

DETERMINANTS OF CAPITAL STRUCTURE: EVIDENCE FROM OMAN

Dr. Manuel Fernandez

*Associate Professor
Skyline University College
University City
Sharjah, UAE*

Dr. Rajesh Kumar

*Associate Professor
IMT-Dubai
Academic City
Dubai, UAE*

Dalal Edmond Mansour

*MBA 4th Semester
Skyline University College
University City
Sharjah, UAE*

Abstract

Capital structure decisions have important implications on the value of the firm, as the components of the capital determine the cost of capital. The guiding principle is to choose the capital structure that maximizes the value of the firm.

The objective of this study is to find out the determinants of capital structure of Oman corporate. This study is based on the financial data collected from the balance sheets and income statements of all companies listed in the Muscat Securities Market excluding banks, financial institutions and insurance companies. The sample includes 82 firms. The period of study is six years from 2006 to 2011.

This study implies that in the context of lower profitability of firms, the firms tend to use more leverage as a means of sourcing finance. The study also finds that the decision to increase leverage is a function of efficiency of utilization of assets. Higher the efficiency in asset turnovers more is the tendency to use leverage. Another implication of the study is that leverage is a function of size. Companies which increase their revenues tend to be become debt intensive.

Keywords: Capital structure, debt-equity ratio, cost of capital, financial leverage

Introduction

Capital structure decisions are very important as it has important implications on the value of the firm. It refers to the mix of equity and debt for financing the overall operations and growth of a firm. The primary objective of the financial management of the firm is to maximize the shareholders wealth by the appropriate mix of various sources of finance including retained earnings, equity shares, preference shares and debt. Debt financing involves issuing of bonds, long term notes payable, leasing and loans from banks. But excess debt financing makes the firm risky due to bankruptcy cost.

Debt financing increases the risk of bankruptcy, but helps to avail tax shield. Most of the countries impose tax on the corporate profits, hence profitable firms operating in these countries may avail the tax shield by using debt financing. The objective of this study is to find out the determinants of capital structure of listed companies in Oman. The details of selected economic variables and market capitalization of Oman is given in Table 1 and II respectively.

**Table 1:
Selected Economic Variables: Oman**

GDP (2011 estimate) (PPP)	\$80.89 billion*
Per capita income (2011 estimate) (PPP)	\$26,200*
Currency	Omani rials (OMR)
Exchange Rate	OMR 0.3845 = US\$ 1*
Stock markets	Muscat Securities Market (established in 1988)***
# of listed companies	123***
Corporate tax rate	12% (55% for oil companies)**
Personal tax rate on dividends	0% **
Population (July 2012 estimate)	3,090,150* (577,293 non-national)

*www.cia.gov/the-world-factbook

**<http://www.taxrates.cc/html/oman-tax-rates.html>

*** www.msm.gov.om

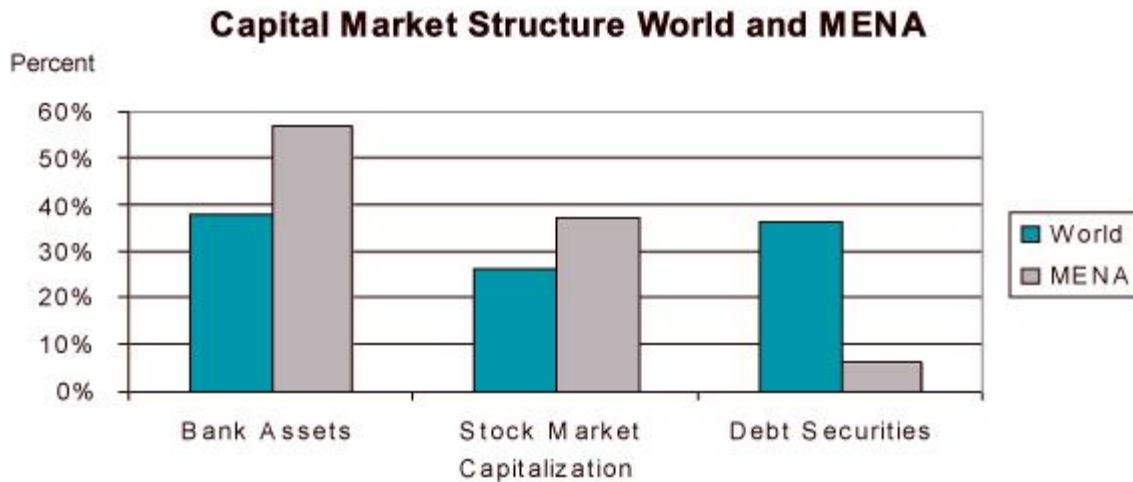
**Table 2:
Market Capitalization: GCC (in Millions U.S. \$)**

Stock Exchange	2006	2007	2008	2009	2010	2011	2012
Abu Dhabi Securities Market	71688.79	112159.5	61887.63	72967.81	71268.62	64435.24	67515.16
Bahrain Stock Exchange	21122.84	26795.93	19954.52	16141.33	19902.66	16513.32	16643.93
Doha Securities Market	60913.09	95517.99	76656.74	87931.99	123316.6	128439.2	130402
Dubai Financial Market	86871.72	138697.8	65217.73	58829.91	54722.23	49548.92	53146.45
Kuwait Stock Market	141923.2	193513.3	113527.1	104226.2	124920	100928	104938.4
Muscat Securities Market	13036.98	22767.03	15643.01	18361.76	21712.05	19697.72	20622.25
Saudi Stock Market	326364.5	522721.1	246809.9	318784.7	353419	338791.4	392253.3
Total	721921.12	1112173	599696.6	677243.7	769261.2	718353.8	785521.4

Compiled from www.amf.org.ae

Capital markets in the region were informal during as late as 1980s; however, they have grown rapidly in the past decade on account of higher financing needs due to large investments in infrastructure, petrochemicals and real estate. Consumer and commercial loans to consumers and businesses are made principally by banks; consumer loans are also given by finance companies.

Figure 1:



Source: IMF Global Financial Stability Report 2010

Bank lending has always been the predominant source of capital in the Arab region. However, the share of bank lending in the capital market has reduced since past six years. Bank lending accounted for 66.8% (US\$1,628.2 billion) of the total capital in Arab region (US\$2,435.9 billion) in 2008 compared to the 79.8% (US\$869 billion out of US\$1,088.8 billion) share in 2005.

Table 3: Debt Intensive Companies in Oman

SL	Symbol	Company	Average Six Year Debt Ratio
1	ABMI	Abrasives Manufacturing	8.37
2	OMCI	Oman Ceramic Co.	7.59
3	OSCI	Sweets Of Oman	7.59
4	GECS	Galfar Engineering & Contracting	3.62
5	AVOI	Areej Vegetable Oils & Deriv.	3.33
6	AKPI	Gulf Plastic Industries	3.06
7	NBII	National Biscuit Industries	3.04
8	OEFI	Omani Euro Foods Industries	3.02
9	SPFI	A Saffa Foods	2.94
10	GMPI	Gulf Mushroom Products	2.92

Based on the sample selection, Abrasives Manufacturing (ABMI) is the most debt intensive company with average debt ratio of 8.37 during the six year period. It was followed by Oman Ceramic Co. and Sweets of Oman. The average six year debt equity ratios of the 50 top debt intensive companies are given in the appendix.

Literature Review

The Modigliani-Miller theorem, proposed by Franco Modigliani and Merton Miller (1958), forms the basis for modern thinking on capital structure. The theorem states that firms should be indifferent choosing between debt and equity financing in an efficient capital market. However, Miller (1977, 1988) and Modigliani and Miller (1963) demonstrated that debt financing increases corporate value when interest costs of debt are tax-deductible while equity costs are non tax-deductible. DeAngelo and Masulis (1980) subsequently proposed the static trade-off theory, whereby the advantage conferred by debt in the form of a decreased tax bill was offset by an increase in business risk. They proposed a theoretical optimum level of debt for a firm, where the present value of tax savings due to further borrowing is just offset by increases in the present value of costs of distress.

Pecking Order Theory presented by Stewart C. Myers (1984) states that, because of asymmetries of information between insiders and outsiders the firms prefer internal sources of financing to equity financing. If internal financing is insufficient then they go for external financing, first they apply for bank loans, then for public debts and as a last resort, equity financing is used. Profitable firms are less likely to opt for debt financing for new projects as they would be having sufficient funds in the form of retained earnings.

The agency theory presented by Jensen and Meckling (1976) highlights the possible conflict between shareholders and managers. The managers are agents of the shareholders entrusted with the day to day affairs of the firm, they try to transfer wealth from bondholders to shareholders by borrowing more debt and investing in risky projects.

Different researchers have studied the capital structure decision from different point of views and in different environments related to developed and developing economies; a few of them are cited here.

The studies by Kakani and Reddy (1996) and Kakani (1999) revealed profitability, capital intensity and non-debt tax shields were important determinants of capital structure. The study by Cassar and Holmes (2003) showed that the asset structure, profitability and growth were important factors which affected the debt equity ratio of firms. Harris and Raviv (1991) found that financial leverage is positively related to firm size, asset tangibility and growth opportunity, but is negatively related to firm risk and profitability.

The study of Jong et. al. (2008) stated that the debt equity ratio was related to a number of country-specific factors such as bond market development, protection of creditors and growth rate of gross domestic product. The study by Bhaduri (2002), exhibited that the optimal capital structure choice in developing countries is strongly influenced by factors such as size, asset structure, profitability and financial distress cost.

The study by Titman and Wessels (1988) found that financing with debt was negatively related to firm's uniqueness regarding its type of business.

Research Methodology

This study is based on the financial data collected from the balance sheets and income statements and of all companies listed in the Muscat Securities Market excluding banks, financial institutions and insurance companies. Data on company balance sheets and income statements were obtained from the websites www.msm.gov.om. Further, the respective websites of the sample companies were also searched for as and when required. The sample includes 82 firms. The data have been taken for six year period of 2006 to 2011. On account of non availability of data, some of the data have been truncated.

Analysis and Findings

Multiple regression analysis was used to examine the determinants of financial leverage. The financial model used is given by

$$LEV = \beta_1 LOGTA + \beta_2 LOGSA + \beta_3 SATA + \beta_4 CF + \beta_5 NI + \beta_6 CFROA + \beta_7 CFROS$$

**Table 4:
Description of Variables**

Variables	Definition
LEV	Leverage defined by debt equity ratio
LOGSA	The log of sales
LOGTA	The log of total assets
SATA	The ratio of total sales to total assets
CF	The log of cash flow measured by operating cash flow
NI	The log of net income
CFROA	The ratio of cash flow to total assets (cash flow return on assets)
CFROS	The ratio of cash flow to total sales (cash flow return on sales)

The model assumes that financial leverage is determined by the size as measured by the log of sales, log of assets, profitability measured by cash flow return on assets and sales. The correlation analysis was conducted in order to check multicollinearity.

Table 5:

Correlation Analysis

	LEV	LOG TA	LOGS	SATA	CF	NI	CFROA	CFROS
LEV	1							
LOG TA	0.139087	1						
LOGS	0.104001	0.896412	1					
SATA	-0.04182	0.04613	0.433854	1				
CF	0.092877	0.914072	0.870233	0.141345	1			
NI	0.000334	0.849773	0.800973	0.138828	0.936647	1		
CFROA	-0.10477	-0.01974	0.107601	0.270249	0.34642	0.368507	1	
CFROS	-0.01514	0.159581	-0.11687	-0.48917	0.348736	0.350318	0.493381	1

The variables of cash flow and total assets were found to be highly correlated. Similarly the variables representing cash flow and total assets were also highly correlated. Assets and sales are also highly correlated. Altogether four models were used for the analysis.

Model 1

In model 1, all the variables were used for regression analysis.

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	-4.888	4.732	-1.033	0.302
LOG TA	3.944	2.902	1.359	0.175
LOGS	-2.973	2.897	-1.026	0.305
SATA	0.338	0.690	0.491	0.624
CF	4.653	2.424	1.920	0.056
NI	-4.857	1.047	-4.639	0.000
CFROA	1.449	10.773	0.135	0.893
CFROS	-4.323	5.859	-0.738	0.461

The model 1 results suggest that financial leverage is dependent on cash flow and net income of the firm. The relationship found is statistically significant. Higher the cash flow, greater is financial leverage taken by firms. Net profit is found to be negatively related to financial leverage. In this context, it can be said that lower the profitability of the firm, greater is the risk taking behavior of firms particularly in relation to leverage.

Model 2

In model 2, the financial leverage variable measured by debt to equity was regressed on sales, the asset efficiency variable of sales to assets, cash flow measured by operating income and net profit. In addition to the operating income and net income variable, the financial leverage was found to be directly related to the asset efficiency. The regression results show that as asset efficiency rises, firms tend to use more debt in the capital structure.

<i>Regression Statistics</i>	
Multiple R	0.280081
R Square	0.078445
Adjusted R Square	0.067667
Standard Error	5.247298
Observations	347

ANOVA				
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>
Regression	4	801.5748	200.3	7.278
Residual	342	9416.676	27.53	
Total	346	10218.25		

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	-4.48	3.02	-1.48	0.14
LOGS	1.50	1.01	1.49	0.14
SATA	-0.70	0.41	-1.71	0.09
CF	3.89	1.36	2.85	0.00
NI	-4.60	1.01	-4.53	0.00

Model 3

In model 3, financial leverage was regressed upon variables of sales, assets, asset efficiency measured by sales to assets ratio, cash flow returns of assets and sales. The results were statistically insignificant at all levels.

<i>Regression Statistics</i>	
Multiple R	0.173833
R Square	0.030218
Adjusted R Square	0.015998
Standard Error	5.390737
Observations	347

ANOVA				
	<i>Df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>
Regression	5	308.7757	61.75514	2.125088
Residual	341	9909.475	29.06004	
Total	346	10218.25		

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	-5.17	3.16	-1.64	0.10
LOG TA	1.10	2.66	0.42	0.68
LOGS	-0.03	2.65	-0.01	0.99
SATA	-0.14	0.69	-0.20	0.84
CFROA	-7.52	9.06	-0.83	0.41
CFROS	-0.14	5.33	-0.03	0.98

Model 4

In Model 4, financial leverage is assumed to depend on sales, asset size and profitability returns on assets and sales. The study shows that as the size in terms of sales increases, the firms tend to become more debt intensive.

<i>Regression Statistics</i>	
Multiple R	0.172411
R Square	0.029726
Adjusted R Square	0.018377
Standard Error	5.384216
Observations	347

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	4	303.7445	75.93613	2.61941	0.034921
Residual	342	9914.506	28.98978		
Total	346	10218.25			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	-4.72	2.96	-1.59	0.11
LOGS	1.05	0.44	2.40	0.02
SATA	-0.31	0.55	-0.57	0.57
CFROA	-10.03	6.75	-1.49	0.14
CFROS	1.47	3.65	0.40	0.69

Conclusion

The study finds that higher the cash flow, greater will be the amount taken as debt by the companies. As the profitability decreases, firms tend to become more debt intensive. Moreover if the firm becomes operationally more efficient in terms of productivity of assets, it prefers to take more debt. The study also finds that as size of the firm increases, it becomes more leveraged.

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www.msm.gov.om

Appendix

SL	Company	Ticker	Debt equity ratio – Average six year
1	Abrasives Manufacturing	ABMI	8.38
2	Oman Ceramic Co.	OMCI	7.6
3	Sweets Of Oman	OSCI	7.5
4	Galfar Engineering & Contracting	GECS	3.62
5	Areej Vegetable Oils & Deriv.	AVOI	3.33
6	Gulf Plastic Industries	AKPI	3.07
7	National Biscuit Industries	NBII	3.05
8	Omani Euro Foods Industries	OEFI	3.03
9	A Saffa Foods	SPFI	2.95
10	Gulf Mushroom Products	GMPI	2.92
11	Oman Filters Industry	OFII	2.72
12	Oman Cables Industry	OCAI	2.7
13	Al Hassan Engineering	HECI	2.69
14	Al Buraimi Hotel	ABHS	2.41
15	National Mineral Water	NMWI	2.14
16	Packaging Co. Ltd	PCLI	2.04
17	Nat. Aluminium Products	NAPI	1.88
18	Oman Foods International	NRCI	1.83
19	Flexible Ind. Packages	FIPC	1.75
20	Al Jazeera Steel Product Company	ATMI	1.6
21	Muscat Thread Mills	MTMI	1.42
22	Salalah Mills	SFMI	1.41
23	Gulf Stone	GSCI	1.29
24	Dhofar Poultry	DPCI	1.16
25	Oman Packaging	OPCI	0.94
26	Al Jazeera Services	AJSS	0.8
27	Gulf Int. Chemicals	GICI	0.8
28	National Detergent	NDTI	0.67
29	National Beverages	NBCI	0.67
30	Computer Stationery Ind.	CSII	0.65
31	Al-Oula Co.	DMGI	0.62
32	Al Batinah Hotels	BAHS	0.6

33	Majan Glass	MGCI	0.57
34	Oman Refreshment	ORCI	0.56
35	Al Fajar Al Alamia	AFAI	0.54
36	Dhofar Beverages & Food Stuff	DBCI	0.51
37	Al Kamil Power Company	KPCS	0.48
38	Dhofar Cattle Feed	DCFI	0.47
39	Oman Fiber Optic	OFOI	0.45
40	Raysut Cement	RCCI	0.42
41	Oman Chlorine	OCHL	0.38
42	Acwa Power Barka	APBS	0.37
43	Voltamp Energy	VOES	0.3
44	Construction Materials Ind.	CMII	0.3
45	Al Anwar Ceramic Tiles	AACT	0.24
46	Oman Cement	OCOI	0.14
47	Oman Textile Mills Holding	OTHI	0.11
48	Oman Chromite	OCCI	0.11
49	Oman Flour Mills	OFMI	0.08
50	Oman Fisheries	OFCI	0.06