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ARTICLE

THE RELATIONSHIP BETWEEN USING SUKUK AND ACHIEVING IDEAL CAPITAL STRUCTURE: EVIDENCES FROM LISTED COMPANIES IN IRAN

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ABSTRACT

Sukuk (Islamic bond) is an investment certificate consisting of ownership claims in a pool of assets. In addition to the Islamic countries, there are a growing number of sukuk users from the United States, Europe, and Asia. In this descriptive analytical study the purpose is to assess the relationship between using Sukuk for financing and achieving ideal capital structure in listed companies. The study samples were 17 listed companies in Tehran Stock Exchange in a period from 2006 to 2011. Data were collected from financial statements and annual reports of the study samples. We hypothesized that the use of sukuk bonds is significantly correlated to (a) debt/asset ratio (D/A) and (b) debt/equity ratio (D/E) of listed companies. They were analyzed using panel data method in the form of regression models. Results supported our hypothesis. According to the results, sukuk can significantly predict D/A and D/E ratio of listed companies as 52.2 and 13.7%, respectively (P<0.05). We concluded that by using sukuk bonds as a new financing instrument, listed companies can achieve an optimal capital structure.

KEY WORDS
Sukuk, bonds, capital structure, listed companies, Tehran Stock Exchange

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INTRODUCTION

Achieving ideal capital structure in order to gain maximum profitability, value and minimal cost of capital is one of important topics studies by financial experts. Experience has shown that most of companies that are faced with financial distress and bankruptcy often had inadequate capital structure. Capital structure or leverage refers to debt and equity and, and all of their variants which support the assets of a company. For analyzing capital structure, a firm's debt/equity ratio (D/E) is an important factor; a company that has high debt usually has a more aggressive capital structure and therefore poses greater risk to investors. Accurate analysis of capital structure can help a company save on the part of their cost of capital and hence improve profitability for the shareholders. In this regard, several studies have been conducted. Modigliani and Miller [1] suggest that (a) the value of a firm is not related to the capital structure of a firm, and (b) whether a firm is highly leveraged or has lower debt component, it has no effect on its market value (Modigliani & Miller theory). Kraus and Litzenberger [2] suggested that there is an optimal capital structure (D/E ratio) that maximises the firm value which should reach by using the right amount of debt (Trade-off theory). Jensen and Meckling [3] suggesting that the appropriate mix of debt and equity is still effective, argue that the interests of managers and shareholders are different which can result in costs called agency costs that include the instance monitoring costs (Agency theory). Myers and Majluf [4] showed the effect of information asymmetries between the firm's managers and the outside investor on capital structure (Pecking Order Theory). Booth et al. [5] found that the tax benefits vary in developing countries and play no role in the determination of capital structure. Some studies have shown that the determinants of capital structure are country specific and they are different in various countries [6-8]. Choi [9] pointed out that this is because of their institutional differences such as level of transparency and investor protection, besides the bankruptcy and tax laws, so research findings from one country cannot be generalized to other countries. Acedo Ramirez and Ruiz-Cabestre [10] concluded that this difference is because of the type of financial systems of the countries. Many studies have shown positive relationship between tangibility and capital structure [11-13]. Chen and Strange [14] in a study in China found that profitability is negatively related to capital structure; the size and risk of the firms are positively related to the debt ratio – but only in term of market value measures of capital structure; the years of the companies being listed on stock markets are positively related to capital structure; tax is not a factor in influencing debt ratio; and ownership structure has a negative effect on the capital structure. Choi [9] indicated that profitability, tangibility of assets and firm size are significantly positively related to the capital structure of Korean firms. Growth opportunities and tax shield substitutes were significantly but negatively related to the capital structure. Abor [15] indicated that age, size, asset structure, profitability, risk and managerial ownership of the firm are important in influencing the capital structure decisions in Ghana. In another study, Obeid Gharaibeh [16] revealed that firm's age, growth opportunities, liquidity, profitability, firm's size, tangibility, and type of industry are determinants of capital structure of listed companies in Kuwait. Bhaduri [17] in a study in India showed that optimal capital structure choice is influenced by factors such as growth, cash flow, size, product and industry characteristics. His results proposed the existence of restructuring costs in attaining an optimal capital structure. Delcoure [18] found that in Central and Eastern European countries neither the trade-off, pecking order, nor agency costs theories explain the capital structure choices and companies follow the modified pecking order. Drobetz and Fix [19] showed that firms with more investment opportunities apply less leverage, which supports

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both the trade-off model and pecking order model. They showed that Swiss firms tend to maintain target leverage ratios. Noulasa and Genimakis [20] showed significant positive correlations among firm's capital structure and sales, growth rate, tangibility of assets, depreciation, profit volatility and credit rating. Respectively, profitability and firm's age are significantly inversely associated with capital structure, whereas the number of workers as a measure of firm size does not have an effect on capital structure.

Considering the previous researches on achieving optimal capital structure in different countries, in this paper we aims to investigate the effect of using investment sukuk (Islamic bonds) on capital structure of listed companies in Iran where the business is consistent with Islamic law (*Shariah*). Sukuk is very similar to conventional bonds where it provides a fixed income to the investor. It constitutes partial ownership in a debt, asset, project, business, or an investment. Sukuk provides diversified financial resources to develop market and liquidity management of Islamic economic firms. It is basically an investment certificate consisting of ownership claims in a pool of assets. It is a type of financial instrument backed by physical assets of the balance sheet. According to Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) (standard no.17) , sukuk are "Certificates of equal value representing undivided shares in ownership of tangible assets, usufructs and services or the assets of particular projects or special investment activity". There are different types of sukuk such as *Murabahah* (issued for financing the purchase of goods), *Ijarah* (issued for using mobilised funds to rent a real estate or the usufruct of the real estate), *Istisna* (issued for mobilising the funds to be used in production of new goods), *Musharakah* (issued for using mobilised funds to establish a new project), and *Mudarabah* (used for enhancing public participation in big investment projects). Curiel and Mardam-Bey [21] in a study called sukuk "an alternative capital structure" and reported that from January 2001 through December 2010, Malaysia topped the list for global Sukuk issuance by volume (59%), followed by the UAE (16%), and Saudi Arabia (8%). Malaysia and the Gulf region are the main hubs for Sukuk issuance; however, Sukuk issuance is not limited to Islamic countries. There are a growing number of issuers from the United States, Europe, and Asia [22]. In Iran, although the first use of Islamic financial instruments dates back to 1994 with the issuance of *Musharakah* sukuk by Tehran Municipality to finance *Navab* project, the enactment of Iran securities market law, and new instruments and financial institutions development law was done respectively in 2005 and 2010 to pave the way for the appliance of such instruments to develop financial system of the country. As of July 2011 and for the first time since the law was passed 3 years ago, Iranian companies such as Mahan Airlines and Saman Bank have respectively issued $30 million and $100 million worth of this type of bonds [23]. Cakir and Raei [22] studied the impact of sukuk on the cost and risk structure of investment portfolios. Their analysis showed that secondary market behavior of Eurobonds and Sukuk issued by the same issuer are significantly different to provide gains from diversification. They argue that Sukuk are smaller in size and have shorter maturities compared to Eurobonds issued by the same issuer. So far, no study has been published based on finding the relationship between the use of Sukuk and achieving ideal capital structure in any country. In this regard, in this study we attempted to investigate theirs association among listed companies. The research questions are:

Q1. Is the use of sukuk significantly correlated to debt/asset ratio (D/A) of listed companies?
Q2. Is the use of sukuk significantly correlated to debt/equity ratio (D/E) of listed companies?

MATERIALS AND METHODS

Study samples

Study samples were 17 companies from multiple sectors chosen from a population of 385 companies listed in Tehran stock exchange during the period 2006-2011. They selected based on having released sukuk and the availability of data. The data set used for analysis was collected from financial statements and annual reports of the study samples.

Study hypotheses

The CS is a mixture of long-term debt, short-term debt, common equity and preferred equity; Equity comes in the form of common stock, preferred stock and retained earnings, while debt is classified as bond issues or long term notes payable. In this study dependent variable is "ideal CS", and independent variable is Sukuk Based on above discussions, we formulated our hypotheses as following:

H1. There is significant relationship between use of Sukuk and debt/asset ratio of listed companies;
H2. There is significant relationship between use of Sukuk and debt/equity ratio of listed companies.

Study models

Two different proxies of capital structure (CS) are measured in terms of book value rather than market value, debt to total assets or debt/asset ratio (D/A) and debt/equity ratio (D/E). To measure the

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relationships between sukuk with the above-mentioned determinants (debt, asset, and equity) of capital structure, we use the Ordinary Least Squares (OLS) estimation based on the following regression models:

$$y_{it} = \alpha_1 + \beta_1 s + x_{it}$$

$$y_{it} = \frac{X_1}{X_2} \quad (1)$$

$$y^*_{it} = \alpha_1 + \beta_2 s + x_{it}$$

$$y^*_{it} = \frac{X_1}{x_3} \quad (2)$$

where, y represent D/A ratio and y^* is D/E ratio, i denotes each individual Iranian listed company, t is the examined time period, X1 = book value of total debts, X_2= book value of total assets, X_3= book value of equity, S= amount of released sukuk, e_{it}= the random error term, $\alpha_{1\ is}$ is the constant term, and β_1 and β_2 are the regression coefficients. The two regressions were estimated by the OLS and the results are analysed in the following section. In addition, since sukuk are fixed parameters and in Iran their amount are announced by the Iranian Central Bank, we used their reported data for measuring sukuk.

RESULTS

Descriptive data of study variables

Descriptive statistics of study variables showed that mean ± standard deviation (SD) of the use of sukuk by Iranian listed companies was 33.62 ± 10.38. Also, the results for X_1, X_2 and X_3 were 26.57 ± 6.2, 0.53 ± 0.15, and 27.32 ± 10, respectively [Table 1].

Table 1: Descriptive statistics of the study variables

	S	X_1	X_2	X_3
Mean	33.6229	26.5746	0.5382	27.3258
Median	30.4000	27.3150	0.5140	39.2154
Mode	29.10	21.10	0.46	31.10
SD	10.38184	6.27101	0.15085	10.00221
Skewness	0.933	-0.247	0.717	1.440
Elongation	0.636	0.087	0.635	4.749

Regression results

For conducting panel data analysis, we first need to check whether the panels contains unit roots or they are stationary. For this purpose we used Dickey–Fuller test. The null hypothesis of the Augmented Dickey-Fuller is that there is a unit root, with the alternative that there is no unit root. P-value for all variables were obtained as 0.0000 which was less than critical value (0.05) then we cannot reject the null hypothesis and there is a unit root. In panel data analysis, there are two common assumptions made about the individual specific effect, the random effects assumption and the fixed effects assumption. The random effects assumption is that the individual specific effects are uncorrelated with the independent variables. The fixed effect assumption is that the individual specific effect is correlated with the independent variables. We use Hausman test to choose random (RE) or fixed effect (FE) method. If the null hypothesis is rejected, we conclude that RE is inconsistent, and the FE model is preferred. Its results reported Chi2(1) as 10.300, df = 6, and prob.= 0.0126. Since prob. is less than 0.05, so FE is consistent; therefore the null hypothesis is rejected and FE is preferred.

Regression results for examining the relationship between the use of sukuk and D/A ratio of listed companies are presented in [table 2]. Durbin–Watson statistic (D-W) was used for testing the presence of autocorrelation. Since its value (1.091) is higher than critical value, so the errors are not autocorrelated. R square value indicated that 52.2% of variations in D/A ratio can be predicted by the use of sukuk. The p value associated with this F value is very small (0.0000) (less than 0.05) which shows that sukuk can reliably predict D/A ratio of listed companies. The t-value showed that the coefficient for sukuk (2.853) was significantly different from 0 (p-value <0.05). Overall we found out that sukuk has significant relationship with D/A ratio of listed companies in Iran. The regression equation can be written as:

$$y = -2/290 + 0.137s$$

[Table 3] presents the regression results for examining the relationship between the use of sukuk and D/E ratio of listed companies. D-W value (1.095) was higher than critical value, so the errors are not autocorrelated. R square value indicated that 13.7% of variations in D/E ratio can be predicted by the use of sukuk. The p value associated with this F value (<0.05) showed that sukuk can also reliably predict D/E ratio of listed companies. The t-value reported that the coefficient for sukuk (2.073) was significantly different from 0 (p-value <0.05). Overall we found out that sukuk has also significant relationship with D/E ratio of listed companies in Iran. The regression equation can be written as:

$$y^* = -0/128 + 0.860s$$

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Table 2: Regression coefficient estimation results for testing the relation of sukuk with D/A ratio

Model	Un standardized coefficients		Standardized coefficients	t	Sig. (2-tailed)	D-W
	B	SD	Beta			
Constant	-0.290	0.128		-2.260	0.033	1.901
Sukuk	0.137	0.048	0.419	2.853	0.009	
R square= 0.522 , Adjusted R square= 0.464 , F= 9.093, Sig.=0.000						

Table 3: Regression coefficient estimation results for testing the relation of sukuk with D/E ratio

Model	Unstandadized coefficients		Standardized coefficients	t	Sig. (2-tailed)	D-W
	B	SD	Beta			
Constant	-0.128	0.172		-0.741	0.31	1.095
Sukuk	0.860	0.415	0.370	2.073	0.048	
R square = 0.137, Adjusted R square = 0.105 , F= 4.296, sig.=0.084						

CONCLUSION

Decisions about capital structure which is corporate financing, like other decisions of managers, influence the value of the firm. Managers as representatives of shareholders, always try to set the composition of the company's capital structure such as to increase corporate value, and shareholder wealth; therefore, specifying an optimal capital structure and financing of companies has a special significance. For this reason managers should be aware well of the influence of variables that can affect the company's capital structure. Most of studies conducted on capital structure have focused on its influencing factors which are different in various countries as were mentioned in Introduction section.

In this study our purpose was to investigate the relationship of sukuk use with achieving ideal capital structure as case study conducted in Iran. Samples were 17 companies listed in Tehran stock exchange for five years from 2006 to 2011. we measured capital structure by applying book value rather than market value as most of predictions apply it [24]. Book ratios can better reflect management's target debt ratios [25].We hypothesized that sukuk has significant relationship with both debt/asset ratio and debt/equity ratio. Using panel data analysis, results supported our hypotheses which indicate that new financing tools like sukuk can affect the capital structure of firms. In this respect, sukuk was able to reliably predict 52.2% of variations in debt/asset ratio and 13.7% of variations in debt/equity ratio ($p<0.05$). Overall, we concluded that by using sukuk as a new financing tool, listed companies can achieve an optimal capital structure.

Low share of fixed-income securities licensed by the Iranian Exchange Organization and the high proportion of the allocation of investment companies to underwrite fixed income securities with the permission of the Iranian Central Bank have caused these companies to be inclined to the bonds issuance in the market to earn money, so it is recommended that Iranian investment companies, by designing new financing instruments and taking into account the characteristics of firms, pave the way for improvement of business environment for financial institutions.

CONFLICT OF INTEREST
There is no conflict of interest

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FINANCIAL DISCLOSURE
None

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