The Impact of Capital Structure on Firm's Performance Evidence from Saudi Arabia

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Abstract

The purpose of this paper is to empirically investigate the impact of capital structure on the performance of non-financial firms operating in Saudi Arabia as one of emerging or transition economies. Panel econometric technique called fixed effect regression is used for the period between 2004 and 2012.Sample data includes 74 companies. The study analyzes the relationship between capital structure proxies that include short-term debt (STD), long-term debt (LTD) and total debt (TD) and the operating performance measured by return on assets (ROA) and return on equity (ROE). The firm's size that was found in the literature to have an influence on the performance of a firm is used as a control variable. The study finds that STD, LTD and TD have significant impacts on ROA. While only LTD has significant impacts on ROE. Firm size has significant impacts on firm performance when ROA is a dependent variable and no impact on firm performance when ROA is dependent variable.

JEL classification numbers:

Keywords: Capital structure, Firm performance, Return on Asset, Return on equity, Saudi Arabia

1 Introduction

Capital structure decisions are among the most significant finance decisions companies encounter. It has been long debated whether capital structures are influential on costs of capital and firm values. The theory of capital structure and its relationship with a firm's value and performance has been a puzzling issue in corporate finance and accounting literature since the Modigliani and Miller (1958) argue that under the perfect capital market assumption that, if there is no bankrupt cost and capital markets are frictionless, if

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without taxes, the firm's value is independent with the structure of the capital. Debt can reduce the tax to pay, so the best capital structure of enterprises should be one hundred percent of the debt. Since then, several theories have been developed to explain the capital structure of a firm including the Pecking Order Theory, Static Tradeoff theory, and the Agency Cost theory. The firm's decision about its source of capital will affect its competitiveness among its peers. Therefore, a firm should use the appropriate mix of debt and equity that will maximize its profitability.

The lack of consensus among the theories that try to explain the capital structure of a firm has led to many empirical studies in this topic. These studies are trying to reach a conclusion about the impact of capital structure on firms' performance. While the literature examining the performance implications of capital structure choices is immense in developed markets (e.g. USA and Europe), little is empirically known about such implications in emerging or transition economies such as Saudi Arabia t. In such a country as Eldomiaty (2007) argued, capital market is less efficient and incomplete and suffers from higher level of information asymmetry more than capital markets in developed countries. This environment of the market may cause financing decisions to be incomplete and subject to a considerable degree of irregularity. It is, therefore, necessary to examine the validity of corporate leverage levels impact on firms' performance in Saudi Arabia as an example of emerging economies. To this researcher's knowledge, no such study has been carried out on the Saudi Arabia market

This paper aims to empirically investigate the impact of the capital structure decision on firms' financial performance for firms that operate in Saudi Arabia and are listed on the capital market during the period 2004-2012. In the case of Gulf Cooperation Council (GCC) countries in general and Saudi Arabia in particular, companies operate in a quite unique environment. For instance, there are no personal taxes, relatively low corporate taxes and companies have less financial constraints than their counterparts in other emerging markets Al-Malkawi et al. (2013). Moreover, emerging markets including Saudi Arabia are usually characterized by concentrated ownership and financial systems that are bank rather than market-based. In this case, banks can play an important role in closing the information gap between firms' management and the market.

This study differs from previous studies as it was not limited to specific sectors in Saudi Arabia and do not cover a limited number of firms only. Besides, this study utilizes a new approach in the analysis by using panel data regression analysis (based on balanced panel data set with fixed effect model) to find impact of the capital structure decision on firms' financial performance. Lastly a more recent data set covering the 2004 to 2012 period is used, thus allowing for a more relevant and up-to-date findings.

2 Literature Review

A number of studies exist in the finance literature concerning the relationship between capital structure and firm performance. Modigliani and Miller (1958) reached the conclusion that firm value and capital structure are independent of one another in the studies conducted on the assumption that capital markets are perfect. This seems to be unreasonable in the real world, which led many researchers to introduce additional rationalization for this proposition and its underlying assumptions showing that capital structure affects firms' value and performance.

Toraman et, al. (2013) investigate the effects of capital structure decisions on firms' profitability in manufacturing sector in Turkey. The data used correspond to the financial statements of manufacturing companies for the period of 2005 and 2011. Regression analysis was employed by using financial ratios obtained from financial statements of firms within the scope of analysis. Results showed that short term liabilities to total assets and long term liabilities to total assets have a negative relationship with the ROA as performance indicator. There is positive relationship between operating income to financial expenditures and financial performance

Chinaemerem & Anthony (2012) investigated the impact of capital structure on financial performance of Nigerian firms using a sample of thirty non-financial firms listed on the Nigerian Stock Exchange. The study used debt to equity ratio as financial leverage indicator and return on asset, (ROA), return on equity, (ROE) as performance indicators. The result shows that a firm's capital structure has a significantly negative impact on the firm's financial performance. The finding of this study Indicate consistency with prior empirical studies and provide evidence in support of Agency cost theory

Muritala (2012) examines the optimum level of capital structure through which a firm can increase its financial performance using annual data of ten firms spanning a five-year period. The results from Panel Least Square (PLS) confirm that asset turnover, size, firm's age and firm's asset tangibility are positively related to a firm's performance, a negative put significant relationship between asset tangibility and ROA as a measure of performance.

Thaddeus and Chigbu (2012) analyze the effect of leverage financing on corporate performance using debt-equity, coverage ratios and earnings per share in the Nigerian banking industry. Results across the banks studied show mixed outcome, and leverage financing was established as critical strategy for maximization of shareholders returns. The conclusion therefore is that in order to ensure that leverage financing leads to desired outcome business, organizations must establish their optimum level as well as strike a strategic balance with associated financing risk and returns to owners of the firm.

Salim and Yadav (2012), who used ROA, ROE, EPS and Tobin's Q variables to measure firm performance, conducted their study on 237 Malaysian companies listed in Bursa Malaysia Stock Exchange. Obtained findings displayed a negative correlation between ROA, ROE, EPS and LTD, STD and total debts. However, the findings put forward a positive correlation between Tobin's Q and LTD, STD.

Soumadi & Hayajneh (2011) investigated the effect of capital structure on the performance of the public Jordanian firms listed in Amman stock market. Study results revealed that capital structure is associated negatively put statistically with firm performance. In addition, the study found out that there was no significant difference to the impact of the financial leverage between high financial leverage firms and low financial leverage firms on their performance.

Sunday Ojo (2011) examines the effect of financial leverage on corporate performance in Nigeria. Econometric technique of Vector Auto Regression (VAR) model was employed. Results revealed that Leverage shocks exert substantially on corporate performance in Nigeria. In addition, Earnings per Share (EPS) depend more on feedback shock and less on leverage shock. Leverage shocks on Earnings per Share indirectly affect the Net Assets per Share of firms as the bulk of the shocks on the Net Assets per Share were received from Earnings per Share of the firms.

Ebaid (2009) investigates the impact of capital structure choice on performance of 64 firms from 1997 to 2005 in the Egyptian capital market. He employs three

accounting-based measures; including ROA, ROE and gross profit margin, and concludes capital structure choices, generally, have a weak-to-no impact on firm performance.

Tsung Cheng (2009) studied the relative effects of debt and equity financing on the operating performance. Findings of this study show that apart from high cash flow firm, debt finance and debt financing have significantly negative consequence for operating performance. Hence, these findings suggest that it is dangerous for firms to rely or depend entirely on either debt or equity for raising capital but it is much safer and better to raise finance by both methods. Thus, these findings encourage firms to try whenever possible to raise finance by using both methods simultaneously, with the advantages of the one method offsetting the difficulties of the other and vice versa.

Razak. and Aliahmed, (2008) examines the impact of an alternative ownership control structure of corporate governance on firm performance among government linked companied (GLCs) and Non –GLC in Malaysia, The study was based on a sample of 210 firms over a period from 1995 to 2005. Findings reveal that there is a significant impact of government ownership on company performance after controlling for company specific characteristics such as company size, non- duality, leverage and growth. The finding is of significance for investors and policy marketers which will serve as a guide for better investment decisions.

Abor (2005) noted that various capital structure measures which represented short term debt, long term debt and total debt associated negatively and statistically with firm performance. The conclusion shows that firms rely mainly on borrowing, which will not achieve tax shields and then it leads to an increase of borrowing cost which exposes the firm to bankruptcy risks and reduces the return.

To sum up, empirical studies regarding the relationship between capital structure and firm's performance in developed countries provided mixed and contradictory evidence; on the other hand there are a few studies which empirically examine this relationship in emerging economies. The present study extends the literature on the impact of capital structure on firm's performance by empirically examining the relationship between capital structure and firm's performance in Saudi Arabia

3 3 Research Methodology

3.1 Data and Sample

The main objective of this study is to examine the impact of leverage on firm's financial performance in Saudi Arabia using data over 2004 and 2012. The data was hand collected and the choice of the companies was based on the availability of data. The number of companies included in our analysis is 79. The analysis is based on balanced panel data with 711 firm-year observations (79 firm's \times 9 years) the banks and the financial institutions were excluded from the sample because of their specific financial activities and their supervision under the central bank.

3.2 Statistical Techniques

In this study a panel data regression analysis is performed, panel data is a combination of cross section and time series data. A panel data approach is more useful than either cross-section or time-series data alone. There are many benefits of using panel data:

Controlling individual heterogeneity; giving more useful data, more variability, less collinearity among the variables, more degrees of freedom and more efficiency. While Time- series is plagued with multicollinearity; panel data has the ability to identify and measure effects that are simply not noticeable in pure cross-section or pure time-series data; It also allows us to build and test more complex behavioral models than pure cross-section and time series data; Panel data are usually gathered on micro units, like individuals, firms and households. Many variables can be more accurately measured at the micro level, and biases resulting from aggregation over firms or individuals are eliminated (Baltagi, 2005).

In this paper, the study estimates the fixed-effects model. The term fixed effects are due to the fact that the intercept varies over firms, but it is constant over time. So, it is time invariant. The slope or coefficients of the regressors do not also vary over time (Gujarati 2003). This study tries to explore the impact of the independent variables on dependent variable values over time using the following models:

 $Y it = \alpha i + \beta i X it + U it$

Where Y represents the dependent variable (return on assets (ROA), return on equity (ROE)). i firm, t time; αi is the individual effect that can be decomposed into fixed individual effect. X is a vector of explanatory variables: leverage, liquidity, tangibility, size and expectation growth, 1 β parameters, and u is a random unobserved component that reflects unobserved shocks affecting the performance of firms.

3.3 Variable Description and Hypotheses

The purpose of this paper is to empirically investigate the impact of capital structure on firms' financial performance for firms that operate in Saudi Arabia.

3.3.1 Dependent variables

3.3.1.1 Performance

There are numerous studies that reviewed the effect of leverage on corporate performance. In these studies performance is reflected in accounting indicators, such as return on assets and return on equity (among others are Zeitun and Tian, 2007; Ebaid, 2009; Saeedi and Mahmoodi, 2011; San and Teh, 2011). Also, gross and profit margins are applied in some of these studies. These measures reflect profitability, as well as financial performance of the company. However, if a firm is profitable, it does not mean that cash flows available to this firm will cover all its liabilities and at least creditors will be paid. In this study, two accounting based measures of performance were used. The first measure is the return on assets (ROA) which is calculated by taking the ratio of net profit of the firm to the total assets of the firm. The second measure is return on equity (ROE) which is calculated by taking the ratio of net profit of the firm to total equity *ROA*; the return on assets is calculated by dividing net income with total assets ROE; return on equity is another profitability ratio that is defined by dividing net income by equity ROA

3.3.2 Independent variable:

Leverage: financial leverage relates to long-term solvency ratios that "address the firm's long run ability to meet its obligations" (Hillier et al., 2010). Financial leverage is usually determined by total debt ratio, and in empirical literature, it is measured by dividing book value of total debt by a book value of total assets, Similar to previous literature (Abor, 2005; Abor, 2007, Ebaid, 2009), financial leverage was measured in the study by three ratios, These measures are the ratio of short-term debt to total assets (STD), the ratio of long-term debt to total assets (LTD) and total debt to total assets (TD).

The following hypothesis will be tested:

There is a negative relationship between financial leverage and a firm's performance.

Firm size: The size of a firm is considered to be an important determinant of a firm's profitability; hence the size of the firm, which is measured by the logarithm of total assets, could influence its financial performance. Prior research suggests that firm's size may influence its performance, larger firms have a greater variety of capabilities and can enjoy economies of scale, which may influence the results and the inferences, so firm size is considered as a control variable in the model (Ramaswamy, 2001; Frank & Goyal, 2003; Jermias, 2008, Onaolapo and Kajola(2010) . The following hypothesis will be tested

There is a negative relationship between firm's size and firm's performance

3.4 The Econometric Model

Based on the research hypotheses developed above, the general empirical model to be estimated using the panel data analysis, for firm i in period can be written as:

 $ROAi, t = \beta 0 + \beta 1 STDi, t + \beta 2 LTDi, t + \beta 3 TDi, t + \beta 4 SIZEi, t + \mu i, t....(1)$

 $ROEi, t = \beta 0 + \beta 1 STDi, t + \beta 2 LTDi, t + \beta 3 TDi, t + \beta 4 SIZEi, t + \mu i, t....(2)$

Where:

ROAi,t = return on total assets for firm I in year t ROEi,t = return on total equity for firm I in year t STDi,t = short-term debt to total assets for firm I in year t. LTDi,t = long-term debt to total assets for firm I in year t. TTDi,t = total debt to total assets for firm I in year t. Log SIZEI, t = logarithm of total assets for firm I in year t. μ_i ,t = the error term.

4 Results and Discussion

4.1 Descriptive Statistics

Descriptive statistics for dependent and independent variables of the study are tabulated below in Table 1. From the table, it is clear that all the variables have positive means. Statistics for capital structure proxies (i.e. STD, LTD and TD) show means of 20.59, 8.13

and 28.11 percent for short-term, long-term and total debts, respectively, which indicates that Saudi firms do not employ high levels of debt in order to raise capital. Furthermore, Saudi firms on average use long-term debt as a means of capital financing more than short-term loans. The means of 7.6, and 11.19 percent for ROA and ROE, respectively, show that the performance of Saudi companies is poor during the study period from 2004 to 2012. Finally, the average size of 6.13 for the sample firms with minimum value of 4.72 and maximum of 8.52 indicates that most of the sample firms are close in terms of size despite the fact that they are operating in different sectors.

	Obs.	Mean	Median	Minimum	Maximum	Std. Dev.
ROA	702	0.075769	0.062676	-1.309683	0.524959	0.113483
ROE	702	0.111979	0.105889	-2.93745	0.832923	0.184995
STD	702	0.205964	0.157812	0.001890	1.334263	0.167431
LTD	702	0.081392	0.032564	0.000000	0.607179	0.118573
TD	702	0.281159	0.234587	0.001890	1.334263	0.194245
SIZE	702	6.130762	6.117782	4.728248	8.529474	0.712709

Table 1: Descriptive statistic data

Table 2 below shows the correlation matrix of the dependent and independent variables. As shown in the table, the highest correlation coefficient between the LTD and SIZE is (0.324). All the other correlation coefficients are less than 0.30 which means that there is no multicollinearity problem. In addition, the results show that the STD, TD and SIZE are positively correlated to profitability, while the LTD has negative correlations with profitability.

	ROA	ROE	STD	LTD	TD
ROA	1.000000	Roll			
ROE	0.226744	1.000000			
STD	0.086288	0.115525	1.000000		
LTD	-0.098806	-0.144968	-0.123551	1.000000	
TD	0.014202	0.097440	0.193414	0.259248	1.000000
SIZE	0.139023	0.193299	0.201488	0.323627	0.201488

Table 2: Correlation Matrix for the variables

4.2 Regression Results

The analysis on the impact of capital structure on firms' performance is presented in the tables 3a & 3b. Table 3a which present the results of fixed effect regression used in testing the relationship between capital structure and firm's performance. Table 3a presents the results of testing the relationship between capital structure measured by ratio of STD to total, ratio of LTD to total assets, ratio of TD to total assets, and firm's performance measured by ROA. As shown in this table, the results indicate a significant negative relationship between STD and ROA; the coefficient of STD in model 1 is negative and statistically significant at level 5 percent, which suggests that an increase in STD is associated with a decrease in (ROA). Also the results indicate a significant

negative relationship between LTD and ROA; the coefficient of LTD in model 1 is negative and statistically significant at level of 1 percent, which suggests that an increase in associated with decrease in ROA. This may be due to considerable amount of in capital structure of Saudi Arabia firms is LTD. On the other hand, as shown in Table 3a, TD has significant relationship with ROA; the coefficient of LTD indicates a significant negative relationship between LTD and ROA. These findings are consistent with the previous results found by Ebaid (2009) who reported that only STD and TD of capital structure proxies have significant relation with firms' performance measured by ROA. Finally, the results show that firms' performance (ROA) has significant relationship with control variable (firm size).

	anel least square regress		
Ind. Variable	Coefficient	t-Statistic	Prob.
C	0.446417	4.219121	0.0000
STD	-0.074821	-1.962613	0.0401
LTD	-0.180765	-5.378711	0.0022
TD	-0.140352	-2.434859	0.0018
SIZE	0.037872	-2.150907	0.0319
R-squared	0.831		
Adjusted R-squared	0.893		
E statistic	6.587709		
F-statistic	(0.000)		
II	18.317582		
Hussmann test	0.0011		

Table 3b presents the results of testing the relationship between capital structure measured by ratio of STD to total assets Model 2, ratio of LTD to total assets Model 2, ratio of TD total debt to total assets Model 2, and firm's performance measured by ROE. As shown in this table, the results indicate that neither STD nor TD, has a significant relationship with firm's performance measured by ROE; These findings are consistent with the results reported by Saeedi and Mahmoodi (2011) and Ebaid (2009) who found no evidence of a significant relationship between ROE and capital structure, these findings contradict with those reported by Ahmad, et al (2012), who found a significant positive relationship between all capital structure proxies and ROE, ratio of LTD to total assets has a significant relationship with firm's performance measured by ROE at 10 percent. The results also indicate that the control variable (firm size) has no significant effect on firm's performance,

Table 3a: Panel least square regression result (Dpt – ROA)

Ind. Variables	Coefficient	t-Statistic	Prob.
C	0.446926	3.160717	0.0017
STD	-0.145033	-0.657694	0.5110
LTD	-0.359364	-1.765967	0.0779
TD	0.061332	0.337876	0.7356
SIZE	-0.047803	-1.423431	0.1551
R-squared	0.451939		
Adjusted R-squared	0.380337		
F-statistic	6.311852 (0.000)		
Hussmann test	16.323872 (0.0026)		

Table 3b: Panel least square regression result (Dpt – ROE)

5 Conclusions

Most of the studies above investigate these implications in the developed countries, very little is empirically known about such implications in emerging or transition economies such as Saudi Arabia. This research attempts to explore the relationship of capital structure decisions with the firms performance of 74 Saudi Arabia firms listed on the Saudi Arabia Stock Exchange (TADAWUL) for the period 2004-2012. The analysis is performed by using panel econometric technique called fixed effect regression

While conducting this study, two indicator variables were used as a measure of firm's performance (ROA and ROE) and three variables were used as proxies for capital structure (STD, LTD and TD). Size was used as a control variable for firms. The study finds that STD, LTD and TD have significant impact on ROA. While only LTD has a significant impact on ROE. Firm size has significant impact on firms' performance when ROA is dependent variable and no impact on firm performance when ROA is dependent variable. So, further research could examine the relationship between maturity structure of the firm's debt and its decisions and performance. Finally, further research could examine the joint impact of both capital structure and ownership structure on firm's performance since a large number of Saudi Arabia firms are family firms.

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