CAPITAL STRUCTURE AND DEBT MATURITY: EVIDENCE FROM LISTED COMPANIES IN SAUDI ARABIA

Abdulkader M.A. Abdullah
College of Business and Economics
Qatar University

ABSTRACT

This study examines the determinants of capital structure in general and the determinants of corporate debt- maturity in particular for 56 listed companies in Saudi Arabia. To achieve this objective the study was set to test a number of hypotheses regarding the determinants of capital structure and debt maturity. These hypotheses were related to the effects of profitability, growth opportunities, asset maturity, size, liquidity and age. Total debt ratio was found to be positively and significantly related to the percentage growth in total assets and negatively and significantly related to liquidity and asset structure. Growth opportunities variable was found to be positively and significantly related to long - term debt and was negatively and significantly related to short term debt. The relationship between asset maturity and long term debt was found to be negative and significant. Therefore, there is no support of the hypothesis that debt maturity decreases as the proportion of growth potentials increase. Size was found to be positively and significantly related to long term debt and negatively and significantly related to short term debt implying that larger firms borrow on long term and small ones borrow on short term. Profitability, age liquidity appeared to have no statistical significance on the different types of debt. The implications of these results have been examined and future research directions have been suggested.

1- Introduction

Under the assumptions of the absence of tax and default and with the possibility of replacing corporate borrowing with personal borrowing, Modigliani and Miller (MM) [1] stated and proved mathematically the irrelevance of both the capital structure of the firm and debt maturity in a perfect capital market. However, in the absence of such prefect market an extensive body of theoretical research has discussed the influence of the imperfections on the corporate debt- maturity structure. For example, Myers [2] demonstrated the importance of growth opportunities and their impact on debt- maturity. Other theoretical contributions have been made by Flannery [3] and Diamond [4] who emphasized the importance of information asymmetry, while Barnea et al [5] and Ross [6] emphasized the effects of the agency problem and signaling respectively. The empirical evidence on the importance debt maturity has been provided by a number of researchers, including for example Guedes and Opler [7], Barclay [8], Stohs and Mauer [9], and Scherr and Hulburt [10].

The present paper addresses the determinants of corporate debt maturity structure of listed companies in Saudi Arabia. The importance and significance of undertaking this study is supported by several factors. First, the firms under study in this paper operate in an emerging stock market with some features quite different from those prevailing in the developed markets. Some of these features include thin trading, inefficiency, weak organization and poor information disclosure. Moreover, the Arab stock markets including the Saudi stock market are still smaller and less active than the developing countries average. For example, in 2001 Arab market capitalization to GDP and turnover ratios averaged 26% and 6% respectively against corresponding averages of 33% and 29% for developing countries [11]. In addition to being a small market, the Saudi market suffers from concentrated ownership, modest number of listings and a fair number of closed companies.

Second, the listed firms in this market display some characteristics quite different from large listed firms in the developed markets in several aspects, such as ownership structure, flexibility and tax systems. For example, the government owns more than 34% of traded shares and there is

also an absence of income tax on citizens. However, citizens have to pay Zakat based on their net worth and if there is a non- Saudi partner in the ownership of the listed company, he has to pay an income tax on the share of the taxable income. Moreover, some sectors like electricity and agriculture are enjoying government's subsidies in addition to loans provided by Saudi Industrial Development Fund [12].

Third, the economy in which the listed companies operate is assumed to be interest -free economy and this could have several implications regarding borrowing behaviour. In addition to that, the market for finance in the Saudi Market is considered to be inefficient as manifested by a number of phenomena among which are the concentration of commercial bank lending to the trade sector at the expense of the industrial, service and agricultural sectors and the absence of a bond market in addition to the higher rates of defaults among firms.

Finally, very few or meager research on the issue of debt maturity has been carried out in Saudi Arabia. Apart from the work of ALsakran [12] and Abdullah and EL-Siddig [13] on the general determinants of capital structure, we could not find an empirical work in this field.

Therefore, the objective of this paper is to find out the determinants of capital structure in general and those of debt maturity in particular. To that end the rest of the paper is organized as follows: In section 2 we provide a brief literature review of the main determinants of capital structure and debt maturity. Section 3 presents the models to be tested as well as the definition of the variables and their hypothesized relationships. In section 4 the data and the research methodology will be laid out, while section 5 discusses the empirical results and section 6 concludes the paper.

2- Literature Review

The propositions advocated by MM [1] on the issue of capital structure have produced a great deal of debate and discussions about the determinants of capital structure and debt maturity of the firm. According to MM and under the assumptions of perfect capital market, capital structure would be irrelevant, i.e., the market value of the firm and its cost of capital are independent of its capital structure and as a result there is no optimal capital

structure. However, in the absence of such prefect market and in the presence of taxes and floatation costs, MM argued that the value of the firm would be maximized by using as much debt as possible [14]. Since then an extensive body of theoretical as well as empirical research has identified a number of factors that were believed to influence the capital structure and debt maturity. These factors include "the maturity matching principles" growth opportunities, asset structure, size, age, liquidity and profitability. In this section we provide a brief account of the main findings of previous studies with respect to the effects of some of the factors mentioned on the capital structure and debt maturity.

In his study on the determinants of financial structure of manufacturing companies Gupta [15] found a positive relationship between debt ratio and fixed assets turnover. This finding explained partially the effects of size and growth on capital structure i.e. firms with higher fixed asset turnover tend to have higher debt in their financial structure. The rationale for this was that those larger firms have lower agency problems and higher tangible assets and has easy access to long-term debt markets. Titman and Wessels [16] argued that larger firms have higher leverage ratios because they are more diversified and enjoy easier access to capital markets and can borrow at favourable interest rates. On the other hand smaller firms tend to have lower leverage ratios because they are more likely to be liquidated when they are in financial distress [17] and they face higher failure rates compared to larger firms. Therefore a positive relationship is expected between the firm' size and the total debt ratio.

According to Myers and Majluf [18] and in line with the pecking order theory (POT) of capital structure, firms prefer retained earnings as the main source of finance followed by debt financing and last come new equity issues. This is due to the floatation costs and the agency problems that result from issuing new equity. In this respect profitability allows the firm to employ retained earnings rather than external finance. As a result, a negative relationship is expected between profitability on the one hand and short- and long-term debt ratios on the other hand. This rationale was also advocated by others [16, 19, 20].

Liquidity may have a mixed impact on capital structure. On the one

hand firms with higher liquidity ratios my use this liquidity to meet short-term obligations when they are due and consequently a negative relationship is expected between liquidity and short-term debt. On the other hand firms may use their higher liquidity in financing their investment instead of debt and in this case a negative relationship is expected between liquidity and debt maturity [21,20].

With risky fixed claims in the firm's capital structure as a result of using debt, the benefits from undertaking profitable investment opportunities are split between stockholders and debt holders and in some cases debt holders may gain more benefits than the stockholders. This situation may lead to a conflict of interests between stockholders and debt holders and as a result firms financed with risky debt may be pushed to pass up some valuable investment opportunities in some states of the future. Myers [2] refers to this behaviour as "an underinvestment problem". One way for the firm to eliminate or reduce this problem according to the author is to shorten the maturity of its debt or include less debt in its capital structure. This implies that firms with more investment opportunities should employ short -term debt in their capital structure. This hypothesis has been tested empirically by a number of researchers [9,22] to mention a few. However, the findings of these studies were inconclusive. While the first study reported a moderate support of the hypothesis, the second study strongly supported the hypothesis and showed that firms with more growth opportunities in their investment sets tend to have more shorter-debt in their capital structure.

Asset structure which shows the level of assets that can be used as collateral by the firm when it opts for borrowing has an impact on debt maturity. This collateral mitigates information asymmetry and agency problems because it will secure the interests of lenders in the event of problems arising from lack of information or conflicts of interests between the internal and external parties. In this regard it is expected that a 'matching' will take place where long-term assets will be used as collateral for long-term debt and short-term assets for short-term loans [22]. The rationale for matching can be explained by the fact that debt with maturity shorter than the maturity of the asset is risky because the asset might not have yielded enough profit to repay the debt. On the other hand, debt with

the maturity longer than the maturity of the asset is also risky because debt might have to be repaid after the asset ceased to yield income. Therefore, firms try to match the maturity of the assets with that of liabilities.

The determinants of capital structure were investigated by few scholars in the Arab world. For example, in Kuwait it was reported that the use of debt in capital structure was negatively related to profitability, liquidity and the previous debt ratio and positively related to growth opportunities, dividend payout and collateral [23]. In Jordan it was found that a positive relationship existed between the use of total debt within the capital structure on one hand and the size of the firm and the retention ratio on the other hand. Moreover, the ratio of long term debt within the capital structure was positively and significantly related to total assets (as a measure of size) and the ratio of fixed assets to total assets.

In Saudi Arabia and in absence of tax, negative relationships between the debt ratio on the one hand and growth opportunities and profit margin and return on assets on the other hand were reported. In addition, the government share in the ownership of public companies and size demonstrated a positive relationship with the debt ratio within the capital structure [12]. Similar results were reported in a recent study on the determinants of capital structure where the total debt ratio was positively and significantly related to the past debt ratio and size and negatively related to profitability, liquidity, collateral and growth opportunities [13]. Surprisingly none of the two studies have addressed the determinants of debt maturity among the Saudi public companies.

3- Variables Definition and Hypotheses

Based on the review of previous studies with respect to the main determinants of capital structure and debt maturity we have formulated the following three models to define the dependent and independent variables and stated the hypothesized relationships.

(1) $Rtd = \alpha + \beta_1 Roa + \beta_2 G = \beta_3 Size + \beta_4 Age + \beta_5 Mat + \beta_6 Lq$

(2) $Rtd = \alpha + \beta_1 Roa + \beta_2 G = \beta_3 Size + \beta_4 Age + \beta_5 Mat + \beta_6 Lq$

(3) $Rtd = \alpha + \beta_1 Roa + \beta_2 G = \beta_3 Size + \beta_4 Age + \beta_5 Mat + \beta_6 Lq$

Where:

Rtd is the ratio of total debt to total assets where total debt includes both short-term and long-term debt. i.e $Rtd = \dfrac{TD}{TA}$

where TD refers to total debt and TA refers to total assets.

Rsd is the ratio of short-term debt to total debt, where short-term debt includes all types of debt that mature in less than a year (i.e. repayable within a year) i.e. $Rsd = \dfrac{STD}{TD}$ where STD refers to short term debt and TD refers to total debt.

Rld is the ratio of long-term debt to debt, where long-term debt includes all types of debt that mature beyond one year i.e. $Rld = \dfrac{LTD}{TD}$ where LTD stands for long-term debt.

Roa is the return on total assets as a measure of profitability and defined as a ratio of operating profit to total assets. $Roa = \dfrac{EBIT}{TA}$ where EBIT is the earnings before interest and tax. The empirical hypothesis here is that profit will be negatively related to both short- and long-term debt.

G stands for the growth opportunities facing a firm and they are measured by the percentage change in the total assets over the last three years. $G = \dfrac{TA_t - TA_{t-3}}{TA_{t-3}}$ where t refers to the year 2000. The empirical hypothesis is that growth options or opportunities are positively related to short-term debt and negatively related to long-term debt.

Size refers to the size of the firm and is measured by the natural logarithm of assets i.e $size = LnTA$ and expected to be positively related to total debt and long-term debt and negatively related to short-term debt.

Age refers to the age of the firm and is expressed in the number of years and is calculated as the present year (2000) minus the year of inception. The relationship between age and the different types of debt maturity is expected to be negative. The rationale for this expectation is based on the belief that older firms have the ability to accumulate funds and therefore borrow less.

Mat refers to the asset structure or asset maturity and is expressed as a ratio of fixed assets to total assets and serves as collateral and the ratio is expected to be positively related to total debt. However, a matching principle may take place and in this situation the ratio of fixed assets is positively related to long term-debt and negatively related to short-term debt. The maturity of assets is measured by the percentage of total assets that is fixed. Mat $= \dfrac{FA}{TA}$ where FA refers to fixed assets and TA refers to total assets.

Lq refers to liquidity of the firm and is defined as a ratio of current assets to current liability i.e. Lq $= \dfrac{CA}{CL}$,where CA refers to current assets and CL refers to current liabilities. The relationship between liquidity and all measures of debt maturity is expected to be negative.

4- The Data and Method of Analysis

The data related to the dependent and independent variables were extracted from annual balance sheets and profit and loss accounts of a sample of 56 stock companies operating in four different economic sectors as shown in table (1). This sample represents 74% of the total listed companies operating in Saudi Stock Market in 2001 and companies were selected according to the availability and continuity of data for the period 1995-2000. Companies in the financial sector were excluded because of the nature of their financial structure. Data were collected for total debt, short- and long-term debt, profitability, liquidity, size, age, asset structure and growth opportunities.

Table (1) :The Sample of the Study

Sector	Number of Firms	Percentage
Industrial	22	39.3
Cement	8	14.3
Service	17	30.4
Agricultural	9	16.0
Total	56	100

Source: Zugbaibi and Kabbani [24].

5- Empirical Results:

5.1- Descriptive analysis and ANOVA

Before proceeding with data analysis using the regression analysis, it is useful to present summary descriptive statistics of the dependent and independent variables described in the previous section. In table (2) we reported the means, standard deviations, maximum, minimum and the median of these variables. It can be observed that the ratio of total debt to total assets on average is less than 24% which is quite low compared to that found in some of the economies in the Middle East. For example, the ratio amounted to 42% in Jordan [24] and higher ratios were reported in other developed and developing countries [25]. In addition to that, 80% of the debt issued was short term debt with the median being 19% and the standard deviation being 25%. The long -term debt ratio was 20% on average with the median being 9% and standard deviation 25%. On the other hand the average proportion of fixed assets to total assets (Mat) was 74% with median being 78% and the standard deviation 18%. The standard deviations of the percentage of the debt ratios were remarkably different from the standard deviation of the percentage of fixed assets. The first implication of this descriptive statistics was that the matching principle was not apposite.

Past growth (G), which measures the growth opportunities has a mean of 18% which was fairly high and indicated the influence of some high growth firms and this could also be deduced from the maximum which amounts to 195%. The average size of the firms in the present sample as measured by total assets amounted to more than $60 million.

Table (2) Descriptive Statistics of Dependent and Independent Variables

Variable	Mean	Standard Deviation	maximum	minimum	median
Rtd (%)	23.46	14.3	63	1.0	21
Rtd (%)	80	24.9	100	19	19
Rtd (%)	20	25.2	89	0	9
Rtd (%)	6.8	7.7	31.3	-12.5	4.8
G (%)	17.55	48.6	195	-24	0.67
Size	13.3	1.4	18.3	9.7	13.4
Lq	1.97	2.1	11.6	0.2	1.4
Age	18.4	10.4	45	6	17
Mat	74	18.2	99	4	77.8

The descriptive statistics may suggest that some variables are skewed and as a result we can apply the normality test which indicates that apart from the size factor, all variables appear to be normally distributed as shown in table (3).

Table (3) Tests of Normality

Variable	Kolmogorov-Smirnov Statistic	Sig.
RTD	.137	.024
RSD	.166	.002
RLD	.299	.000
Roa	.174	.001
G	.224	.000
Size	.093	.200
Liq	.315	.000
AGE	.146	.012
Mat	.147	.011

In table (4) we report the average leverage ratios and it appears that these ratios vary across sectors. Average total debt is above 27% in the industrial sector compared to just over 15% in the agricultural industry. The agricultural sector displays the lowest total debt ratio and also the lowest long term debt ratio, but enjoys the highest short- term debt ratio compared to those found in industrial and service sectors. Despite these variations, it appears that there is no significant statistical difference as shown by the one way analysis of variance.

Table (4) Average Leverage Ratios Across Sectors

Sector	RTD (%)	RTD (%)	RTD (%)
Industrial	27.86	73.68	26.68
Cement	21.25	73.6	26.4
Service	22.8	84.76	15.24
Agricultural	15.78	93	7.0
One- Way Analysis of Variance			
F- Statistics	1.704	1.704	1.75
Sig.	0.178	0.169	0.168

In table (5) we present the average values of the main determinants of capital structure and it seems that they vary across sectors. It is evident from the table that liquidity, age, size and growth vary across industries as manifested by the one-way ANOVA.

Table (5) Determinants of Capital Structure

Sector	Roa (%)	G (%)	Size	Age	Mat (%)	Lq
Industrial	7.7	36.8	13.4	18.8	69.6	2.0
Cement	11.4	3.06	14.2	27.4	74.03	1.8
Service	1.6	12.2	13.2	15.8	79.75	1.1
Agricultural	5.0	-6.6	12.5	14.6	73.98	3.8
One- Way Analysis of Variance						
F- Statistics	1.744	2.4	2.5	3.1	1.0	3.6
Sig.	0.17	0.08	0.07	0.03	0.40	0.02

For example average liquidity in agricultural sector is 3.8 compared to just over 1 in the service industry. The average age of the sample firms in the cement industry is over 27 years compared to 15 years in the agricultural sector. The industrial sector enjoys the highest growth in assets which is a positive growth of 37% compared to a negative growth of 7% in the agricultural sector. If we compare the results of table (4) with that of table (5), we can see that companies with the highest debt ratio are those which have the highest growth in assets. On the other hand, companies with highest liquidity ratios are those which have the lowest total debt ratios.

5.2- Correlation and regression

To test for the presence of first-order collinearlity between the independent variables, we report in table (6) Pearson correlation matrix which does not support strongly the existence of collinearlity. Apart from the correlation between profitability and age and profitability and fixed assets, there is little evidence of a problem of collinearlity. Moreover, the correlation coefficient between any two independent variables has not reached 50%.[2]

Table (6) shows no primary evidence of the existence of the matching principle as measured by asset maturity (mat) because the correlation between the ratio of fixed assets on the one hand and the long-term and short-term debt ratios on the other hand is not significant. However, there is a negative and significant correlation between asset maturity and the ratio of total debt within the capital structure. The growth opportunities variable (G) correlated positively with the ratio of long term debt and negatively with short term debt. Both correlation coefficients are significant at 5% level. This finding is not in line with the proposition of Myers [2] who advocates that because of the underinvestment problem firms tend to borrow on short term basis. Table (6) depicts a positive and statistically significant correlation between the size of the firm and the long term debt ratio and a negative and significant correlation with short term debt. Despite the fact that liquidity (Lq) appears to be negatively correlated with total debt, other independent variables have demonstrated very low and insignificant correlations with dependent variables.

2- Even when we ran Spearman correlation instead of Pearson, we found only one correlation coefficient between liquidity and assets structure that reached 52%.

Table (6) Correlation among the variables

	Rtd	Rld	Rsd	Roa	G	Size	Age	Mat	Lq
Rtd	1								
Rld	0.58***	1							
Rsd	-0.57***	-0.99***	1						
Roa	0.21	0.04	-0.04	1					
G	0.29	0.33**	-0.334**	0.06	1				
Size	0.17	0.28**	-0.29**	0.12	0.06	1			
Age	0.03	-0.01	0.01	0.36***	- 0.20	0.33**	1		
Mat	-0.45***	-0.16	0.14	- 0.37**	0.12	0.01	- 0.12	1	
Liq	-0.34**	-0.06	0.06	- 0.06	- 0.08	0.33**	- 0.11	- 0.17	1

*** Correlation is significant at 0.01 level.

** Correlation is significant at 0.05 level

* Correlation is significant at 0.1 level.

In the following paragraphs we employ the linear regression models to identify the main determinants of capital structure and test the hypotheses formulated earlier where three dependent variables are used: The ratio of total debt to total assets(Rtd), the ratio of short- term debt to total debt (Rsd) and the ratio of long-term debt to total debt (Rld).The independent variables remain as defined before.

In table (7) we report the main determinants of total debt (Rtd) and debt maturity (Rld and Rsd). It can be observed from the table that the significant determinants of total debt of the firms are growth opportunities, liquidity and asset structure all of which are significant at 1%. Growth opportunities are positively related to total debt which means that firms faced with higher growth potentials are more likely to use more debt in financing. For asset maturity (mat), the relationship with total debt is negative and statistically significant, a result that is contrary to the majority of previous studies.

Liquidity is negatively and significantly related to total debt ratio i.e. the more liquid the firm is, the less it resorts to borrowing. This result indicates that firms with higher liquidity use that liquidity to pay off short-term obligations; therefore they reduce short term debt and may also use their liquidity to finance part of their long-term investments.

Other independent variables which include profitability, size and age appear to be insignificant determinants of total debt within the capital structure. The dependent variables altogether explain more than 50% of the variations in total debt ratio.

Chittenden et al [27] suggested that total debt may mask two opposite effects for long-term and short-term debt for some of the explanatory variables. Consequently we investigated the effect of the independent variables on the two types of debt (short-term and long -term) separately and this has been done in table (7). It can be seen that the main determinants are growth opportunities, size and asset maturity. These independent variables explain about 23% of the variation in both the long term and short term debt ratios.

Growth opportunities variable (G) is found to be positively and significantly related to long term debt and negatively and significantly related to short term debt at 1% level. This result runs contrary to Myers' hypothesis that firms with significant growth opportunities borrow on short term basis. In other words we found no support of the prediction that debt maturity decreases as the proportion of growth options in the firm's investment opportunity set increases. One possible explanation for this result is the fact that firms may have the ability to roll over their short term debts and therefore short term loans are converted to long term debts. Another explanation might be that most of the loans particularly in the dominant industrial sector come from the Saudi Industrial Development Fund (SIDF) which are paid in installments over 25 years. Moreover, some of the companies in this sector enjoy a higher contribution of the government share, an element that works as a collateral in securing more long term debt.

Table (7) Results of the regression models

Years	Rtd (equation1)	Rld (equation2)	Rsd (equation3)
Constant	0.16***	-0.18	1.23***
	(3.23)	(-0.5)	(3.48)
Roa	-.06	-0.1	0.09
	(-0.54)	(-0.7)	(0.6)
G	0.33***	0.34***	-0.34***
	(3.13)	(2.53)	(-2.6)
Size	0.09	0.05**	-0.28**
	(0.93)	(2.0)	(-2.06)
Age	-0.04	-0.04	0.03
	(0.3)	(-0.14)	(0.22)
Mat	-0.61***	-0.25*	0.23
	(-5.6)	(-1.8)	(1.6)
Liq	0-41 ***	-0.04	0.3
	(-4.0)	(-0.3)	(0.26)
R^2	0.53	0.23	0.23

* Correlation is significant at 0.1 level.

** Correlation is significant at 0.05 level

*** Correlation is significant at 0.01 level.

The proposed hypothesis that firms seek to match the maturities of assets to liabilities is not observed in this study. For the asset structure the displayed sign is contrary to the expectation of the model, indicating that firms with higher percentage of fixed assets within their asset set use less long -term debt. This relationship is found to be negatively and significantly related to long term debt and positively but insignificantly related to short term debt, which could mean that part of fixed assets is financed by short term debt.

The stated fact in theory is that the proportion of tangible assets is related to the availability of collaterals, which may reduce the agency costs of debt. The availability of collateral is very important for newly established firms which have no close ties to creditors. These arguments suggest a positive relationship between the firm's total and long term leverage on the one hand and the proportion of fixed assets (maturity) on the other hand. The results from developed markets uniformly confirm this relationship.

However, in the Saudi emerging stock market we may identify a number of factors that limit the importance and role of tangible assets as collateral in securing more total debt in general and long term debt in particular. One of these factors is the poor and inefficient legal system which in many cases make the recovery of collateral (in cases of defaults) costly and time-consuming. A second factor relates to the fact that the thin and illiquid secondary market for the firms' assets creates uncertainty about their recoverable market value and thereby reduce the collateral value [28]. The above factors may suggest the negative relationship between tangibility and the leverage ratios in this study. The negative relationship between the proportion of fixed assets to total assets on one the hand and the long term debt on the other hand may reflect the value of flexibility in operations. The problem of adjusting to new economic conditions and discovering new markets was very severe for Saudi companies. In this respect the modification of production operations was more difficult for companies with large percentage of fixed assets that require long-term financing. [27.183] .

Size is found to be positively and significantly related to long term debt and negatively and significantly related to short term debt at 5% level. This result implies that big companies borrow on long term basis while small ones are relatively sticking to short term borrowing. This is so because larger firms have the ability to reduce the unsystematic risk via diversification. The rest of the explanatory variables, namely profitability, age and liquidity are statistically insignificant although some of them display the expected results with the debt maturity variables.

6- Conclusions and recommendations

The focus of this paper has been on the determinants of capital structure and debt maturity among listed stock companies operating in Saudi Arabia Stock Market. The companies belong to four different economic sectors namely industrial, cement, service and agricultural. The main findings of the paper show that in general the use of debt among the Saudi listed companies is low compared to the reported debt ratios in other countries in and outside the region. Among the Saudi stock companies the industrial companies have the higher total debt ratio followed by the

services, cement and agricultural companies.

The one way analysis of variance (ANOVA) shows no significant differences in the use of debt, whether total, short-term or long-term debt among sample companies in the four sectors. Moreover, the results of the ANOVA indicate significant differences among the companies in the sample with respect to growth opportunities, size, liquidity and age as determinants of capital structure. The regression analysis shows that total debt is positively and significantly related to growth opportunities and negatively and significantly related to both liquidity and asset structure. On the other hand, the long term debt ratio is found to be positively and significantly related to the growth opportunities and size variables and negatively and significantly related to maturity. For the short term debt the only two significant variables are growth opportunities and size variables which are both negatively related. The interpretation of these relationships has been discussed within the context of the framework within which the sample companies operate. The other variables which include profitability and age, have no significant effect on capital structure and debt maturity.

The empirical results of this study have to be looked at in the light of the features of the companies and the financing market in which they operate. In general, debt financing is limited in Saudi Arabia for two main reasons. The first reason is that the commercial banks are reluctant to direct much of their credit to the industrial, service and agricultural activities and instead they concentrate on lending to the trade sectors. The second reason rests in the absence of a developed bond market where companies can resort to.

At company level, we observe that some companies in the industrial sector enjoy government support and free interest loans. This explains partially the higher debt ratios in this sector, both long- and short-term, and the insignificant impact of some variables like profitability in explaining the variations in capital structure. Other companies such as those in the cement and agricultural sectors do not receive direct subsidy from the government have to rely on their own resources in order to decide on the level and structure of debt in their capital structures. We believe that more research in this area may help in verifying the extent to which variations in capital structure between industries are due to industry effects. Moreover, a study

based on the use of long time series data is needed to gain more insights into the determinants of capital structure in general and debt maturity in particular.

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