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DETERMINANTS OF CAPITAL STRUCTURE IN VARIOUS CIRCUMSTANCES: COULD THEY BE SIMILAR?

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ABSTRACT
The financial economics literature has given the capital structure choice of firms a lot of attention. Indeed, this literature includes not only econometric analysis of the determinants of capital structure, but also surveys of Chief Financial Officers on this financial decision. This paper reports the leverage ratios of listed Saudi and Palestinian non-financial firms and examines whether the differences in the determinants of their ratios are due to firms-specific factors, or country-specific difference. Based on a total of 55 listed Saudi firms and 18 listed Palestinian firms during the period 2006-2012, and using the Seemingly Unrelated Regression, and Panel data Analysis, the results indicate that factors like asset structure and firm profitability impact the capital structure of both sets of firms. However, the differences in their impact are due to country-specific and not firm-specific factors. This result is not really surprising given that both sets of firms operated under different political and economic circumstances.

1. INTRODUCTION

Following any examination of basic corporate finance textbooks, one can learn that the objective which underlies this subject matter is the maximization of the firm's stock price. Indeed, this is achieved when firms maximize the difference between their return on assets and weighted average cost of capital. Within this context, the fact that the capital structure of firms affects their cost of capital, one can appreciate why this issue (capital structure) maintains its eminent place in the financial economics literature.

The theoretical basis of the capital structure of firms can be traced back to Modigliani and Miller's (1958). Assuming that markets are perfect, in terms of information and costs, Modigliani and Miller (1958) showed that the value of a firm is independent of its capital structure.

Following the theoretical paper by Modigliani and Miller (1958), and the publication of various theories, like the trade-off theory, agency theory, signaling theory, market timing theory, and pecking order theory, the finance literature has managed to produce an exceptionally large number of empirical papers that examine the determinants of the debt-to-equity choice of firms within countries and across countries.

Notwithstanding the fact that there is a myriad of capital structure theories, the fact remains that none of them shows finance managers how to determine an optimal debt to equity ratio for their respective firms.

Indeed, this is why, the empirical literature uses many factors like firm age, firm size, firm profitability, firm risk, firm non-debt tax shield, firm liquidity, firm ownership structure, firm asset structure, corporate tax rate, stock liquidity, behavioral concepts, and others, in explaining the capital structure of firms.

The literature that examines capital structure is impossible to review even by listing Authors. For illustrative purposes, some of these papers are Titman and Wessels (1988), Harris and Raviv (1991), Rajan and Zingales (1995), Bevan and Danbolt (2000), Booth et al. (2001), Voulgaris et al. (2004), Antoniou et al. (2005), Daskalakis and Psillaki (2007), Mefteh and Oliver (2007), Feidakis and Rovolis (2012), Eldomiaty (2012), Shah and Khan (2013), Alipour et al. (2015), and Koksal and Orman (2015).

The scholarly papers by Singh and Hamid (1992) and Singh (1995) have also encouraged researchers to look into the capital structure of firms located in developing economies. On average, this literature reports the fact that in advanced economies, firms tend to rely on more debt. For example, it is stated that "total liabilities to total assets has a median of 0.41 for Egypt while the world median is 0.57" (Love, 2005).

In addition to the papers that examine the determinants of capital structure, some researchers examine the difference in the debt to equity ratio of firms that operate in different economies. In other words, this line of research examines whether the differences are due to country-specific factors or firm-specific factors. Some of these papers are published by Daskalakis and Psillaki (2007), De Jong et al. (2008), Joeveer (2013), Acedo-Ramirez and Ruiz-Cabestre (2014), and Turk (2015). For example, following his examination of the capital structure of firms in 99 Eastern European countries, it is stated that "country-specific factors are the main determinants of variation in leverage for small unlisted companies, while firm-specific factors explain most of the variation in leverage for listed and large unlisted companies" (Joeveer, 2013).

As far as the capital structure of listed Arab firms is concerned, there has been some, albeit relatively limited, research effort. For example, Al-Qaisi and Shubita (2013) examine the capital structure of 15 listed Palestinian during the period 2003-2007. In this paper they report a mean value of leverage (total liabilities to total assets) equal to 31 percent. Similarly, based on the time period 2000-2010, and a panel of 93 firms, Alzomaia (2014) finds that the mean leverage ratio of these firms is equal to 34 percent. Finally, other listed Arab firms have also been examined. These include listed Jordanian, Kuwaiti, Omani, and Saudi Arabian firms (Omet and Mashharawe, 2003), Jordanian firms (Omet, 2006), Omani firms (Fernandez et al., 2013), and Tunisian firms (Ghazouani, 2013).

Notwithstanding the fact that the capital structure of firms is important, it would be interesting to apply this research issue (capital structure) to two sets of firms that operate under different circumstances. These are listed non-financial firms on the Saudi Stock Exchange (SSE) and the Palestinian Securities Market (PSM). Indeed, these two sets of firms could not be more apart in their respective local environments.

First, the populations of Saudi Arabia and the West Bank and Gaza are about 29 million and 4.2 million respectively.

Second, the 2013 Gross Domestic Product (GDP) of Saudi Arabia is equivalent to $748 billion and this is much greater than that of the West Bank and Gaza's GDP ($11.3 billion).

Third, the GDP per capita (purchasing power parity) in international dollars is around 55,000 in Saudi Arabia and 5,000 in the West Bank and Gaza. Fourth, the 2014 market capitalization of the SSE and the PSM are equal to $483 billion and $3.1 billion respectively. Finally, one cannot really underestimate the difference between the two sets of firms' political circumstances.

Relative to the above brief account of the literature, this paper has three objectives and these are: (1) Document the leverage ratios of listed Saudi and Palestine non-financial firms. (2) Examine the determinants of the leverage ratios of listed Saudi and Palestinian non-financial firms. (3) Determine whether the differences in the determinants of the leverage ratios between the Saudi and Palestinian firms are due to firms-specific factors or country-specific difference.

The rest of the paper is organized as follows. Section 2 provides information about the SSE and PSM. In section 3, the data and the used methodology are outlined. In addition, the results are reported and commented on. Finally, the last section summarizes and concludes the paper.

2. THE SAUDI AND PALESTINIAN MARKETS: SOME BASIC INFORMATION

The SSE and PSE were established in 1984 and 1997 respectively. In both of these markets, investors get their orders executed by the order-driven system. The markets have no specialists to provide immediacy in trading. Investors must get their orders executed through brokers, and in common with other similar markets, orders are prioritized (for execution) according to price and then time.

We report in Tables 1 and 2 some information about the SSE and PSE. As expected, the Saudi capital market is much larger than the Palestinian market in terms of, for example, number of listed firms (Table 1), and market capitalization (Table 2).

It is also interesting to note that while the turnover ratio (trading volume to market capitalization) in the SSE is much higher than in the PSE, both markets experienced significant falls during the period 2005-2010. However, since then, the SSE has recovered. In actual fact, it has increased from 12.9 percent in 2010 to 27.1 percent in 2014 (Table 2).

Table 1: Number of Listed Firms

Year	No. of Listed Firms (Saudi Market)	No. of Listed Firms (Palestinian Market)
2005	77	28
2010	146	40
2014	166	49

Source: Arab Monetary Fund, Capital Markets Bulletins.

Table 1: Relative Size of Stock Markets ($- Million)

	The Saudi Market		The Palestinian Market	
Year	Capitalization	Turnover Ratio	Capitalization	Turnover Ratio
2005	646,120.8	0.612	3,157.2	0.184
2010	353,400.0	0.129	2,449.0	0.048
2014	482,896.5	0.271	3,190.6	0.024

Source: Arab Monetary Fund, Capital Markets Bulletins.

In addition to the above, we report in Table 3 the market capitalization to GDP ratio for a number of markets. Clearly, one can see that the Tunisian and Egyptian markets are the only ones comparable in size to the PSE. Moreover, one can state that while the SSE is smaller than the Jordanian market, it is much smaller than the UK, Malaysian, Chilean, and Swedish markets.

Table 3 reveals one further interesting observation. The reported figures reveal that while the markets in the UK, Sweden, Turkey, Korea, Indonesia, and Chile have recovered from the 2008 global financial crisis, the Saudi, Palestinian, and most other Arab markets have not recovered. There is no doubt that the 2011 onslaught of the "Arab Spring" is one of the reasons behind the inability of these markets to recover.

Table 3: Capitalization to GDP Ratio

Arab Markets:	**2005**	**2008**	**2010**	**2012**
UAE	64	22	27	18
Egypt	89	53	38	22
Jordan	299	163	117	87
Lebanon	23	33	33	24
Qatar	196	66	99	66
S. Arabia	197	47	67	51
Tunisia	9	14	24	20
W. Bank & Gaza	92	32	27	23
Other Markets:				
Brazil	54	36	72	55
Chile	110	74	157	118
China	35	62	80	45
UK	127	66	129	115
Indonesia	28	19	51	45
Korea	80	49	100	97
Malaysia	126	81	166	156
Sweden	104	49	119	103
Turkey	33	16	42	39

Source: World Bank Database.

Finally, we report in Table 4 the market capitalization of each market relative to the capitalization of all Arab markets. The reported proportions reveal the fact that the Saudi market remains dominant. Indeed, in 2014, it accounted for about 40 percent of the capitalization of all Arab markets. The PSE, on the other hand, is larger than only the Algerian and Sudanese markets.

Table 4: Relative Size (Market Capitalization) of Arab Stock Markets

Market	**2005**	**2014**
Abu Dhabi Securities Market	10.3	9.4
Amman Securities Market	2.9	2.1
Bahrain Stock Exchange	1.3	1.8
Saudi Stock Market	50.1	40.1
Kuwait Stock Exchange	9.6	8.3
Casablanca Stock Exchange	2.1	4.4
Algeria Stock Exchange	0.0	0.01
Tunis Stock Exchange	0.2	0.77
Dubai Financial Market	8.7	7.3
Khartoum Stock Exchange	0.3	0.07
Palestine Stock Exchange	0.3	0.16
Muscat Securities Market	0.9	3.2
Doha Securities Market	6.8	15.4
Beirut Stock Exchange	0.4	0.93
Cairo & Alexandria Exchanges	6.2	5.8
Total	**100**	**100**

Source: Arab Monetary Fund, Capital Markets Bulletins.

3. THE DATA, METHODOLOGY AND ESTIMATED RESULTS

The statistical analysis is based on a total of 55 listed Saudi companies and 18 listed Palestinian companies. The time period used is 2006-2012. The fact that the total numbers of listed non-financial Saudi and Palestinian firms are 100 and 24 firms respectively, it can be argued that the our sets of data represent both markets well. In addition, and based on the data which is available, the researchers estimate the following model for both sets of data:

$$LEVERAGE_{i,t} = \alpha_0 + \beta_1 SIZE_{i,t} + \beta_2 ROA_{i,t} + \beta_3 TANGIBILITY_{i,t} + \beta_4 GROWTHOPP_{i,t} + \varepsilon_{i,t} \quad (1)$$

The dependent variable (leverage) is measured by dividing total liabilities by total assets.

The independent variables are SIZE (natural logarithm of sales), ROA (return on assets), TANGIBILITY (book value of fixed assets to total assets), and GROWTHOPP (market value of equity to book value of equity). $\varepsilon i,t$ = the error term.

In Tables 5 and 6, we report basic statistical information. The mean values of leverage are equal to 35.2 percent (Saudi firms) and 33.7 percent (Palestinian firms).

Whilst these ratios are lower than firms which operate in advanced economies (around 50 percent), it is useful to mention the fact that most of the Saudi and Palestinian firms do

not borrow on a long-term basis. In actual fact, the mean long-term leverage ratio (long-term debt to total assets) becomes less than 8 percent in both markets. Again, this is lower than that which exists in advanced economies (around 20 percent).

Table 5: Leverage Ratios: Saudi and Palestinian Firms

Measure	Listed Saudi Firms	Listed Palestinian Firms
Mean	0.352	0.337
Median	0.343	0.260
Maximum	0.814	0.834
Minimum	0.008	0.022
Std. Deviation	0.254	0.321

Table 6: Independent Variables: Saudi and Palestinian Companies

	SIZE	ROA	TANGIBILITY	GROWTHOPP
Saudi Arabian Listed Firms				
Mean	8.872	0.059	0.895	3.452
Median	8.978	0.048	0.836	3.057
Std. Deviation	0.645	0.084	0.186	1.235
Palestinian Listed Firms				
Mean	7.330	0.026	0634	1.823
Median	7.140	0.021	0.680	1.590
Std. Deviation	0.746	0.094	0.234	1.766

The similarity in the leverage ratios is probably surprising. The Palestinian firms, undoubtedly, operate under exceptionally difficult political, and perhaps economical, circumstances. In other words, one would have expected them to have lower leverage ratios than their Saudi counterparts. However, it is also worth noting that the standard deviation of the Palestinian leverage ratios is higher than in Saudi Arabian ratios.

As expected, the size of the average Saudi firm is larger than the Palestinian firm (Table 6). The mean natural logarithm of total assets is equal to 8.872 for the Saudi firms and 7.330 for the Palestinian firms. This observation would not surprise anybody given the much larger size of the Saudi economy. Similarly, the accounting performance (ROA) of the Saudi firms is superior. For these (Saudi) firms, it is equal to 5.9 percent. Again, this is expected. The asset structure of the Saudi firms reflects the greater proportion of fixed assets. This indicates that the Saudi listed firms rely more on fixed (real) assets in producing the goods and services they produce. Finally, with a mean market to book ratio of 3.452 (Saudi firms) and 1.823 (Palestinian firms), one can relate this difference to the superior performance of the Saudi firms.

In Table 7, we report the estimation results of model (1) for each set of firms. The reported results indicate the followings.

(1) The coefficient of firm size (SIZE) is significant in the Saudi and Palestinian firms. These results support the trade-off theory which argues that because larger firms tend to be

more diversified, they have a lower probability to experience financial distress, and hence have, on average, higher levels of debt.

Table 7: Separate Estimation Results

	Saudi Firms	Palestinian Firms
Constant	-0.315 (-3.345*)	-0.429 (-1.213)
SIZE	0.075 (5.032*)	0.158 (2.976*)
ROA	-0.412 (-4.125*)	-0.419 (-2.578**)
TANGIBILITY	-0.024 (-1.462)	0.197 (2.356*)
GROWTHOPP	0.041 (7.414*)	-0.018 (-1.895**)
Adjusted R^2	0.525	0.498
Durbin-Watson Statistic	1.732	1.923
F-Statistic Prob.	35.872 (0.000)	15.670 (0.000)

Method: Pooled EGLS (Period SUR). Cross-section weights (PCSE) SE and covariance (d.f. corrected). *, **, and *** indicate significance at the 99, 95, and 90 percent confidence levels.

(2) The sign of the coefficient of accounting performance (ROA) is negative and significant in the Saudi and Palestinian firms. This sign signifies that firms which earn greater levels of income tend to rely less on debt. Based on the pecking order theory, it is known that firms prefer to depend on internal funds before they seek external sources, and if internal funds are not sufficient, they prefer to issue debt because the cost of issuing new equity is higher (Myers and Majluf, 1984). In other words, these findings support the pecking order theory.

(3) The coefficient of asset structure (TANGIBILITY) is positive and significant in the Palestinian case only. The Palestinian firms operate under more difficult political and economic circumstances, and hence are expected to face greater levels of risk. This risk is probably mitigated by the collateral of the fixed assets.

(4) The impact of the market-to-book ratio on leverage is significant in both the Saudi and Palestinian cases. However, the signs are different. The Saudi result supports the agency theory. In more specific terms, Jensen (1986) argues that the shareholders of firms with higher levels of growth opportunities force managers to obtain more debt knowing that higher levels of debt can act as a disciplining device that mitigates agency costs. The Palestinian result is consistent with the trade-off theory. Firms with higher future growth opportunities tend to maintain lower debt levels to mitigate the under-investment problems when future opportunities arise (Myers, 1977).

The above-reported results clearly reflect some similarities and differences in the determinants of capital structure.

To examine the differences in depth, we rely on the methodology used by Daskalakis and Psillaki (2007). We pool the data for both sets of firms and estimate a panel which restricts the coefficients of the determinants of capital structure to be the same. Following this exercise (estimation), we calculate the value of the F-statistic as follows:

F = [(RSSALL – RSSSAU – RSSPAL) / k] / [(RSSSAU + RSSPAL) / (n – 2k)]

where,

RSSALL = Residual Sum of Squares for the restricted model that includes all firms.

RSSSAU = Residual Sum of Squares for the model that includes Saudi firms only.

RSSPAL = Residual Sum of Squares for the model that includes Palestinian firms only.

n = number of observations.

k = number of variables.

The results of pooling the data for both sets of firms are reported in Table 8. The fact that the computed F-statistic is equal to 3.529 and statistically significant, we conclude that there are differences in the structure of the relationship between leverage and its determinants across the Saudi and Palestinian sample of firms.

Table 8: Aggregate Estimation Results

Variables	Coefficients
Constant	-0.415 (-4.14*)
SIZE	0.096 (4.365*)
ROA	-0.362 (-3.274*)
TANGIBILITY	-0.158 (-2.118*)
GROWTHOPP	0.018 (4.005*)
Adjusted R^2	0.508
Durbin-Watson Statistic	1.922
F-Statistic Prob.	38.359 (0.000)

Method: Pooled EGLS (Period SUR). Cross-section weights

The differences in the structure of the relationship between leverage and its determinants can be due to the differential effects of firm-level differences or country-level differences.

To examine this issue, we re-estimate the panel model (1) by controlling for the presence of fixed effects in the capital structure relationship. The estimated results for both sets of firms and the combined set of firms are reported in Tables 9 and 10 respectively.

Based on the above results, and after controlling for firm-specific effects, there is a difference in the magnitude of the relationship between the impact of the independent

variables and leverage. Indeed, with a computed F-statistics equal to 6.454, we conclude that once firm heterogeneity is accounted for, there appears to be some significant differences in the determinants of the capital structure choice between the two countries. In other words, the differences in the capital structure determinants between Saudi and Palestinian firms are due to country-specific factors rather than firm-specific factors. This finding should not be surprising given the difference in political and economic circumstances of the two countries.

Table 9: Separate Estimation Results: Saudi and Palestinian Companies

	Saudi Results	**Palestinian Results**
SIZE	0.053 (7.055*)	0.033 (3.274*)
ROA	-0.509 (-5.321*)	-0.327 (-2.582*)
TANGIBILITY	0.047 (0.734)	0.128 (2.031**)
GROWTHOPP	0.039 (2.891*)	-0.010 (-1.739***)
Adjusted R^2	0.428	0.490
Durbin-Watson Stat.	1.808	1.659
F-Statistics Prob.	66.514 (0.000)	27.560 (0.000)

Method: Pooled EGLS (Period SUR). Cross-section weights (PCSE) SE and covariance (d.f. corrected).

Table 10: Aggregate Estimation Results

Variables	**Coefficient**
SIZE	0.046 (9.551*)
ROA	-0.437 (-5.468*)
TANGIBILITY	0.071 (1.207)
GROWTHOPP	0.009 (1.329)
Adjusted R^2	0.370
Durbin-Watson Statistic	1.950
F-Statistic Prob.	54.634 (0.000)

Method: Pooled EGLS (Period SUR) with fixed effects. Cross-section weights (PCSE) SE and covariance (d.f. corrected).

4. SUMMARY AND CONCLUSIONS

The capital structure of listed and non-listed firms has always been an important issue that leads to the publication of research papers. As mentioned previously, this interest is based on the fact that the leverage ratios of firms affect their cost of financing their assets.

This paper examined the capital structure of listed non-financial firms Saudi and Palestinian firms. Based on the results, a number of conclusions can be made. First, the leverage ratios of both Saudi and Palestinian firms are low. Second, most of the known determinants of capital structure are found significant in both sets of firms; the Saudi and Palestinian. Third, the differences in the sign and magnitudes of the coefficients are due to country-level differences and not firm-level differences.

Based on these results, a number of recommendations can be suggested. **(1)** What is the reason behind the low leverage ratios of the Saudi and Palestinian firms? Are these low ratios due to firm management or bank management? **(2)** It is worth considering the impact of other variables on capital structure. For example, future research can look at the impact of "corporate governance" on the capital structure choice. In addition, the impact of stock liquidity on capital structure would be worthwhile pursuing.

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