain the amount of Sukuk outstanding in a firm's capital structure, or whether decisions made by corporations regarding Islamic financing depends on a different set of factors.

Using a sample of publicly listed corporations (excluding the ones in the financial industry) in 3 countries of the GCC that are experiencing the fastest growth in the conventional and Sukuk markets (Saudi Arabia, United Arab Emirates, and Qatar) , and in a period spanning 2005 up to end of 2014, I find evidence supporting previous literature, that financial characteristics of the corporation including its size, profitability, asset structure, and tendency to pay dividends, significantly influence the capital structure. Larger and less profitable firms, with more fixed assets in their asset structure, and less tendency to pay dividends, have high levels of leverage. Moreover, among the industries in the sample that had the largest value of long term conventional debt outstanding as of end of year 2014 were Industrial Manufacturing, and Power and Utilities.

However, when using the same conventional leverage regression models to estimate the amount of Sukuk in a firm's capital structure, the evidence is weak. Firm's size is the only financial variable that significantly explains such relationship, with larger firms having more Sukuk in their capital structures because they face lower information costs due to their high reputation and diversification.

This evidence is consistent with views that Sukuk are different from conventional bonds (Godlewski et al., 2013) and hence factors underpinning this choice needs to be further studied. One of the factors that I report to be empirically significant for the Sukuk issuance decision is the existence of other Islamic short term and long term investments or financing instruments. Finally, among the industries in the sample that had the largest value of Sukuk outstanding as of the end of year 2014 were Power and Utilities, Real Estate, and Oil and Gas.

The paper proceeds as follows. Section 2 discusses the literature on conventional capital structure, Sukuk, and Islamic capital structure. Section 3 outlines the hypotheses. Section 4 describes the data and the sample. Section 5 presents the empirical models and results of estimation. Section 6 concludes.

2. Literature Review

2.1 Conventional Leverage

Extensive finance literature investigates the choice of a firm's level of debt versus equity in its capital structure and provides reasons behind such choice. The two classical theories that were developed to explain such choice are either that firms balance the costs and benefits of debt versus equity (the trade off theory as introduced by Kraus et al., 1973), or that firms try to minimize adverse selection costs, hence they have a preferred ranking of finance resources, starting with internal funds, then debt, and finally equity (the pecking order theory as introduced by Myers, 1984 and Myers and Majluf, 1984).

Following those two main theories, many empirical studies have evolved to test the financing behavior of publicly listed American firms. Yet, no consensus agreement has been reached on which of the two theories (pecking vs. trade off) exactly determines firms' choice of debt versus equity, as

this will depend on several factors such as: the size of the firm (Frank and Goyal, 2003; Fama and French, 2005), the degree of information asymmetry (Bharath et al., 2009), and degree of agency costs causing incentive conflicts (Leary and Roberts, 2010).

Moreover, some studies have suggested that both the trade off theory and pecking order theory can coexist and can jointly be used to explain a firm's financing decisions, for instance, Lemmon and Zender (2010) ; and Fama and French (2005); who suggest that each of the pecking order and trade off theory contain elements that can explain the firm's choice of capital structure.

International studies have also emerged to explain the choice of a firm's financing decision across different countries, and to explore whether the same models and theories apply across different countries compared to developed countries. Rajan and Zingales (1995) examine the capital structure decisions of publicly listed firm in the G7 countries and reports them to be correlated with publicly listed firms in the U.S. Moreover, Booth et al. (2001) analyze the capital structure of 10 developing countries (India, Pakistan, Thailand, Malaysia, Turkey, Zimbabwe, Mexico, Brazil, Jordan, and Korea) and document that the same models and variables used in developed countries can be employed to explain the financing decision of publicly listed firms in those 10 developing countries.

However, very limited empirical research is done to examine the determinants of capital structure of publicly listed firms in GCC countries. To my knowledge, there is only one study (Sbeiti, 2010) that examines publicly listed firms in three GCC countries (Kuwait, Saudi Arabia, and Oman) in order to investigate the determinants of firm's financial choice during the period 1998-2005 and reports them to be similar to conventional determinants of capital structure.

2.2 Sukuk and Islamic Capital Structure

The Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) defines Standard of Investment Sukuk as: "certificates of equal value representing undivided shares in ownership of tangible assets, usufructs and services or (in the ownership of) the assets of particular projects or special investment activity."³

Sukuk is an Arabic word that means financial certificate. A Sukuk's structure is generally referred to be the equivalent to a conventional bond, but it is in conformance with Shari'a principles (Godlewski et al. 2013). Hence, Sukuk are viewed as "Islamic Bonds" where the key difference lies in the fact that the legal and/or beneficial owners of the underlying assets are the Sukuk holders (Thomson Reuters 2015). However AAOIFI emphasizes that Sukuk are not debt certificates with a financial claim to cash flow and that they may not be issued on a pool of receivables (Godlewski et al. 2013). There are 6 types of Sukuk (Murabaha, Ijara, Istisna, Mudaraba, Musjaraka, and Salam) that provide the certificate holder with a proportional interest in an asset or a pool of assets and ultimately to receive the proportionate share of resulting cash flow from ownership in the associated asset.⁴

Debates still exist on whether Sukuk are different from conventional bonds. However, there are limited studies that explore this issue, and there are almost none that examines the reasons behind Sukuk issuance by corporations. Some authors such as Miller et al. (2007) suggest that the only

³ https://islamicbankers.files.wordpress.com/2008/09/aoifi_sb_sukuk_feb2008_eng.pdf STATE OF THE GLOBAL ISLAMIC ECONOMY REPORT 2015/16

⁴ Please refer to Godlewski et al. (2013), and Oseni and Hassan (2015) for details regarding the different types of Sukuk.

difference between Sukuk and conventional bonds is the source of the return (underlying asset rather than interest). However, other researchers such as Godlewski et al. (2013) and Cakir and Raei (2007) document that Sukuk are different from conventional bonds and hence vehicles arising from Islamic finance are different from conventional finance instruments. Cakir and Raei (2007) show that the pricing behavior of Sukuk is different from the pricing behavior of conventional bonds and adding Sukuk to an investment portfolio will result in diversification benefits. Furthermore, Godlewski et al. (2013) indicate that investors react differently to the announcement of Sukuk issuances compared to the announcement of conventional bonds issuances. The authors attribute this finding to the ability of investors to distinguish between those two financial instruments and hence the authors argue that those two instruments are different.

In fact, only limited empirical research is available in this area and further research needs to be conducted to explore and understand Sukuk, which are considered to be one of the major financing vehicles used in the recent rapid global growth of Islamic Finance.⁵ Although some research has been done on other related topics in the Islamic Finance literature, such as Aggarwal and Yousef (2000) who study the financial instruments offered by Islamic banks; Beck et al. (2013) who compare the Islamic banks to conventional banks; and Weill et al. (2014) who investigate the reasons behind choice of Islamic vs. conventional loan by a sample of large firms in the Middle East and Southeast Asia, more is still needed to be explored specifically in the Sukuk area.

Not only is there limited theoretical and empirical research conducted on Sukuk and specifically on factors behind a firm's choice to issue Sukuk, there is also limited research on the general understanding of the capital structure of firms acting in accordance to Shari'a principles. Research

⁵ Based on Thomson Reuters report (Global Sukuk Market Overview, 2015) the global Sukuk totaled \$312.3 Billion dollars in the third quarter of 2014, with issuances growing at a 24.5% rate compared to the third quarter of 2010).

available in this field is strictly related to capital structure of Islamic banks (see for example Al-Deehani et al. , 1998) or corporate governance of Islamic banks (see for example: Safieddine, 2009) . To my knowledge, there are no studies related to examining determinants of capital structure decisions by corporations adopting Shari'a principles.

3. Hypotheses

Due to the rapid growth of Islamic finance and the particular massive growth in Sukuk issuances all across the globe, it is critical to first understand the factors behind the financial decision made by corporations with respect to their capital structure, and then to investigate whether the same factors/models can be used to explain how much Sukuk the firms have as an element in their capital structure.

Although there are alternative models used in the literature to measure the capital structure decision by firms, the majority of those researches employ a conventional set of explanatory factors for leverage as suggested by Haris and Raviv (1991). Goyal (2003) suggest that the reason behind the popularity of such variables is that they have succeeded in explaining different firms' financing decision under several settings. Indeed, Rajan and Zingales (1995) employ those conventional variables on an international sample and the variables succeed in explaining international choices of leverage.

Since those models have proven to be of high predictive power in firms' across different countries, I expect that those models should be able to explain the conventional financing decision by GCC firms' as well . However, due to the fact that GCC countries are tax free, and due to the fact that those companies are conducting businesses in one of the fastest growing regions with respect to Islamic finance generally, and Sukuk issuances specifically, my first hypothesis to test with no a priori is:

Hypothesis 1 [1A] The financing decision of GCC publicly listed firms can [cannot] be explained by the same conventional variables used in the literature.

Many believe that Sukuk are not different than conventional bonds although some authors (such as Godlewski et al. 2013) provide some empirical evidence that Sukuk are different from conventional bonds and that investors in the market understand and recognize this difference. Furthermore, Weill et al. (2014) show that loan characteristics, maturity, and terms, do not influence the decision to offer Islamic loans by large corporations. Hence, rather than focusing on studying the characteristics of Sukuk issuances, I focus on studying the financial characteristics of firms' issuing those Sukuk, and if Sukuk are simply conventional bonds, I should find similar results when using the conventional models to predict the value of Sukuk in the firms' capital structures. However, since there is not enough literature to provide solid evidence on whether Sukuk are similar (different) from conventional bonds, my second hypothesis to test with no a priori is:

Hypothesis 2 [2A] The amount of Sukuk in a firm's capital structure can [cannot] be explained by the same conventional variables used in the literature to explain conventional leverage.

Finally, I cannot ignore the fact that Sukuk are issued in conformity with Shari'a regulation, hence I expect that conforming to Shari'a regulation in the firms' investing and financing transactions will be a significant factor in explaining the firms' financing decisions. Hence my third hypothesis is:

Hypothesis 3: Existence of other Islamic investments and Islamic financing instruments in a business is one of the factors that explain the proportion of capital structure comprised of Sukuk.

4. Data

Based on the International Monetary Fund and the World Bank's note for the G20 countries (2015)⁶, the global sukuk issuances totaled around \$130 Billion, with the largest proportion of it issued by Malaysia, followed by Saudi Arabia, and then United Arab Emirates. Qatar is also known to play a critical role in the Sukuk markets. Since it is important to understand reasons behind financing decisions of such key players in a rapid growing industry, and since no prior studies examined such markets, I will focus in this study on those three GCC countries(Saudi Arabia, UAE, and Qatar).⁷

Moreover, The IMF and WB (2015) note that sovereign funds remain to be the dominant issuers, but corporations are becoming key players as well. Kuwait's Financial Center "Markaz" also reports that 42.33% of the total value of new bonds and Sukuk issuances during 2014 in the GCC market came from corporations (excluding the financial services and government entities). Leverage is known to be a major determinant of the corporations' performance, in fact, Zeitun et al. (2015) empirically support this notion by studying a sample of publicly listed GCC firms. The authors suggest that policy makers should understand how to improve the performance of their corporations by utilizing leverage. Thus, I will focus in this study on publicly listed corporations in Saudi Arabia, UAE, and Qatar. Another benefit from analyzing corporations is that all the models that have proven to be robust in the literature were empirically tested on corporations, and

⁶ The note is based on Kammer et al., "Islamic Finance: Opportunities, Challenges and Policy Options", IMF Staff Discussion Note, April 2015, and the World Bank's note to the IIWG's meeting in May 2015 titled "Comments on Standardized Pooling Vehicle for PPPs proposal and its applicability to Islamic finance".

⁷ A study by Kuwait Financial Centre "Markaz" 2015 discloses that the total value of new issuances in the GCC Bonds and Sukuk market during 2014 was USD35.72 billion. During the year, UAE based issuers constituted 61.40% of the total value raised in 2014 as compared to 40.80% in 2013. On the other hand, Saudi Arabia witnessed a significant decline in issuance activity as compared to the previous year.

corporations in the GCC provide a unique setting for examination, since they have access to both conventional and Islamic bonds (Sukuk).

I obtain the financial data of those publicly listed corporations from Zawya- Thomson Reuters database. In the analysis, following typical research standards, I exclude the firms in the financial sector. I use a sample spanning from 2005 up to end of year 2014 because although data is available since the inception of firms, but most of this data is inaccurate (many missing values) and there was a much smaller number of publicly listed firms in the early 2000s. I restrict each firm to have at least 3 years of data to be included in the analysis. This results in a panel sample of 191 firms in 1731 year observations. Out of the 191 firms, 61% are based in Saudi Arabia, 28% in United Arab Emirates, and 11% in Qatar.

Following Fama and French's 12 industry classifications, I classify the publicly listed firms into 12 categories (based on Zawya's disclosure of industry type).

[Table 1 about here]

Table 1 displays the distribution of the sample firms in the 11 industry categories⁸. The largest concentration of the sample (27%) is in the Industrial Manufacturing industry. Construction, Transport, and Mining constitute (18.7%) of the sample. Real estate, and Food and Beverages represents (11.32%), (10.11%) of the sample respectively. The smallest concentration of industries in the sample are Consumer Goods (2.25%) and Power and Utilities⁹ (2.31%).

To get a better understanding of the financial nature of the firms in the sample, table 2 provides summary statistics of those key financial variables.

⁸ The 12th category which is financial services is not shown in the table as it is excluded from the sample and the analysis.

⁹ It is common practice to eliminate firms in the utilities industry but since there is no large concentration in the sample coming from those firms, I keep them in the sample. Excluding them from the sample do not affect the results.

[Table 2 about here]

Following traditional literature, *Debt to Market Equity* is the book value of total liabilities to market capitalization of the firm, where market capitalization is calculated as the end of year price per share times the number of common shares outstanding. *Debt to Book Equity* is the book value of total liabilities to book value of firm's equity. *Long Term Debt to Market Equity* is the book value of long term debt to market capitalization of the firm. *Long Term Debt to Book Equity* is the book value of long term debt to book value of the firm's equity. *Sukuk to Market Equity* is the book value of Sukuk outstanding at the end of the year divided by the firm's market capitalization. *Sukuk to Book Equity* is the book value of Sukuk to the book value of the firm's equity. *Tangibility* is the ratio of total fixed assets over total assets. *Market to Book ratio* is the firm's Tobin's Q ratio, calculated as the sum of market value of equity (end of year price per share * number of shares outstanding at the end of year), short-term and long-term debt, and the liquidating value of preferred stocks, all divided by the total value of book assets. *Profitability* is the return on total assets, computed as net income before depreciation divided by total assets. *Size* is the natural logarithm of total assets. *Financial Deficit* is Shyam-Sunder and Myers measure (1999), and it equals the sum of change in net working capital plus total investments plus dividends paid, minus operating cash flow. *Age* is the company's age calculated as the difference in years between the sample year and the year of the company's establishment.

The mean (median) of *Debt to Market Equity* is 62.65% (21.88%), and of *Debt to Book equity* is 94.02% (47.30%). The mean (median) of *Long term Debt to Market Equity* is 21.40% (0.44%), and of *Long term Debt to Book Equity* is 29.27% (1.49%). From those leverage ratios, we can infer that the publicly listed companies in Saudi Arabia, UAE, and Qatar on average take moderate financial risks and do not finance their assets with excessive or minimal levels of debt to equity. Moreover, when comparing those conventional leverage ratios to the percentage of Sukuk present in those firms'

capital structure, we find that the firms are not utilizing that much of Sukuk, as the mean (median) of *Sukuk to Market Equity* is 4.06% (9.99%), and mean (median) of *Sukuk to Book Equity* is 10.22% (15.70%) respectively.

The mean (median) of *Tangibility* is 38.48% (37.46%) suggesting that the sample firms do indeed include fixed assets in their asset structures. In addition, looking at the market to book and profitability ratios, the firms have growth potential and investment opportunities, and are generating on average positive accounting returns although not quite high (mean (median) ratios of *Market to Book* and *Profitability* are 3.47 (2.03), and 6.61% (5.94%) respectively).

Furthermore, the sample firms on average are investing more than what they internally generate as evidenced by the positive mean of *Finance Deficit* of \$121,565,400 (median is -\$1,222,000), and they have a mean (and median) *Age* of 23 years.

[Chart 2 about here]

The total value of long term debt outstanding in the sample firms at the end of year 2014 is \$123 \$Billion. To get a better understanding of what industries typically raise more leverage, Chart 2 classifies the long term debt outstanding as of the end of year 2014 by the firm's industries. The industry with the largest value of long term debt outstanding is Oil and Gas (35%), followed by Power and Utilities (28%), and Industrial Manufacturing (21%). Moreover, to identify which industries are the largest contributors to Sukuk issuances in the sample firms, Chart 3 classifies the total value of Sukuk outstanding as of end of year 2014 by the firms' industries. The total value of outstanding Sukuk for the sample totaled \$18.2 Billion at the end of 2014, with the largest concentration (41%) coming from the Power and Utilities industry, followed by Real Estate (29%)

and Oil and Gas (26%) as shown in Chart 3¹⁰. This descriptive comparison shows that there is a difference in the type of financing choice (long term debt versus Sukuk) based on the industry type.

5. Results and Discussions

5.1 Conventional Determinants of Conventional Leverage

To test Hypothesis 1[1A] on whether the financing decision of GCC publicly listed firms can [cannot] be explained by the same conventional variables used in the literature, following Haris and Raviv, (1991); Goyal (2003); Rajan and Zingales (1995); among others, I employ the following OLS model with robust standard errors:

$$D_{i,t} = \alpha + \beta_1 Tangibility_{i,t-1} + \beta_2 Market\ to\ Book_{i,t-1} + \beta_3 Size_{i,t-1} + \beta_4 Profitability_{i,t-1} + \beta_5 Financial\ Deficit_{i,t} + \beta_6 Age_{i,t} + \beta_7 Dividend\ Payer_{i,t} + \varepsilon_{i,t} \quad (1)$$

Where $D_{i,t}$ is the measure of level of leverage for firm i in year t . I will estimate this variable using both total debt and long term debt to the ratio of book value equity, and market value of equity, as all those variables were used in the literature to measure leverage. Moreover, I use levels of leverage rather than changes in leverage that are used by some studies, because the emphasis of my paper is to explain the financing decision using conventional measures, and to test for that, using levels of

¹⁰ The companies that had the highest values of Sukuk outstanding as of end of year 2014 in the sample include: Saudi Arabia based companies such as : Saudi Electricity Company (Power and Utilities) and Saudi Basic Industries Corporation (Oil and Gas), in addition to UAE based companies such as: Emaar Properties PJSC (Real estate) and Aldar Properties PJSC(Real estate).

¹¹ The model was also estimated with including a lagged dependent variable, the results remain similar, however it is common to not include a lagged dependent variable in a panel regression in order to ensure that results are not biased due to endogeneity issues.

leverage is more appropriate (Goyal 2003).^{12 13}

*Tangibility*_{*i,t-1*}, *Market to Book*_{*i,t-1*}, *Size*_{*i,t-1*}, *Profitability*_{*i,t-1*}, and *Financial Deficit*_{*i,t*} are as previously defined in section 4 and are all lagged one year. *Age*_{*i,t*} is the firm's age and *Dividend Payer*_{*i,t*} is an indicator that is set to 1 if the company paid any dividends in year *t* and zero otherwise. All models include controls for industry effects, country effects, and time effects.

Tangibility is related to the fact that tangible assets usually serve as a collateral that supports debt. Thus, it is expected that the coefficient of *Tangibility* (B_1) will be positive. There has been some disagreement on the effect of the market to book ratio on leverage. The more common interpretation which is consistent with the pecking order theory is that the market to book ratio is a proxy for growth opportunities, hence a firm with more growth opportunities will need more debt financing. However some researchers such as Baker and Wurgler (2002), Barclay et al. (2006), Smith and Watts (1992), and Bradley et al. (1984) document a negative relationship between the market to book ratio and leverage. Hence it is not obvious whether the coefficient of *Market to Book* (B_2) will be positive or negative. Large firms usually face lower information costs due to their high reputation and diversification (Goyal 2003). Therefore, large firms are predicted to have more debt in their capital structures, and hence the coefficient of *Size* (B_3) is expected to be positive. Contradicting evidence is found when it comes to profitability. Supporters of the trade off theory suggest that there is a positive correlation between profitability and debt to offset corporate taxes, while researchers who find that profitability is negatively correlated to debt (for example: Titman and Weesels, 1988; Fama and French, 2002) attribute their finding not only to the pecking order theory

¹² Testing for pecking order theory dictates the use of changes in leverage as the dependent variable (Goyal 2003).

¹³ Studies that focus on the changes in target to debt ratio are mainly the ones utilizing the change in leverage variables as a dependent variable. See for example Leary et al. (2010) Fischer et al. (1989) on theories related to the dynamic capital structure.

but to the fact that profitability can be a signal to investment opportunities (Goyal, 2003). In the case of GCC firms, I expect the coefficient of *Profitability* (B_4) to be negative since the companies operate in tax free countries, thus the second explanation seems to be more relevant in this context. In addition to those conventional variables, researchers have included the variable *Financial Deficit* as proposed by Shyam-Sunder and Myers (1999) to figure out whether firms with higher financial deficits, i.e., firms that raise more external capital, tend to increase their leverage¹⁴. Goyal (2003) suggest that financing deficit cannot eliminate the effect of conventional variables and hence the author adds a variable to measure financing deficit in his conventional regression models. While Leary and Roberts (2010) document a weak relation between financial deficit and leverage, Kayhan and Titman (2007) explain that the stronger effect of financial deficit is present when firms are raising capital rather than paying out capital. Thus, I include the *Financial Deficit* variable in attempts to explain financing decision of firms, and to explore whether *Financial Deficit* is indeed relevant for corporations operating in the GCC region with no expectations towards the sign of the coefficient (B_5). Firm's age (*Age*) and whether it pays out dividends (*Dividend Payer*) are also common variables used in the literature. They are expected to have a negative relationship with the degree of leverage as they proxy for less investment opportunities. Hence B_6 and B_7 are expected to be negative.

[Table 3 about here]

Results of the estimation of equation (1) are presented in table 3. The dependent variable is the ratio of *Debt to Market Equity*, *Debt to Book Equity*, *Long term Debt to Market Equity*, and *Long term Debt to Book Equity* in columns 1,2,3, and 4 respectively. Since I am using lagged independent variables in all of the models, the number of observations drops to 1540.

¹⁴ Leary and Roberts (2010); Kayhan and Titman (2007); Goyal (2003) among others utilize the financial deficit variable in their models.

When using *Debt to Market Equity* as the dependent variable in column 1, firm's size, profitability, and age are the significant determinants of the financing decision. All of those conventional determinants have the same expected sign which has been documented in the literature while testing American and other international public corporations. There is a significant positive relationship between size and the firm's choice of leverage in its capital structure compared to equity (coefficient on *size* is significant at the 1% level) , larger public companies in Saudi Arabia, UAE, and Qatar utilize more leverage in their capital structures. Profitability is significantly negatively associated with leverage (coefficient on *profitability* is significant at the 1% level). This is consistent with the pecking order theory predictions, hence profitable public companies in Saudi Arabia, UAE, and Qatar tend to use their internal resources in financing their investment opportunities before going to external financing. Older companies in Saudi Arabia, UAE, and Qatar tend to utilize significantly less leverage compared to equity (coefficient on *Age* is significant at the 1% level) and this is typical, since older firms do not have many investment opportunities. Tangibility, market to book ratio, financial deficit, and whether a firm pays dividends do not significantly affect the amount of debt to market equity.

When using *Debt to Book Equity* as the dependent variable in column 2, variables that were significant in column 1 remain to be significant: firm's size, profitability, and age are significant determinants of leverage in Saudi Arabia, UAE, and Qatar based companies (the coefficient on each of *Size*, *Profitability*, and *Age* is statistically significant at the 1% level). In addition, the firm's tangibility and market to book ratio are positively significantly related to the debt to book equity ratio (the coefficient on *Tangibility* and *Market to Book* is statistically significant at the 10% and 1% levels respectively). The positive significant coefficient of *Market to Book* is consistent with literature

documenting that the *Market to Book* ratio is a proxy of investment or growth opportunities.¹⁵ Finally, whether a firm pays dividends is significantly negatively (coefficient on *Dividend Payer* is statistically significant at the 10% level) associated with leverage, since usually dividend payer firms tend to have less investment opportunities and hence they don't need to issue long term debt.

In columns 3 and 4, I restrict the debt to only include long term debt in order to be able to compare those models to the upcoming models which will use the Sukuk as the dependent variable. When using the *Long term Debt to Market Equity* in column 3, all of the variables that were significant in column 1 (when using *Debt to Market Equity*) remain significant (The coefficient on *Size*, *Profitability*, and *Age* is statistically significant at the 1%, 10%, and 5% levels respectively). In addition, tangibility is now showing as significantly positive (coefficient on *Tangibility* is statistically significant at the 1% level) confirming that the existence of tangible collateral increases the ability of a firm to issue long term debt; thus tangibility could be more relevant when testing the relation to long term rather than total debt. Finally, the market to book ratio and degree of financial deficit in Saudi Arabia, UAE, and Qatar firms are not significant determinants of the companies' long term debt.

Finally, when using *Long term Debt to Book Equity* as the dependent variable in column 4, all of the variables that were significant in columns 3 (when using *Long Term Debt to Market Equity*) remain to be significant (the coefficient on each of *Tangibility*, *Size*, *Profitability*, and *Age* is statistically significant at the 1% level). In addition, *Dividend Payer* is statistically significant at the 1% level. Overall, from table 3, I conclude that the conventional variables used in the literature to explore the financing decision by listed firms in developed and developing countries, are the same variables that could

¹⁵ For robustness, I tried testing the model with each independent variable included independently, in this case *Market to Book* is not significant and all other variables remain identical with respect to their significance compared to the original model with all variables included at once. This could be additional evidence that profitability and market to book proxy for investment opportunities in this context and hence including them together might distort the significance (or signs) of their coefficients. However I kept the model in this format as this is the norm in the literature and including *Market to Book* didn't affect the other variables.

explain the financing decision in Saudi Arabia, UAE, and Qatar based companies. The higher the tangibility, the larger the size, the lower the profitability, the younger the firm, and the fact that the firm doesn't pay dividends, the higher is the component of debt in the firms' capital structure compared to equity. Evidence from table 3 supports hypothesis 1 that the financing decision of GCC publicly listed firms can be explained by the same conventional variables used in the literature.

5.2 Determinants of Sukuk Using Conventional Models

To test hypothesis 2[2A] on whether the amount of Sukuk in a firm's capital structure can [cannot] be explained by the same conventional variables used in the literature, I utilize the same model that is used to explain the level of conventional debt (or conventional long term debt) to equity. If the conventional variables remain to be significant in this setting, then we can conclude that the choice of Islamic financing vehicles by publicly listed firms depends on the same variables that determine the choice of conventional debt, however if those conventional variables fail to explain the choice of Islamic finance instruments (Sukuk), then we can infer that the decision on issuing Sukuk depend on other factors that don't influence the choice of conventional debt.

One of the unique characteristics of this sample of publicly listed corporations in Saudi Arabia, UAE, and Qatar is the companies' ability to issue both kinds of conventional and or Islamic bonds (Sukuk), as those companies are not restricted by regulation to only using Islamic financial vehicles and there are opportunities for growth in both bonds and Sukuk markets. In fact, 73% of the sub sample of firms that issue Sukuk have both Sukuk and conventional long term debt in their financial structures, while 27% of that sub sample only issue Sukuk.

Taking into consideration that one of the key factors that determine the decision of utilizing Sukuk as a vehicle for financing is the tendency of the corporation to act in compliance with Shari'a rules, I add to the conventional model of predicting leverage a measure for such compliance

measured by the existence of other Islamic investment or financing instruments. I expect that if one of the reasons that the company issues Sukuk is its preference of using Islamic conforming vehicles, then this company is expected to have other Islamic investments or financing instruments represented in its balance sheet.

By analyzing the financial statements of the sample of publicly listed Saudi Arabia, UAE, and Qatar corporations, I find that indeed 73% of the firms that issue Sukuk also have other Islamic investments and financing vehicles. In addition, 88% of the companies that have other Islamic investments and financing vehicles, didn't have any Sukuk outstanding during the sample period. This suggests that although conformity to Shari'a principle is expected to be a positive and significant determinant of Sukuk issuance, however, there is still a large potential for the growth in this market, because there are companies that deal with other short term or long term Islamic investments and financing vehicles, but those companies don't choose to have Sukuk as a component of their financing capital. Hence it is critical to understand what underpins the decision of those firms with respect to the choice of financing other than conforming to Shari'a standards.

Based on the above, I estimate the following model using panel OLS regression models with robust standard errors:

$$S_{i,t} = \alpha + \beta_1 Islamic\ Transactions_i + \beta_2 Tangibility_{i,t-1} + \beta_3 Market\ to\ Book_{i,t-1} + \beta_4 Size_{i,t-1} + \beta_5 Profitability_{i,t-1} + \beta_6 Financial\ Deficit_{i,t} + \beta_7 Conventional\ Leverage_{i,t-1} + \beta_8 Age_{i,t} + \beta_9 Dividend\ Payer_{i,t} + \epsilon_{i,t} \quad (2)$$

Where *Islamic Transactions_i* is an indicator that is set to 1 if the company has any other short term or long term Islamic investments or financing, and zero otherwise. All other variables are as previously defined, and *Conventional Leverage_{i,t-1}* is the lagged conventional leverage calculated as a ratio of debt to equity. The model includes controls for country, industry, and time effects.

As I discussed above, I expect the sign of coefficient B_1 (*Islamic Transactions*) to be significant and positive. All other coefficients are expected to have the same signs as in the models used to predict conventional leverage if decisions on issuing Sukuk and conventional rely on similar factors. Finally, if Sukuk are different from conventional bonds, then I expect the coefficient of B_7 (*Conventional Leverage*) to be negative, because the higher the conventional leverage is a part of the financing structure of a company, the lower should the Sukuk be. However, if Sukuk and conventional bonds are determined in the same manner by a company, then the coefficient on B_7 will be positive.

[Table 4 about here]

Results of the estimation of equation (2) are presented in table 4. The dependent variable is the total Sukuk outstanding as a ratio to market equity in column 1 and as a ratio to book equity in column 2. In both models, the coefficient on *Islamic Transactions* is positive and significant at the 5% level providing evidence that is in line with expectations. This result supports hypothesis 3 i.e. companies that have other Islamic instruments (such as short term or long term investments or financing) will have Sukuk constituting a larger percentage of their capital structure in relation to equity. However, all other financial conventional variables are insignificant except for *size*. *Size* is positively and very significantly related to having Sukuk as part of the financing capital (the coefficient is significant at the 1% level). *Age* is also sometimes significantly but negatively related to the financing decision (the coefficient is significant only when measuring Sukuk to Book equity in column 2 at the 10% level). In both models (1&2), the Adjusted R^2 is much smaller than when the conventional leverage was estimated. Hence no solid evidence can be driven on the suitability of merely using conventional financial variables to explain the utilization of Sukuk as a source of financing and more factors need to be added. This evidence supports hypothesis 2[A], the amount

of Sukuk in a firm's capital structure [cannot] be explained by the same conventional variables used in the literature to explain conventional leverage.

In attempts to explain whether the decision of raising Sukuk is independent from the decision of raising conventional debt, after finding that conventional financial variables do not fully explain the Sukuk utilization in capital structure, I add in the variable *Excess Leverage* in columns 3 and 4. *Excess leverage* is the extra amount of leverage that a firm obtains in reality than what it should have actually utilized based on the predictions of the conventional model. This variable will serve as a proxy for other factors that cause firms' to increase conventional leverage other than the financial variables. I calculate this variable by obtaining the residuals from running equation (1) on long term debt to equity, and using the residual as an explanatory variable in this model for predicting Sukuk. The residuals account for the difference in actual versus predicted long term leverage. If those residuals are significant in the model to predict Sukuk, then this implies that the decision of the firm to raise capital through Sukuk is dependent on the level of conventional leverage taken by the firm, but this dependence cannot be explained by only using conventional financial variables, more factors causing firms' to take excess conventional leverage need to be investigated.

Excess leverage in column 3 of table 4 is the residual of running column 3 in table 3 (regressing *Long term Debt to Market Equity* on conventional variables) and in column 4 of table 4 is the residual of running column 4 in table 3 (regressing *Long Term Debt to Book Equity* on conventional variables).

As presented in columns 3 and 4 in table 4, the coefficient of *Excess Leverage* is highly significant and negative (statistically significant at the 1% level). Hence if a firm takes on conventional leverage more than what it should as predicted by its financial variables, then this firm will take on less Sukuk. Thus, the Sukuk - long term debt decision is interrelated and those two decisions are not independent, yet the decision to issue Sukuk cannot be explained solely by financial variables and

more investigation needs to be done to explore what those factors causing excess leverage are¹⁶. Moreover, the other variables remain the same in significance in models 3 and 4, with only *Islamic Transactions* and *Size* being significant. Finally, adding *Excess Leverage* into columns 3 & 4 slightly increases the adjusted R² of the models.

6. Conclusion

Islamic finance has been growing rapidly in the last decade, outpacing conventional finance. The GCC region is considered one of the most promising markets with a great potential for growth. One of the securities that can be used to implement and promote such growth in the Islamic Finance industry is Sukuk. However, limited theoretical and empirical literature is available to help understand what those securities are, whether they are different from conventional bonds, and how do corporations decide on issuing such instruments.

In attempts to contribute to this limited yet important area of the literature, my research aims to first establish whether the conventional financing decisions made by listed corporations in the GCC are based on the same factors that influence the financial choice of corporations in developed and developing countries. Then, my objective is to explore whether those factors are similar to the factors that influence the choice of corporations in utilizing Sukuk as a financing method.

I study a sample of publicly listed corporations in Saudi Arabia, United Arab Emirates, and Qatar during a period spanning from 2005 up to the end of 2014. This sample considers to have unique features due to the fact that those corporations operate in tax free environments, as well as the fact

¹⁶ One of the limitations of this study is the omission of some of the possible factors that could influence the decision of conventional vs. Sukuk issuances which are corporate governance factors and managerial incentives. However, the emphasis of this paper is to focus on the ability of using financial variables to predict leverage thus an evaluation of those factors is left as a possibility for future research.

that those corporations operate in environments that issue both conventional and Islamic finance instruments.

I find that factors that are relevant in explaining the capital structure in Saudi Arabia, UAE, and Qatar firms are similar to those documented in the previous literature in different countries. The more fixed assets a firm has in its asset structure, the larger the firm is, the less accounting return it generates, the younger the firm is, and the less dividends it pays out to its shareholders, the higher is the firm's leverage.

But those factors are not similar to the factors that determine the amount of Sukuk in the corporations' capital structures. In fact, models used to explain the financing choice in conventional finance cannot fully explain the choice of Sukuk in corporations' capital structures. Size remains to be a significant determinant of Sukuk issuance. In addition, having other Islamic short term or long term investments or other Islamic financing instruments is significantly positively related to Sukuk issuances.

My contribution to the literature includes providing an understanding of what factors determine the conventional financial decision in 3 fast growing GCC countries. This has not been studied previously in the literature, and this understanding is critical because a firm's financing decision affects its financial performance, and understanding how firms' decide on their capital structures provides policy makers with an understanding of how to develop opportunities that can help promote growth in the corporations respective industries. In addition, I provide indirect evidence supporting authors like Godlewski et al. (2013) who suggest that Sukuk are not the same as conventional bonds. Factors used to explain the conventional leverage are not sufficient to explain the Sukuk issuance decision by corporations. Finally, I shed the light on an area that needs further

researching to fully understand what are the factors that influence the corporations' choice of issuing Sukuk .

Limitations of this study include not controlling for governance variables such as the size of the board of directors, the independence of the board, CEO-Chair duality, and CEO stock ownership. However the primary objective of my research is whether Sukuk can be explained by conventional regression models based on financial variables, and I leave factors related to governance for future research.

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Tables:

Table 1 : Industry Composition of the Sample

This table presents the industry composition of the sample of publicly listed firms in Saudi Arabia, UAE, and Qatar as reported by Zawya, during the period spanning 2005 up to end of 2014. I manually classified the companies into 12 groups in a manner similar to the Fama French 12 industry classifications, and I present below those sub classifications excluding the financial services industry category.

Industry	Number of Observations	Percentage (%)
Food and Beverages	175	10.11%
Consumer Goods	39	2.25%
Industrial Manufacturing	471	27.21%
Oil and Gas	151	8.72%
Telecommunications and Media	87	5.03%
Power and Utilities	40	2.31%
Retail and Other Services	60	3.47%
Health Care	81	4.68%
Construction, Transport, and Mining	324	18.72%
Agriculture	107	6.18%
Real Estate	196	11.32%
Total	1731	100%

Table 2 : Summary Statistics of Firms' Financial Variables

This table presents the summary statistics of the financial variables for the sample of publicly listed companies in 3 gulf countries (Saudi Arabia, United Arab Emirates, and Qatar) for the period spanning from 2005 up to end of 2014. Those publicly listed firms exclude firms that are in the financial services industry. *Debt to Market Equity* is the book value of total liabilities to market capitalization of the firm, where market capitalization is calculated as the end of year price per share times the number of common shares outstanding. *Debt to Book Equity* is the book value of total liabilities to book value of firm's equity. *Long Term Debt to Market Equity* is the book value of long term debt to market capitalization of the firm. *Long Term Debt to Book Equity* is the book value of long term debt to book value of the firm's equity. *Sukuk to Market Equity* is the book value of the Sukuk outstanding at the end of the year divided by the firm's market capitalization. *Sukuk to Book Equity* is the book value of Sukuk outstanding at the end of the year divided by the book value of equity. *Tangibility* is the ratio of total fixed assets over total assets. *Market to Book ratio* is the firm's Tobin's Q ratio, calculated as the sum of market value of equity (end of year price per share * number of shares outstanding at the end of year), short-term and long-term debt, and the liquidating value of preferred stocks, all divided by the total value of book assets. *Profitability* is the return on total assets, computed as net income before depreciation divided by total assets. *Size* is the natural logarithm of total assets. *Financial Deficit* is measured based on Shyam-Sunder and Myers (1999) definition, and it equals the sum of change in net working capital plus total investments plus dividends paid, minus operating cash flow. *Age* is the company's age calculated as the difference in years between the sample year and the year of the company's establishment.

Variable	N	10th percentile	Mean	SD	Median	90th percentile
<i>Debt to Market Equity (%)</i>	1731	2.98	62.65	205.42	21.88	130.67
<i>Debt to Book Equity (%)</i>	1731	6.71	94.02	175.42	47.30	205.73
<i>Long term Debt to Market Equity (%)</i>	1731	0.00	21.40	140.25	0.44	37.45
<i>Long term Debt to Book Equity (%)</i>	1731	0.00	29.27	111.18	1.49	56.29
<i>Sukuk to Market Equity (%)</i>	1731	0.00	4.06	18.37	9.99	34.75
<i>Sukuk to Book Equity (%)</i>	1731	0.00	10.22	17.55	15.70	37.80
<i>Tangibility (%)</i>	1731	3.01	38.48	25.20	37.46	72.26
<i>Market to Book ratio</i>	1731	0.64	3.47	5.25	2.03	6.86
<i>Profitability (%)</i>	1731	-1.74	6.61	10.65	5.94	17.71
<i>Size (log)</i>	1731	11.07	13.17	1.72	13.04	15.66
<i>Financial Deficit (\$000)</i>	1731	-260,745	121,565.4	1,854,034	-1,222	606,259
<i>Age (years)</i>	1731	5.00	23.03	13.85	23.00	42.00

Table 3: Conventional Determinants of Corporate Leverage

This table displays the results of panel OLS regression models with robust standard errors used to estimate the leverage of publicly listed companies in Saudi Arabia, UAE, and Qatar, during the period spanning 2005 up to end of 2014, controlling for traditional financial variables and financial deficit. Companies in the Finance industry are excluded from the analysis. The dependent variable is the *Total Debt to Market Equity*, *Total Debt to Book Equity*, *Long Term Debt to Market Equity*, and *Long Term Debt to Book Equity*, in models 1,2,3, and 4 respectively. Dependent and independent variables are as described in Table 2. All independent variables are lagged one year, and thus the number of observations drops to 1540. *Dividend Payer* is a dummy set to 1 if the company paid dividends in the year, and zero otherwise. Industry, country, and year effects are included in all models.

Model	(1)	(2)	(3)	(4)
Dependent Variable:	Debt to Market Equity	Debt to Book Equity	Long Term Debt to Market Equity	Long Term Debt to Book Equity
<i>Tangibility</i> _{t-1}	10.5836 (0.533)	37.9657* (0.054)	45.4961*** (0.000)	78.3722*** (0.000)
<i>Market to Book</i> _{t-1}	-0.7840 (0.253)	3.7968*** (0.000)	-0.6530 (0.337)	-0.3428 (0.533)
<i>Size</i> _{t-1}	21.6590*** (0.000)	28.3125*** (0.000)	10.4115*** (0.000)	15.2938*** (0.000)
<i>Profitability</i> _{t-1}	-205.2946*** (0.000)	-288.7015*** (0.000)	-51.1420** (0.035)	-61.1537*** (0.001)
<i>Financial Deficit</i> _{t-1}	-0.0000 (0.735)	-0.0000 (0.297)	-0.0000 (0.940)	-0.0000 (0.624)
<i>Age</i> _t	-0.6443*** (0.010)	-1.0636*** (0.000)	-0.3570* (0.063)	-0.7169*** (0.000)
<i>Dividend Payer</i> _t	-3.9015 (0.574)	-16.8704* (0.069)	-7.2354 (0.199)	-18.6320*** (0.001)
<i>Constant</i>	-203.2676*** (0.000)	-271.9787*** (0.000)	-114.7845*** (0.000)	-159.5242*** (0.000)
<i>Industry Effects</i>	Yes	Yes	Yes	Yes
<i>Country Effects</i>	Yes	Yes	Yes	Yes
<i>Year Effects</i>	Yes	Yes	Yes	Yes
N	1540	1540	1540	1540
Adjusted R ²	29.25%	25.35%	18.72%	24.98%

***, **, * denotes statistically significant at the 1%, 5%, and 10% levels, respectively.

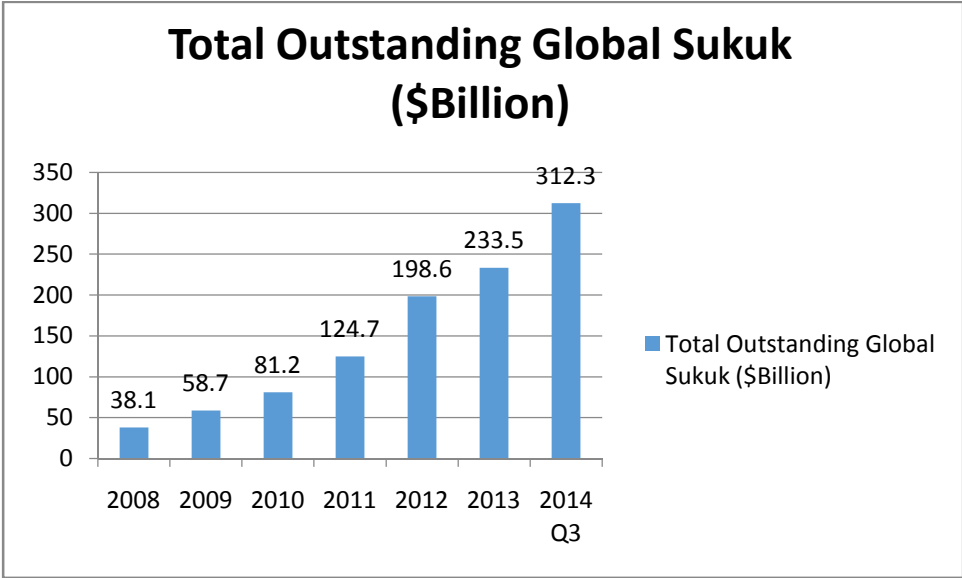
Table 4: Conventional Leverage Regression Models used to Explain Sukuk

This table replicates the estimation tests presented in table 3 while trying to explain the proportion of capital structure contained in Sukuk. The dependent variable is the ratio of *Sukuk to Market Equity* in models 1 and 3, and *Sukuk to Book Equity* in models 2 and 4. *Islamic Transactions* is a dummy variable that is set to 1 if the company has any Islamic financial transactions such as Islamic investments or Islamic short term or long term financing, and zero otherwise. *Excess Leverage* is the excess of actual leverage over leverage predicted from conventional leverage regression models presented in table 3 where leverage is measured using the long term debt to equity ratios; hence it is the residual from the regression models 3 and 4 in table 3 respectively. All other independent variables are as previously described in table 2. All independent variables are lagged one year. Industry, country, and year effects are included in all models. Robust standard errors are used. ***, **, * denotes statistically significant at the 1%, 5%, and 10% level, respectively.

Model	(1)	(2)	(3)	(4)
Dependent Variable:	Sukuk to Market Equity	Sukuk to Book Equity	Sukuk to Market Equity	Sukuk to Book Equity
<i>Islamic Transactions</i>	0.8269** (0.022)	0.7568** (0.032)	0.8217** (0.022)	0.7139** (0.042)
<i>Excess Leverage</i>			-0.0054*** (0.002)	-0.0052*** (0.002)
<i>Tangibility_{t-1}</i>	-0.7983 (0.236)	-0.3267 (0.621)	-0.8069 (0.230)	-0.3959 (0.548)
<i>Market to Book_{t-1}</i>	0.0274 (0.537)	0.0311 (0.481)	0.0276 (0.532)	0.0152 (0.733)
<i>Size_{t-1}</i>	0.6740*** (0.000)	0.7538*** (0.000)	0.6635*** (0.000)	0.7018*** (0.000)
<i>Profitability_{t-1}</i>	-1.9288 (0.224)	-0.7283 (0.644)	-1.8183 (0.250)	-0.0930 (0.953)
<i>Financial Deficit_{t-1}</i>	0.0000 (0.232)	0.0000 (0.771)	0.0000 (0.227)	0.0000 (0.755)
<i>Conventional Leverage_{t-1}</i>	-3181.2680 (0.675)	-5.2415 (0.587)	2680.09 (0.731)	13.9757 (0.222)
<i>Age_t</i>	-0.0122 (0.330)	-0.0206* (0.094)	-0.0117 (0.347)	-0.0191 (0.119)
<i>Dividend Payer_t</i>	-0.0190 (0.959)	0.5270 (0.143)	-0.0234 (0.949)	0.5636 (0.116)
<i>Constant</i>	-7.5475*** (0.000)	-8.1382*** (0.000)	-7.4372*** (0.000)	-7.5363*** (0.000)
<i>Industry Effects</i>	Yes	Yes	Yes	Yes
<i>Country Effects</i>	Yes	Yes	Yes	Yes
<i>Year Effects</i>	Yes	Yes	Yes	Yes
N	1540	1540	1540	1540
Adjusted R ²	9.68%	11.60%	10.20%	12.10%

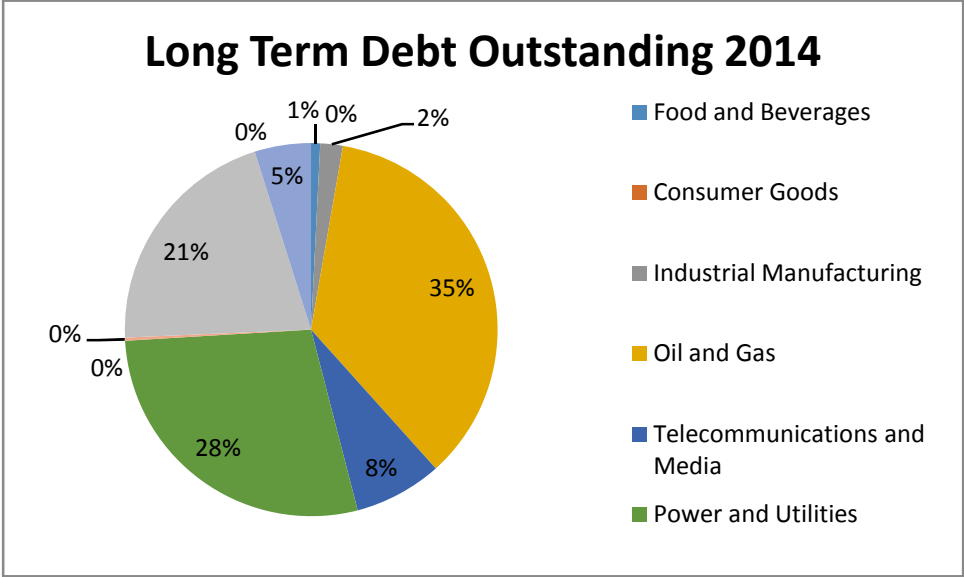
Charts:

Chart 1 : Historical Trend of Global Sukuk



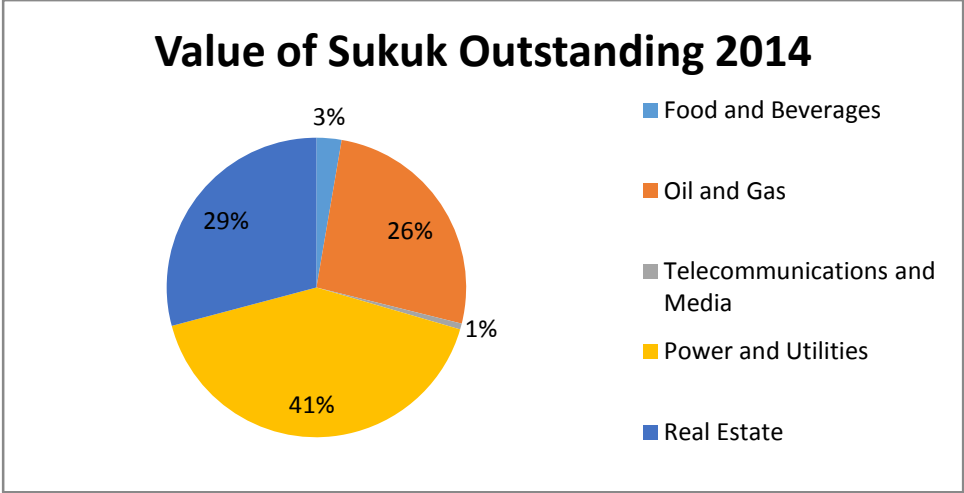
Source: Based on data provided by Zawya- Thomson Reuters (2015)

Chart 2 : Long Term Debt Outstanding(2014) for Sample Firms Classified by Industry



Source: Author's calculations based on data from Zawya.

Chart 3 :Total Sukuk Value Outstanding (2014) for Sample Firms Classified by Industry



Source: Author's calculations based on data from Zawya.