The Determinants of Capital Structure: Palestinian Case

(2003 – 2007)

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Abstract
The issue of the capital structure of firms in both the developed and developing worlds has attracted a large number of theoretical and empirical papers. This interest is expected given the fact that the debt to equity ratio affects the cost and availability of financing funds. In addition, due to the argument that information asymmetry might be more pervasive in developing countries, a growing number of empirical papers examine the determinants of capital structure of firms that are listed on emerging stock markets. This paper extends the capital structure issue to the listed Palestinian firms. Indeed, these firms have not had their fair share in the research literature. Moreover, it is common knowledge that Palestinian listed firms operate under severe political and economic circumstances. In other words, it would be interesting to report the capital structure (and its determinants) of firms which operate under unstable political and economic circumstances and compare the results with the available literature. Based on the time period 2003 – 2007, the empirical results indicate that listed Palestinian firms have low leverage ratios. In addition, the results show that long-term debt is literally non-existent. Finally, the Seemingly-Unrelated Regression (SUR) estimation results indicate that while some of the well-known determinants of capital structure (firm size and firm profitability) are applicable to the Palestinian case.

Keywords: Capital Structure; Palestinian Firms, Tangibility; Firm Size; Seemingly-Unrelated Regression.
I. Introduction

Following the classical arguments by Schumpeter (1934) and Robinson (1952), a large number of theoretical and empirical papers have examined the role of financial development in economic growth and development\(^8\). Based on this literature, one can state that the role of finance in economic growth has become a stylized fact.

Notwithstanding the economic importance of stock markets, it is common knowledge that most, if not all Arab countries boast the existence of corporations listed on their respective stock exchanges. For example, the Amman Securities Market (ASM), Bahrain Stock Exchange (BSE), Doha (Qatar) Securities Market (DSM), Palestinian Securities Exchange (PSE), Saudi Stock Market (SSM), and the Tunis stock Exchange (TSE) were established in 1978, 1989, 1995, 1997, 1984 and 1994 respectively. Moreover, since their establishment, these markets have become relatively large. For example, in 2007 the market capitalization to GDP for Bahrain, Jordan, Palestine, Qatar, Saudi Arabia, and Tunisia were equal to 155 percent, 260 percent, 51 percent, 130 percent, 136 percent, and 15 percent respectively\(^9\).

Listed companies have been the subject of some intense research activities. Some of the issues which have attracted a lot of research attention include the determinants of their performance (return on assets, investment, and employment growth), capital structure and dividend policy, and others like the practice of corporate finance.

As far as the capital structure of listed firms is concerned, the publication of Modigliani and Miller’s (1958) seminal paper in which it is illustrated, under a number of restrictive assumptions\(^10\), that the value of a company is independent from its financial structure, encouraged

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\(^8\)For good surveys of the financial development and economic growth literature, see Levine (2004), FitzGerald (2006), Papaioannou (2007) and Ang (2008). For a recent paper which examines the impact of financial development on economic growth in the MENA region, see, for example, Ben Naceur and Ghazouani (2007). It is useful to note that two books (edited) about financial development have recently been published by Mavrotas (2008) and Guha-Khasnobis and Mavrotas (2008).

\(^9\)With the exception of the Tunisian ratio, these ratios compare favourably with the 157 percent for the USA, 139 percent for the UK, 165 percent for Japan, 137 percent for India, 150 percent for Malaysia, and the 91 percent for Korea (Purfield et al., 2006).

\(^10\)The absence of taxes and transaction costs, the presence of symmetrical information and homogenous expectations, and investors can borrow and lend at the same rate.
financial economists to come up with conditions under which an optimal capital structure would matter.

The paper published by Modigliani and Miller (1958) led to the formulation of a number of theories based on tax considerations, bankruptcy costs, agency costs, and symmetric information issues\(^{11}\). However, none of these theories provide us with an exact formula for calculating an “optimal” financing policy. In actual fact, what we have is numerous papers which examine the determinants of the capital structure choice of companies.

Whilst it is probably impossible to review this literature, some of the main papers which examine the capital structure of firms operating in the USA, Europe and other advanced countries include Titman and Wessels (1988), Harris and Raviv (1991), Rajan and Zingales (1995), Demirguc – Kunt and Maksimovic (1996), Bevan and Danbolt (2000), Desai et al. (2003), Altschuler and Grubert (2003), Mintz and Weichenrieder (2004), Voulgaris et al. (2004), Daskalakis and Psillaki (2007), Huizinga et al. (2007), Mefteh and Oliver (2007), Feidakis and Rovolis (2007), Antoniou et al. (2006 and 2008), Beck et al. (2008), and many others.


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\(^{11}\) A survey of capital structure theories is published by Harris and Raviv (1991).

\(^{12}\) This interest is based on several reasons (Prasad et al. 2001). First, many listed firms were originally state enterprises. Second, capital markets are less developed and provide narrower range of financial instruments. Finally, the problem of information asymmetry is more pervasive in developing countries and this is due to the lax accounting and auditing standards.

\(^{13}\) Leverage in Egypt is lower than in most other countries in the sample (which did not include any other Middle Eastern countries). The ratio of “total liabilities to total assets have a median of 0.51 for Egypt while the world median is 0.57” (Love, 2005).
As far as Arab stock markets are concerned, based on the time period 1996 – 2001, Omet and Mashharawe (2003) examined the capital structure choice of listed non-financial firms in Jordan, Kuwait, Oman and Saudi Arabia. The results indicate that these companies have low leverage ratios and extremely low long term debt in their respective capital structures\(^{14}\). In addition, Omet (2006) report that the ownership structure of listed Jordanian firms has no significant impact on their leverage. Finally, the capital structure of listed Jordanian firms is examined by Al-Najjar and Taylor (2008 and Zeitun and Tian (2008) and their results document that these firms mostly rely on short-term financing.

Against the above background, the primary objective of this paper is to examine the capital structure of firms listed on the PSE. In more specific terms, this paper addresses three main questions:

1. What is the capital structure choice of firms in Palestine?
2. How does the capital structure of Palestinian firms compare with firms that operate in, for example, Europe?
3. Are the capital structure determinants of Palestinian firms similar to those which operate in other countries similar?

The rest of the paper is organized as follows. In section II, we provide some basic information about all Arab stock markets. Section III presents the data and methodology. Finally, in sections IV and V we present and discuss the empirical results and conclude the paper respectively.

**II. Arab Stock Market: Some Basic Information**

Realizing the economic importance of securities markets, most of the Arab countries boast the existence of firms listed on their respective stock exchanges. We report in Table 1 some

\(^{14}\) For example, the mean annual ratio of long term debt to total assets is equal to 5.4 percent, 8 percent, 12.8 percent and 9 percent in Jordanian, Kuwaiti, Omani and Saudi Arabian non-financial companies respectively.
descriptive information about all Arab markets. Based on the reported figures, we can make the following observations.

First, while Egypt boasts the largest number of listed companies (435), it is the Saudi market which has the largest market capitalization ($519 billion).

Second, the Jordanian market is the largest relative to the size of the national economy (260 percent).

Table 1
Arab Stock Market: Some Basic Information
2007

<table>
<thead>
<tr>
<th>Market</th>
<th>No. of Listed Firms</th>
<th>Capitalization($ billion)</th>
<th>Capitalization / GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bahrain</td>
<td>51</td>
<td>27.0</td>
<td>155.3%</td>
</tr>
<tr>
<td>Egypt</td>
<td>435</td>
<td>93.5</td>
<td>108.5%</td>
</tr>
<tr>
<td>Jordan</td>
<td>245</td>
<td>41.2</td>
<td>260.4%</td>
</tr>
<tr>
<td>Sudan</td>
<td>52</td>
<td>4.9</td>
<td>10.7%</td>
</tr>
<tr>
<td>Kuwait</td>
<td>196</td>
<td>135.4</td>
<td>121.4%</td>
</tr>
<tr>
<td>Lebanon</td>
<td>15</td>
<td>10.9</td>
<td>44.2%</td>
</tr>
<tr>
<td>Morocco</td>
<td>73</td>
<td>75.5</td>
<td>100.5%</td>
</tr>
<tr>
<td>Oman</td>
<td>125</td>
<td>23.1</td>
<td>57.2%</td>
</tr>
<tr>
<td>Palestine</td>
<td>35</td>
<td>2.5</td>
<td>51.3%</td>
</tr>
<tr>
<td>Qatar</td>
<td>40</td>
<td>95.5</td>
<td>130.4%</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>111</td>
<td>518.9</td>
<td>135.9%</td>
</tr>
<tr>
<td>Tunisia</td>
<td>51</td>
<td>5.3</td>
<td>15.2%</td>
</tr>
<tr>
<td>UAE</td>
<td>119</td>
<td>259.3</td>
<td>136.3%</td>
</tr>
</tbody>
</table>

Source: Arab Monetary Fund and Own Calculations.

Having stated these observations, it is important to note that, like many other emerging stock markets, the Arab stock markets are highly concentrated in terms of market capitalization and trading volume. For example, the largest 10 companies in the Palestinian market account for about 86 percent and 95 percent of the capitalization and trading volume of the whole market respectively. Similarly, the largest 10 listed firms on the Jordanian capital market (ASM) account for about 68 percent of the total market capitalization and 48 percent of the total market trading volume (Table 2).
III. The Data, Methodology and Empirical Results

All listed non-financial companies are considered for inclusion in our samples (2003-2007). However, depending on the availability of all the relevant data, our sample of firms consists of a total of 15 listed non-financial firms.

The selection of the variables (dependent and independent) is primarily guided by the results of the previous empirical studies and availability and suitability of the data. For example, we report two measures of leverage. The first and second measures divide total liabilities by total assets and long-term debt by total assets respectively.

As far as the independent variables are concerned, we rely on four determinants of capital structure and these are asset structure (fixed assets by total assets), firm profitability (return before taxes by total assets), firm size (logarithm of total assets), and firm growth (market capitalization by book value of equity).

According to the pecking order theory, firms prefer internal over external funds and if external funds are required, their first choice would be to issue debt. This behavior, it is argued, is due to the costs of issuing new equity brought about by the presence of asymmetric information or transaction costs (Myers and Majluf, 1984). In other words, this theory predicts a negative relationship between firm profitability and leverage. However, due to the tax deductibility of interest payments, it is argued that highly profitable companies tend to have high levels of debt (Modigliani and Miller, 1963).

Larger firms tend to be more diversified and less prone to bankruptcy (Rajan and Zingales, 1995). They are also expected to incur lower costs in issuing debt or equity. Moreover, large firms tend to be older firms and this suggests that the moral hazard problems associated with debt are less severe. These factors should make it easier for larger firms to obtain debt at more
favorable terms than small firms\textsuperscript{15}. Thus, large firms are expected to hold more debt in their capital structures than small firms.

It is argued that firms with more tangible assets should have the greater ability to secure debt financing. In other words, leverage is positively associated with liquidation value (Harris and Raviv, 1990). Consequently, the collateral value of fixed assets can be used as collateral and thus ease and improve the terms of debt financing. It is also argued (Myers and Majluf, 1984) that greater levels of asset tangibility should provide firms with easier access to long-term debt financing since a number of agency costs like asset substitution or debt overhang can be mitigated by the use of short-term debt or convertible debt.

According to the pecking order theory, higher growth opportunities imply higher demand for investment funds and, ceteris paribus, a greater preference for external financing. Therefore, a positive relationship between growth and leverage is expected. Due to agency costs, however, firms investing in assets that may generate higher growth opportunities in the future face difficulties in borrowing against such assets (Myers, 1977). This argument suggests a negative relationship between firm growth and leverage.

Based on the above, we first estimate the following model:

\[
\text{Leverage}_{i,t} = \alpha_0 + \beta_1 \text{SIZE}_{i,t} + \beta_2 \text{PROFIT}_{i,t} + \beta_3 \text{TANG}_{i,t} + \beta_4 \text{GROWTH}_{i,t} + \epsilon_{i,t} \tag{1}
\]

Where:

\[\text{LEVERAGE} = \frac{\text{Total liabilities}}{\text{total assets}}.\]
\[\text{SIZE} = \text{Natural logarithm of sales or total assets.}\]
\[\text{PROFIT} = \text{Profitability (ROA)}\]
\[\text{TANG} = \frac{\text{Book value of fixed assets}}{\text{total assets}}.\]
\[\text{GROWTH} = \frac{\text{Market value of equity}}{\text{book value of equity}}.\]
\[\epsilon = \text{the error term.}\]

The estimation method that we use is Period Seemingly Unrelated Regression (SUR) – Pooled Estimated Generalized Least Squares (EGLS). This method corrects for both arbitrary period serial correlation and period heteroskedasticity between the residuals for a given cross-section. In estimating this specification (Period SUR), the method uses residuals obtained from first stage estimates to form an estimate of the error covariance matrix. In the second stage, a feasible GLS

\textsuperscript{15} It is interesting to note that Rajan and Zingales (1995) argue that large firms suffer less from information asymmetry and this makes it easier for them to issue equity at favorable terms. In other words, it can be argued that effect of company size on leverage is ambiguous.
specification is estimated. The standard error and covariances are calculated with (panel-corrected) cross section weights (PCSE) to obtain robust estimate of the cross-section residual (contemporaneous) covariance matrix.\footnote{Estimating the panel regression with lagged values of the dependent variables resulted in very similar results. In other words, the reported results are not likely to suffer from serious simultaneity bias problems.}

In Table 3 we report some descriptive statistics about both measures of leverage. The mean value of total liabilities divided by total assets in our sample of firms is equal to 31.8 percent. This ratio is much lower than those reported for firms (Muradoglu and Onay, 2008) in, for example, Cyprus (51 percent), Poland (45 percent), Finland (54 percent), Ireland (53 percent), Spain (58 percent), UK (53 percent), and Slovakia (50 percent). Similarly, we can state that the median value of 25 is much lower than the 51 in Egypt, 58 in Turkey, and the 57 in the world (Love, 2005).

What is also interesting is the fact that our sample of firms has extremely low levels of long-term debt (Table 4). This value is equal to 7.18 percent. Again, this ratio is much lower than those reported (Muradoglu and Onay, 2008) for Cyprus (19.5 percent), Poland (13.0 percent), Finland (22.1 percent), Ireland (23.4 percent), Spain (24.6 percent), UK (17.0 percent), and Slovakia (17.3 percent).

### Table 3
**Leverage Ratios: Some Basic Information**

<table>
<thead>
<tr>
<th>Country &amp; Measure</th>
<th>Mean</th>
<th>Median</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Palestine Total Liabilities / Total Assets</td>
<td>0.3181</td>
<td>0.2567</td>
<td>0.2215</td>
</tr>
<tr>
<td>Palestine Long-Term Debt / Total Assets</td>
<td>0.0718</td>
<td>0.0130</td>
<td>0.1186</td>
</tr>
</tbody>
</table>

### Table 4
**Independent Variables: Descriptive Statistics**

<table>
<thead>
<tr>
<th>Country</th>
<th>SIZE</th>
<th>PROFIT</th>
<th>TANG</th>
<th>GROWTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>7.2178</td>
<td>0.0292</td>
<td>0.4668</td>
<td>1.6040</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>0.6187</td>
<td>1.1824</td>
<td>0.2211</td>
<td></td>
</tr>
</tbody>
</table>

SIZE is the natural logarithm of total assets; PROFIT is profit before tax divided by total assets; TANG is the ratio of fixed assets to total assets; and GROWTH stands for market to book value of equity.

### Table 5
**Econometric Results for All Markets**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Market</th>
<th>Coefficient</th>
<th>t-Statistic</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIZE</td>
<td>Palestine</td>
<td>0.0397</td>
<td>3.5964</td>
<td>0.0009</td>
</tr>
<tr>
<td>PROFIT</td>
<td>Palestine</td>
<td>-0.6643</td>
<td>-2.399</td>
<td>0.0070</td>
</tr>
<tr>
<td>TANG</td>
<td>Palestine</td>
<td>0.0139</td>
<td>0.0879</td>
<td>0.9303</td>
</tr>
<tr>
<td>GROWTH</td>
<td>Palestine</td>
<td>0.0272</td>
<td>1.5583</td>
<td>0.1268</td>
</tr>
<tr>
<td>R-Squared</td>
<td>F-Statistic</td>
<td>10.7132*</td>
<td>1.7348</td>
<td></td>
</tr>
<tr>
<td>D-W Statistic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
In Table 5, we report the estimation results of model (1). The reported results indicate that the effect of firm size (SIZE) on leverage is positive and significant. The result supports the trade-off theory which argues that if company size serves as an inverse proxy for the probability of bankruptcy since large firms tend to be more diversified and, thus less likely to fail; larger firms tend to find it easier to obtain debt finance. Similarly, the coefficient of firm profitability (PROFIT) is significant. This negative relationship between leverage and company profitability shows that firms which generate relatively high internal income, generally tend to avoid debt financing and this is consistent with the pecking order theory. In addition, the coefficient of asset tangibility (TANG) is not significant at conventional significance levels. In other words, the fact that the Palestinian firms operate under severe economic and political circumstances, it seems that banks do not consider collateral as a moderating factor of bankruptcy costs. Finally, the results indicate that the effect of market-to-book ratio on leverage is not significant. Under the pecking order theory, profitable firms have much retained earnings and therefore a smaller need for external finance. Similarly, if the market-to-book ratio is high, equity financing seems more attractive than issuing debt as equity prices are relatively high. In other words, the fact that firm growth prospects (GROWTH) is not significant in impacting leverage supports the pecking order theory.

V. A Summary and Conclusions

The issue of the financing choice of firms has kept its central position in the finance literature. This observation is due to the fact that the mix of funds (leverage ratio) affects the cost and availability of capital. In other words, if the capital structure choice of firms affects their investment behavior, it is worth examining the capital structure issue in terms of different environments.

Following the publication of numerous papers which examine the determinants of the capital structure of listed firms in advanced economies, a growing number of researchers have turned their attention to firms operating in the developing world. Indeed, this research effort is interesting for a number of reasons. For example, it is argued that capital markets in the developing world are relatively less developed and offer a narrower range of financial instruments, the problem of
information asymmetry is more pervasive in developing countries and this is due to the lax accounting and auditing standards, and many listed firms were originally state enterprises (Prasad et al., 2001).

This paper has examined the capital structure choice of non-financial firms listed on the Palestinian capital market. Based on the time period 2003 – 2007 and a panel of 15 Palestinian firms and some descriptive statistics, the results indicate that, on average, listed firms in Palestine have low leverage ratios and extremely low long-term leverage ratios. In addition, and based on the examination of the determinants of the capital structure, while the well – known determinants of the capital structure choice of firms are applicable to our sample of firms.

Based on the results of this paper, a number of questions and recommendations can be provided. First, why do Palestinian firms rely on low levels of leverage? Is this due to the fact that their managements do not want to get into long-term debt obligations? Is it due to banks’ management? Is it due to the companies themselves not being able to invest? Finally, is this due to the small and limited bonds market? The validity of these, and other reasons, must be examined and where possible, some remedial measures must be made. Second, the fact that most, if not all, Arab countries have established stock markets, it would be extremely interesting and informative to apply this type of research to include all of these markets.
References


