On the Ownership Structure, Changing Tax Regulation and the Capital Structure of Industrial Companies Listed on the Jordanian Capital Market

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ABSTRACT

It is common knowledge that the behaviour of corporations in the generation and allocation of scarce resources is of vital importance. This is why the issue of corporate governance has attracted a lot of research interest. Indeed, this literature examined many issues including the relationship between equity returns and some measures of corporate governance, firm value and the impact of corporate governance on firm performance. In addition, a number of additional papers examined the relationship between ownership structure and a number of financial decisions including capital structure, corporate performance and dividend policy.

The capital structure choice has been an issue long for a long time of great interest in the corporate finance literature. This interest is due to the fact that the mix of funds (leverage ratio), affects the cost and availability of capital and thus, firms' investment decisions. To date, much of the empirical research has been applied on companies listed on advanced stock markets, and this literature considered factors like company size, profitability, asset tangibility, firm growth prospects and ownership structure as possible determinants of the capital structure choice.

This paper examines the impact of the ownership structure of listed Jordanian industrial companies and the 1996 reduction in corporate tax rates on their capital structure choice. Based on a panel data methodology (1993-2003), the results indicate that the ownership structure of firms does not have any significant impact on capital structure. Similarly, the reduction in corporate taxes did not lead to a significant decrease in companies' reliance on debt.

JEL classification: G1, G18

Keywords: Jordanian Capital Market, Ownership Structure, Tax Shield, Capital Structure.

1. INTRODUCTION

It is a common knowledge that the behaviour of corporations in the generation and allocation of scarce resources is of vital importance. This is why the issue of corporate governance has gained unparalleled importance in different regions and countries.

The term "corporate governance" is given a myriad of definitions. For example, it is the "organizations and rules that affect expectations about the exercise of control of resources in firms" (World Bank development Report, 2002: 68). A more comprehensive definition states that "corporate governance deals with mechanisms by which stakeholders of a corporation exercise control over corporate insiders and management such that their interests are protected" (John and Senbet, 1998: 372). Similarly, it is proposed that "corporate governance issues arise in an organisation whenever two conditions are present. First, there is an agency problem or conflict of interest, involving members of the organisation – these might be owners, managers, workers or consumers. Second, transaction costs are such that this agency problem cannot be dealt with through a contract" (Hart, 1995: 678).

The above, and other definitions of corporate governance, share some common elements[1]. First, they all assume the existence of conflict of interest between insiders and outsiders, and emphasize those that arise from the separation of ownership and control over the partition of wealth generated by the company. Second, corporate governance problems cannot be completely

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resolved by contracts because of issues like uncertainty, information asymmetries and contracting costs in the relationship, between those who provide the capital and company insiders. Third, given that corporate governance problems exist, some mechanisms are needed to control and limit the resulting conflicts. Finally, the various definitions of corporate governance encompass not only the internal structure of the corporation but also its external environment.

While corporate governance as a public policy issue stems from the writings of Adam Smith (1776) and Berle and Means (1932), it rekindled a worldwide and growing research interest due to several reasons. These include the questioning of the efficiency of the prevailing governance mechanisms[2], the debate over the comparative corporate governance structures that exist in the American, German and Japanese models[3], the Asian financial crisis, and the recent corporate scandals in the United States (U.S.), the United Kingdom (U.K.), the Netherlands and other countries.

As implied above, good corporate governance consists of a set of mechanisms that assure finance suppliers an adequate return on their investment. Based on this observation, it is natural to specify the set of mechanisms that should govern companies. In other words, should the governance system be market-based (the US and UK) or control-based (Japan, continental Europe and emerging economies)? The market-based model relies on independent corporate boards, dispersed share ownership, transparent information disclosure, active take-over markets and others. The control-based system, on the other hand, emphasizes the values of insider corporate board, concentrated share ownership structure, limited disclosure, reliance on family finance and the banking system. Moreover, we can state that there exists two types of mechanisms that help resolving the potential problems between owners and managers, and between controlling shareholders and minority shareholders. The resolution of conflict between owners and managers relies on internal mechanisms such as ownership structure, executive compensation, board of directors, financial disclosure and others. The resolution of conflict between controlling shareholders and minority shareholders relies on external mechanisms such as the external take-over market, legal infrastructure, protection of minority shareholders, product market competition and others.

Based on the above brief discussion, one cannot be

surprised from the vast literature on corporate governance. Indeed, this literature examined many issues including the relationship between equity returns and some measures of corporate governance, corporate governance and firm value, and the impact of corporate governance on firm performance[4]. In addition to these studies, and the fact that the issue of corporate governance is multifaceted, a number of additional papers examined the relationship between ownership structure and a number of financial decisions including capital structure, corporate performance, equity returns and dividend policy. Some of these studies are discussed in the literature review section.

The fact that the number of studies that examine the capital choice in developing countries are limited, little is known about the financing activities of these firms. Indeed, as mentioned by Prasad et al. (2001), even the basic facts are by no means agreed upon. However, the empirical evidence points out to one general observation. Using data from a number of developing countries, the seminal studies of Singh and Hamid (1992) and Singh (1995) indicate that, in comparison with firms in OECD countries, firms in developing countries rely on a greater proportion of equity finance than debt finance. Similarly, this observation is supported by Booth et al. (2001).

It is widely recognized that the emergence of a dynamic private business sector is a critical ingredient in the process of economic growth and development. In this respect, a crucial issue is to examine and understand how firms in developing countries finance their activities. Indeed, the finance literature contains a large number of theoretical and empirical papers that examine the capital structure of corporations. However, most of the literature analyzes the capital structure of companies operating in developed economies. Given the fact that the Jordanian capital market (Amman Securities Exchange) is large[5], industrial companies' size is more than 50% of the market, and that little in known about the capital structure of listed industrial companies, it is useful to examine the capital structure choice of companies in Jordan. Moreover, this paper assumes additional importance in that the issue of the ownership structure of listed Jordanian companies, has not been examined in terms of either its measurements or its impact on the capital structure choice.

The purpose of this paper is to examine the relationship between debt, taxes and large shareholders (block-holders), for a sample of industrial companies

Table 1
The Jordanian Capital Market.

Year	Capitalization of the Market as a % of GDP	New Issues as a % of GDP
1978	37%	3%
1980	42%	5%
1984	46%	2%
1988	49%	1%
1992	65%	2%
1996	73%	4%
1998	79%	2%
1999	73%	1%
2000	59%	2%
2001	76%	1%
2002	80%	1%
2003	110%	2%

Source: Various ASM Annual Reports.

Table 2
Trading Activity on the Secondary Market.

Year	Trading Volume as a % of Market Capitalization	Trading in Ten Most Active Shares as a % of Market Trading Volume
1978	2%	75%
1980	8%	66%
1984	6%	56%
1988	12%	50%
1992	39%	48%
1996	7%	53%
1998	11%	68%
2000	9%	61%
2001	10%	65%
2002	15%	66%
2003	18%	64%

Source: Various ASM Annual Reports.

listed on the Jordanian capital market. This paper is motivated by two factors. First, as far as the researcher is aware, the issue of the impact of ownership structure and taxes on the capital structure of Jordanian firms has not been investigated. Second, the fact that in 1996 the government reduced corporate taxes from 55% to 25% provides us with a unique opportunity to investigate the impact of this changing tax regulation on the capital structure of listed firms. In other words, did this tax reduction lead companies to, as hypothesized by the trade-off theory, using more equity and less debt?

The rest of the paper is organised as follows. Section 2 provides an account of the Jordanian Capital Market.

The objective of this section is to introduce the capital market to the international audience. Section 3 provides a brief review of the determinants of capital structure. Section 4 contains a discussion of the data and methodology. Finally, sections 5 and 6 include a presentation and discussion of the results and a summary and conclusions, respectively.

2. THE JORDANIAN CAPITAL MARKET: SOME BASIC INFORMATION

Table (1) reports the ratios of market capitalization and size of new issues to GDP. When judged by the ratio of market capitalization to GDP, the increase from 37%

in 1978 to about 80% in 2002 and to 110% in 2003 indicates the importance of the market in the national economy. This ratio is indeed much higher than most of the existing Arab stock markets. Moreover, the sudden increase in the capitalization of the listed companies was due to the listing of some major companies like Jordan Telecom. Similarly, the size of new issues as a proportion of the national economy (GDP) signifies the importance of the market. In addition, it is worth noting that while the total number of listed companies was equal to 66 in 1978, this number increased to become 161 by the end of the year 2003.

The performance of the Amman Securities Exchange is less impressive, if we consider the market value of traded shares. Indeed, only 10 companies (in each year) accounted for a large proportion of the total trading volume. For example, during the time period 2001, 2002 and 2003, 10 companies (in each year) accounted for about 65% of the total annual trading volume (Table 2). Moreover, the fact that the market value of these companies' shares account for about 75% of the capitalization of all listed companies, we can state that the Jordanian stock exchange is highly concentrated in terms of both market value of companies and trading volume.

3.   THE   DETERMINANTS   OF   CAPITAL STRUCTURE: A LITERATURE REVIEW

Given the challenges that the Jordanian faces, the size of the Jordanian capital market and the size of its industrial companies, one can argue that this part of the Jordanian private business sector (listed industrial companies), is important in the process of economic growth and development. In this respect, a crucial issue is to examine and understand how firms in developing countries like Jordan finance their activities.

Modigliani and Miller's (1958) classic paper provided the motivation for the huge literature, concerning the behaviour of corporations' capital structure. The main proposition of this work (Modigliani and Miller, 1958) is that, under a number of assumptions, the value of a company is independent from its financial structure. This work led to the formulation of alternative theories such as the trade-off theory, the pecking order theory and the agency theory[6]. These theories point out a number of firm-specific factors that may affect the capital structure choice of firms. Moreover, these theories have been examined by many empirical studies. For example, the determinants of the capital choice of US companies is

examined by Taub (1975), Bradley et al. (1984), Titman and Wessels (1988), Harris and Raviv (1991), Rajan and Zingales (1995), Demirguc – Kunt and Maksimovic (1996), (Michaelas et al. 1999), Bevan and Danbolt (2000) and Booth et al. (2001). Similarly, firms operating in some European countries are examined by Lasfer (1999), Mira (2001) and Antoniou (2002).

Relative to the studies about companies in developed countries, there have been a limited number of empirical studies that used data from developing countries. For example, the capital structure choice of Malaysian, Mauritius, Zimbabwean, Hungarian and Portugese, Turkish and Chinese companies have been examined by Pandey (2001), Manos and Ah-Hen (2001), Mutenheri and Green (2002), Balla and Mateus (2002), Gonenc (2003) and Huang and Song (2002), respectively.

The common approach in most of the above-mentioned empirical studies has been to study the determinants of optimal leverage by examining the relationship between the observed leverage ratios and a set of explanatory variables using non-dynamic models. This approach has two shortcomings. First, the observed leverage ratios may not necessarily be optimal. As Myers (1977) pointed out, changes in capital structure are costly to implement. Hence, the observed leverage ratio at any point in time may substantially differ from its optimal level. Furthermore, Myers and Majluf (1984) suggest that the observed leverage ratio may differ from the optimal level predicted by the trade-off between the costs and benefits of debt. Second, the empirical analysis, being non-dynamic, is unable to shed any light on the nature of the dynamic aspect of the capital structure of firms. While Titman and Wessels (1988) and Harris and Raviv (1991) partially accounted for leverage adjustments, by taking the year-average of their independent variables, a more recent paper by Antoniou et al. (2002) examined the dynamic determinants of the capital structure of French, German and British companies by analysing panel data using a two-step system-GMM procedure.

The fact that the number of studies that examine the capital choice of each developing country is limited, little is known about the financing activities of firms operating in developing countries at large. Indeed, as mentioned by Prasad et al. (2001), even the basic facts are by no means agreed upon. However, the empirical evidence points out to one general observation. Using data from a number of developing countries, the seminal studies of Singh and Hamid (1992) and Singh (1995) indicate that, in

comparison with firms in OECD countries, firms in developing countries rely on a greater proportion of equity finance than debt finance. Similarly, this observation is supported by Booth et al. (2001). In addition, the capital structure issue in Jordan, Saudi Arabia, Oman and Kuwait was examined by Omet and Mashharawe (2003). Based on the time period 1996-2001, the results indicate that the Jordanian, Kuwaiti, Omani and Saudi Arabian companies have low leverage ratios and extremely low long term debt in their respective capital structures[7]. However, in this study, the issue if ownership structure and taxes were not investigated.

Relative to the subject matter of this paper, the empirical literature suggests a number of factors that may influence the financial structure of companies. As argued by Titman and Wessels (1988) and Harris and Raviv (1991), the choice of the underlying explanatory variables is fraught with difficulty. This is why different researchers have considered different key variables in their respective studies. However, most of the published studies considered company size, profitability, asset tangibility and firm growth prospects as possible determinants of the capital structure choice.

Company Size

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. Thus, large firms are expected to hold more debt in their capital structures than small firms. In addition, it is argued that smaller firms tend to have less long-term debt because of shareholder – lender conflict (Titman and Wessels, 1988; Michaelas et al. 1999). While most of the empirical evidence reports a positive relationship between company size and leverage (Kester, 1986; Lasfer, 1999; Rajan and Zingales, 1995; Barclay et al., 1995; Booth et al. 2001), some studies reveal a positive relation between size and the debt maturity structure of companies (Michaelas et al. 1999).

Profitability

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). However, Myers and Majluf (1984) argued that as a result of asymmetric information (pecking order hypothesis), companies prefer internal sources of finance. In other words, higher profitability companies tend to have lower debt levels and higher retained earnings. Relative to this theory, Kester (1986), Titman and Wessels (1988) and Michaeles et al. (1999) find leverage to be negatively related to the level of profitability.

Tangibility

The more tangible the assets of a firm are, the greater its ability to secure debt. Consequently, collateral value (fixed assets to total assets) is found to be a major determinant of the level of debt finance (Bradley et al., 1984; Rajan and Zingales, 1995; Kremp et al., 1999; Frank and Goyal, 2002). . However, Chittenden et al. (1996) conclude that the relationship between tangibility and leverage depends on the type of debt. While a positive relationship between tangibility and long term debt is found, a negative relationship between tangibility and short term debt is reported (Brealey and Myers' matching principle, 1996).

Growth Opportunities

Myers (1977) argued that due to information asymmetries, companies with high leverage ratios might have the tendency to undertake activities contrary to the interests of debt-holders (under-invest in economically profitable projects). Therefore, it can be argued that companies with growth opportunities (proxied by the ratio of the market value to the book value of total assets) tend to have low leverage ratios. The empirical evidence regarding the relationship between leverage and growth opportunities is, at best, mixed. While Titman and Wessels (1988), Chung (1993) and Barclay et al. (1995) find a negative relationship, Kester (1986) does not find any significant relationship.

In addition to the above factors, some researchers included the ownership structure of firms, as a possible determinant factor of capital structure. These include Friend and Lang (1988), McConnel and Servaes (1995) and Brailsford et al. (2000). The literature concerning the role of block shareholders (those who own a large proportion of a company's shares) strongly suggests that they have an incentive to monitor and influence management to protect their significant investments (Friend and Lang, 1988). In other words, block holders have the incentive and indeed the desire to watch over management, and make sure that they behave in accordance with shareholders' interests. This monitoring hypothesis should result in lower agency conflicts

between management, and shareholders (Shleifer and Vishny, 1986). Moreover, Bethel et al. (1998) find that the long-term performance of firms improves following the acquisition of a "large" proportion of the shares by active shareholders. Based on this, it can be argued that if "blockholders serve as active monitors and closely monitor the actions of corporate managers, management may not be able to adjust the debt ratio to their own interests as freely if such investors do not exist…In addition, as the share ownership of external blockholders increase, their voting power and influence increase, giving them greater ability to control the actions of managers. As corporate debt acts as an internal control on management it is proposed here that corporate debt ratios are likely to be an increasing function of the level of share ownership of external blockholders" (Brailsford et al. 2000: 4). In other words, it can be hypothesised that firms with a higher level of blockholders are likely to have a higher debt ratio, ceteris paribus. Similarly, based on the trade off theory, it can be argued that as the firm matures, it debt capacity increases and this implies a positive impact of age on leverage. However, it can also be argued that as the firm matures, it reputation improves and hence its access to capital markets improves also. In other words, according to pecking order considerations, a negative relationship between leverage and firm age is expected.

Finally, the effective tax rate has been used as a possible determinant of the capital structure choice. According to Modigliani and Miller (1958), as interest payments on debt are tax-deductible, firms with enough taxable income have an incentive to issue more debt. Consequently, tax theories suggest that firms' leverage increases with an increase in the corporate tax rate. This result is difficult to test since, at any point in time, all firms face the same statutory tax rate. However, leverage decisions are not based on the statutory tax rate, but rather on the marginal effective tax rate. The marginal effective tax rate, which is the present value of future tax payments arising from an additional taxable income per year, varies across firms. Moreover, in a recent paper, (Desai et al. 2003) examined the capital structure of foreign affiliates of U.S. multinational firms. "The use of confidential affiliate-level data makes it possible to distinguish the behaviour of foreign affiliates of the same parent companies operating in markets with differing tax rates and capital market regimes, and to differentiate the determinants of internal and external borrowing. As a

result, it is possible to obtain clean estimates of the impact of taxation and local capital market conditions while implicitly controlling for considerations that are common to all affiliates of the same company" (Desai et al., 2003: 1). Based on a sample of 3,700 U.S. multinational companies, Desai et al. conclude that a 10 percent higher local tax rates are associated with about 2.8 percent higher dent/asset ratios and that borrowing from related parties is particularly sensitive to tax rates.

4. THE DATA AND METHODOLOGY

All listed industrial companies are considered for inclusion in our sample of companies. However, depending on the availability of the data, our final sample of companies consists of 39 companies. Although the number of companies is not high, the fact that this sample accounts for about 60 percent of all listed industrial companies and includes the largest companies, we can argue that our sample should not be considered as a shortcoming of the study since the analysis will be based on the most representative sample possible.

The selection of the variables (dependent and independent) is primarily guided by the results of the previous empirical studies and the availability of data. For example, we use two measures of leverage. The first measure of leverage divides total liabilities by total assets. The second measure divides long-term debt by total assets. Similarly, the (control) explanatory variables that could be collected are measures of company size, profitability, tangibility and growth prospects.

As a result, the analysis will rely on the following variables.

Leverage (1) = Total liabilities / Total assets.

Leverage (2) = Long-term debt / Total assets.

Size = Natural logarithm of sales.

Profitability = Earnings before interest and tax to book value of total assets.

Tangibility = Book value of fixed assets to total assets

Growth Prospects = Market value of equity to the book value of equity

Ownership Structure = Sum of the proportions of shares held by those who own 5% or more of the company's shares.

Age = Natural logarithm of years since the establishment of the company.

Based on the theoretical and empirical evidence, we test the following hypotheses:

H_1: The levels of leverage (1) and leverage (2) are

positively related to company size.

H_2: The levels of leverage (1) and leverage (2) are negatively and or positively related to profitability.

H_3: The levels of leverage (1) and leverage (2) are positively related to the level of tangibility.

H_4: The levels of leverage (1) and leverage (2) are negatively related to the level of growth opportunities.

H_5: The levels of leverage (1) and leverage (2) are positively related to the level of concentration in share ownership.

H_6: The levels of leverage (1) and leverage (2) are positively related to company age.

In other words, we first estimate the following model:

$$\text{Leverage}_{i,t} = \alpha + \beta_k X_{k,i,t} + \mu_{i,t} \qquad (1)$$

The above panel data has multiple observations t = 1 …. T_i of each i = 1 … n observation units where:

i = 1 …. n is the cross-sectional units in our sample;

T = 1 …. T is sample period;

β_k are the parameters to be estimated;

k = 1, 2, 3, 4, 5, 6 denote the independent variables;

$\mu_{i,t}$ is a stochastic error term assumed to have a mean of zero and a constant variance.

To estimate the above panel regression model, we use three alternative methods: pooled ordinary least squares, the fixed effects model, and the random effects model. It must be noted that the advantage of using panel data (combining inter-individual differences with intra-individual dynamics) over cross-sectional or time series data lies in the fact that it usually gives a large number of observations, which increases the degrees of freedom and hence, improving the efficiency of the econometric estimates. Furthermore, the most important advantage of using the panel data approach is that it accounts for the unobserved heterogeneity among the cross-sectional firms over time in the form of unobserved firm-specific effects. Moreover, as the sample includes multi-year observations, we utilize the correction techniques for unknown heteroskedasticity of White (1980). Finally, the fact that the Jordanian stock exchange does not allow us to include a large number of shares, and the capital structure adjustment process is likely to be too complex, we decided not to estimate a dynamic model.

As stated in the introduction, and in addition to the impact of share ownership on capital structure, this paper examines the impact (if any) of the 1996 reduction in

corporate tax on capital structure. The fact that the tax rate was reduced on all companies, it should lead to "common" adjustment of capital structure. This is why we use the dummy variable approach, to test for any structural shift due to the reduction in the tax rate. In other words, we choose to introduce dummy variables into the model (1) to measure the differential intercept, and to focus on the significant explanatory variables, their differential coefficients.

5. THE EMPIRICAL RESULTS

In Table (3) we report various measures of the 2003 share ownership structure of our sample of companies. Based on these measures, we can make the following observations. First, on average, about 89% of the shares are owned by Jordanians. While some of the shares are owned by Arab nationals (8%), a very limited proportion of the shares are owned by non-Arab nationals (3%) and these observations hold true for previous years as well. Second, the reported figures reveal the fact that those who own 5% or more of the subscribed shares (block-holders) are dominant. Indeed, the mean proportion of the shares held by block-holders is equal to 48%.

Table 3: Share Ownership Structure End of 2003

Proportion of Shares Held by Jordanians	88.68%
Proportion of Shares Held by Arab Nationals	8.16%
Proportion of Shares Held by Non-Arab Nationals	3.16%
Proportion of Shares Held by Blockholders	47.5%

In Table (4) we report some descriptive statistics about the capital structure and ownership structure and the other variables for our sample of companies.

Based on this Table, we can make the following comments. First, the first measure of leverage (total liabilities divided by total assets), is relatively low. This ratio (34%) is much lower than the 58% (US), 69% (Japan), 73% (Germany) or the 54%(UK) reported by Rajan and Zingales (1995). Having said that, it is interesting to note that the mean ratio of long term debt as a proportion of total assets is extremely low (8%) by any standards. "Long-term debt (as a share of total debt) has been low across the whole period in all East Asian Countries. Malaysia, Taiwan and Thailand stand out with less than 1/3. Japan and the Philippines have the highest

Table 4: Descriptive Statistics for All Variables

This Table provides two measure of leverage. The first is total which is equal total liabilities divided by total assets. The second measure is long which is equal to long term debt divided by total assets. Fixed is the book value of fixed assets to total assets; ROA is earnings before interest and tax to book value of total assets; Sales is the natural logarithm of sales; Own is the sum of the proportions of shares held by those who own 5% or more of the company's shares; Growth (prospects) is measured by dividing the market value of equity by the book value of equity; and Age is equal to the natural logarithm of years, since the establishment of the company.

	Total	Long	Fixed	ROA	Sales	Own	Growth	Age
Mean	0.342	0.082	0.379	0.060	6.781	37.981	1.481	1.403
Median	0.295	0.013	0.341	0.051	6.764	35.700	1.193	1.397
Max.	0.921	0.670	0.900	0.317	8.899	94.540	7.608	1.820
Min.	0.012	0.000	0.008	-0.273	4.771	0.000	0.057	0.930
Std. Dev.	0.210	0.134	0.216	0.086	0.806	24.588	1.065	0.195
Skewness	1.004	2.169	0.566	0.025	0.159	0.329	2.166	-0.155
Kurtosis	3.512	7.502	2.691	3.331	3.227	2.198	10.098	2.306
J-Bera	76	695	24	1.995	2.733	19.143	1230	10.263
	0.000	0.000	0.000	0.369	0.255	0.000	0.000	0.006
Observations.	427	427	427	427	427	427	427	427

Table 5: Correlation Matrix

Total: is total liabilities divided by total assets; long: is long term debt divided by total assets; Fixed is the book value of fixed assets to total assets; ROA: is earnings before interest and tax to book value of total assets; Sales: is the natural logarithm of sales; Own: is the sum of the proportions of shares held by those who own 5% or more of the company's shares; Growth (prospects): is measured by dividing the market value of equity by the book value of equity and Age: is equal to the natural logarithm of years, since the establishment of the company.

	Total	Long	Fixed	ROA	Sales	Own	Growth	Age
Total	1.000							
Long	0.725	1.000						
Fixed	0.226	0.237	1.000					
ROA	-0.185	-0.186	-0.154	1.000				
Sales	0.583	0.547	-0.040	0.092	1.000			
Own	-0.057	0.222	0.057	0.002	-0.056	1.000		
Growth	0.106	-0.038	-0.011	0.454	0.145	-0.044	1.000	
Age	0.345	0.511	-0.052	-0.036	0.314	0.173	-0.192	1.000

shares, while the others are about 0.43. In contrast, about ¾ of debt of US corporates is long term, while in Germany the ratio is 0.55" (Claessens et al., 1998: 11). Second, the mean ratio of the shares held by block-holders is equal to 38%, and this ratio is much lower than those found in other markets especially the Asian markets. In actual fact, this proportion is even lower than the 47% and 43 percent found in Continental Europe and the USA and UK, respectively (Thomsen, 2004). Finally, as we observe in Table (5), the correlation matrix shows that the coefficients are not sufficiently large to cause any collinearity problems.

The estimation results of our basic model are presented in Table (6). Based on the reported results, we can make a number of observations. First, the coefficient of tangibility is positive and significant (0.269) in the case of total liabilities. This result is consistent with the view that there are various costs (agency and bankruptcy), associated with

the use of debt funds and these costs might be moderated by collateral. However, this issue (tangibility of assets) is less important in the determination of long term debt. Relative to this finding, it is interesting to note that the coefficient of the age of firms is positive and significant in the case on long term debt only. While asset tangibility is not significant, it seems that older companies manage to finance a greater proportion of their assets in the form of long term debts. In other words, it can be argued that as the firm matures, it debt capacity increases and this implies a positive impact of age on leverage. Second, the variable profitability has a negative and significant sign in both measures of leverage. This result, that can be argued, supports Myer's pecking order theory. This theory argues that external finance is costly and firms prefer to rely on internal sources of finance. In addition, this negative relationship between leverage and profitability is consistent with the underdeveloped bonds market in Jordan.

Table 6: Estimation Results: Total Liabilities and Long Term Debt

Leverage$_{it}$= β_1 + β_2 Fixed$_{i,t}$ + β_3 ROA$_{i,t}$ + β_4 Sales$_{i,t}$ + β_5 Own$_{i,t}$ + β_6 Growth$_{i,t}$ + β_7 Age$_{i,t}$ +μ_i + $\varepsilon_{i,t}$

Leverage: is Total liabilities divided by total assets; Fixed: is the book value of fixed assets to total assets; ROA: is earnings before interest and tax to book value of total assets; Sales: is the natural logarithm of sales; Own: is the sum of the proportions of shares held by those who own 5% or more of the company's shares; Growth (prospects): is measured by dividing the market value of equity by the book value of equity and Age: is equal to the natural logarithm of years since the establishment of the company. Numbers in parentheses appearing below the coefficient are White (1980) heteroskedasticity-constant t-statistics. *, **, and *** indicates coefficient is significant at the 1, 5 and 10% level respectively.

	Total Liabilities / Total Assets	**Long Term Debt / Total Assets**
Constant	-0.547 (-3.709*)	-0.547 (-5.860*)
Fixed	0.269 (7.298*)	0.061 (2.713*)
ROA	-0.277 (-3.271*)	-0.173 (-3.342*)
Sales	0.135 (6.721*)	0.046 (3.608*)
Own	-0.001 (-2.364**)	0.001 (1.305)
Growth	0.018 (3.107*)	0.009 (2.574*)
Age	-0.073 (-0.961)	(0.200 (4.260*)
Adjusted R^2	0.817	0.832

Table 7
(Total Liabilities by Total Assets: 1993-2003)

Equation:

Leverage$_{i,t}$ = α_1 + α_2 D$_{i,t}$ + β_1 Fixed$_{i,t}$ + β_2 ROA$_{i,t}$ + β_3 Sales$_{i,t}$ + β_4 Own$_{i,t}$
+ β_5 Growth$_{i,t}$ + β_6 Age$_{i,t}$ + β_7 D$_{i,t}$ Fixed$_{i,t}$ + β_8 Dum$_{i,t}$ ROA$_{i,t}$ + β_9 Dum$_{i,t}$ Sales$_{i,t}$
+ β_{10} Dum$_{i,t}$ Own$_{i,t}$ + β_{11} Dum$_{i,t}$ Growth$_{i,t}$

where

D$_{i,t}$ = 0 for the 1993-1996 and 1 for the 1997 – 2003 period
α_2 = the differential intercept coefficient
β_7 - β_{11} = the differential slope coefficients.

Panel A: The 1993 – 1996 Period (D$_{i,t}$ = 0)

Leverage$_{i,t}$ = α_1+ β_1Fixed$_{i,t}$+ β_2ROA$_{i,t}$+β_3 Sales$_{i,t}$+β_4 Own$_{i,t}$+β_5Growth$_{i,t}$+β_6 Age$_{i,t}$

Leverage$_{i,t}$ = -0.606 + 0.213 Fixed$_{i,t}$ - 0.189ROA$_{i,t}$ + 0.111 Sales$_{i,t}$ - 0.001Own$_{i,t}$
$\qquad$ (-3.662*)(4.298*) $\qquad$ (-1.683**) $\qquad$ (4.801*) $\qquad$ (-2.467**)
+ 0.024Growth$_{i,t}$ + 0.106 Age$_{i,t}$
$\quad$ (2.946*) $\qquad$ (1.167)

Panel B: The 1997 – 2003 Period (D$_{i,t}$ = 1)

Leverage$_{i,t}$ = (α_1 + α_2) + (β_1+ β_7)Fixed$_{i,t}$ + (β_2 + β_8)ROA$_{i,t}$ + (β_3 + β_9)Sales$_{i,t}$
+ (β_4 + β_{10})Own$_{i,t}$ + (β_5 + β_{11})Growth$_{i,t}$ + β_6 Age$_{i,t}$

Leverage$_{i,t}$ = (-0.606 – 0.139) + (0.213 + 0.048) Fixed$_{i,t}$ + (-0.189 – 0.208) ROA$_{i,t}$
$\qquad$ (-3.662*)(0.122) $\quad$ (4.298*)(1.057) $\qquad$ (-1.683**)(-1.599)

+ (0.111 + 0.017) Sales$_{i,t}$ + (-0.001 + 0.001) Own$_{i,t}$ + (0.024 – 0.021) Growth$_{i,t}$
$\quad$ (4.801*) (1.351) $\qquad$ (-2.467*)(0.995) $\qquad$ (2.946*)(-1.946**)
+ 0.106 Age$_{i,t}$
$\quad$ (1.167)

Leverage$_{i,t}$ = -0.745 + 0.661 Fixed$_{i,t}$ - 0.397 ROA$_{i,t}$ + 0.128 Sales$_{i,t}$
+ 0.000 Own$_{i,t}$ + 0.003 Growth$_{i,t}$

Table 8: The Changing Tax Regulation Estimation Results
(Long Term Debt by Total Assets: 1993-2003)

Equation:

$$\text{Leverage}_{i,t} = \alpha_1 + \alpha_2 D_{i,t} + \beta_1 \text{Fixed}_{i,t} + \beta_2 \text{ROA}_{i,t} + \beta_3 \text{Sales}_{i,t} + \beta_4 \text{Own}_{i,t}$$
$$+ \beta_5 \text{Growth}_{i,t} + \beta_6 \text{Age}_{i,t} + \beta_7 D_{i,t} \text{Fixed}_{i,t} + \beta_8 \text{Dum}_{i,t} \text{ROA}_{i,t} + \beta_9 \text{Dum}_{i,t} \text{Sales}_{i,t}$$
$$+ \beta_{10} \text{Dum}_{i,t} \text{Growth}_{i,t} + \beta_{11} \text{Dum}_{i,t} \text{Age}_{i,t}$$

where

$D_{i,t}$ = 0 for the 1993-1996 and 1 for the 1997 – 2003 period
α_2 = the differential intercept coefficient
β_7 - β_{11} = the differential slope coefficients.

Panel A: The 1993 – 1996 Period ($D_{i,t} = 0$)

$$\text{Leverage}_{i,t} = \alpha_1 + \beta_1 \text{Fixed}_{i,t} + \beta_2 \text{ROA}_{i,t} + \beta_3 \text{Sales}_{i,t} + \beta_4 \text{Own}_{i,t} + \beta_5 \text{Growth}_{i,t} + \beta_6 \text{Age}_{i,t}$$

$$\text{Leverage}_{i,t} = -0.429 + 0.083 \text{Fixed}_{i,t} - 0.197\text{ROA}_{i,t} + 0.020 \text{Sales}_{i,t} + 0.001\text{Own}_{i,t}$$
$$(-4.126^*)(2.804^*) \qquad (-2.800^*) \qquad (1.388) \qquad (1.794)$$
$$+ 0.010 \text{Growth}_{i,t} + 0.229 \text{Age}_{i,t}$$
$$(1.867^{***}) \qquad (3.999^{**})$$

Panel B: The 1997 – 2003 Period ($D_{i,t} = 1$)

$$\text{Leverage}_{i,t} = (\alpha_1 + \alpha_2) + (\beta_1 + \beta_7)\text{Fixed}_{i,t} + (\beta_2 + \beta_8)\text{ROA}_{i,t} + (\beta_3 + \beta_9)\text{Sales}_{i,t}$$
$$+ (\beta_5 + \beta_{10})\text{Growth}_{i,t} + (\beta_6 + \beta_{11})\text{Age}_{i,t} + \beta_4 \text{Own}_{i,t}$$

$$\text{Leverage}_{i,t} = (-0.429 - 0.210) + (0.083 - 0.042) \text{Fixed}_{i,t} + (-0.197 + 0.029) \text{ROA}_{i,t}$$
$$(-4126^*)(-3.672^*) \quad (2.804^{**})(-1.536) \qquad (-2.800^*) \quad (0.371)$$

$$+ (0.020 + 0.024) \text{Sales}_{i,t} + (0.010 - 0.002) \text{Growth}_{i,t} + (0.229 + 0.043) \text{Age}_{i,t}$$
$$(1.388) \ (2.519^{**}) \qquad (1.867^{***})(-0.305) \qquad (3.999^*)(1.109)$$

$$+ 0.001\text{Own}_{i,t}$$
$$(1.794)$$

$\text{Leverage}_{i,t}$ = -0.639 + 0.041 $\text{Fixed}_{i,t}$ - 0.168 $\text{ROA}_{i,t}$ + 0.044 $\text{Sales}_{i,t}$

+ 0.008$\text{Growth}_{i,t}$ + 0.272 $\text{Age}_{i,t}$ + 0.001$\text{Own}_{i,t}$

Third, the coefficient of firm size (the logarithm of sales) is positive and statistically significant. However, the value of its coefficient is much larger in the total liabilities case. Based on this observation, we can argue that while the informational asymmetries tend to be less severe for large firms, and hence these find it easier to raise debt finance, this is not the case when they consider the issuance of long term debt. Again, it seems that the age of the company is more important in impacting long term debt. Finally, the coefficients of ownership structure and growth opportunity are extremely low.

As stated in the data and methodology section, the dummy variable approach is used to test for any structural shift due to the reduction in the tax rate. In other words,

we choose to introduce dummy variables into the model (1) to measure the differential intercept, and, to focus on the significant explanatory variables, their differential coefficients. The results of this approach are presented in Tables (7 and 8) for total liabilities and long term debt, respectively.

If we first consider Table (7) (Panel A), we can observe that for the period 1993 – 1996, the estimation results are in line with the previously discussed results (Table 6). In other words, similar to the reported results in Table (7), Panel A (Table 7) shows that assets tangibility (Fixed), firm performance (ROA) and firm size (Sales) are the dominants and significant factors in the model. In addition, as shown in Table (7) (Panel B),

while not statistically significant, the differential intercept coefficient (-0.139) pulls the negative constant term down to the new level of –0.745. This observation leads us to conclude that following the tax reduction on corporate profits, our sample of companies did decrease their reliance on debt in their capital structure choice.

Similarly, if we consider Table (8) (Panel A), we can observe that for the period 1993 – 1996, the estimation results are in line with the previously discussed results (Table 6). In other words, firm performance (ROA) and age are the dominant factors in the model. In addition, as shown in Table (8) (Panel B), the statistically significant differential intercept coefficient (-0.210) pulls the negative constant term down to a more negative level of – 0.639 (from –0.429). This observation leads us to conclude that, unlike the first case where the dependent variable is total liabilities divided by total assets, following the tax reduction on corporate profits, our sample of companies did decrease their reliance on long term debt in a statistically significant manner. This is probably expected has given the fact that long term debt can be better planned for, than current debt. However, the fact that the mean ratio of long term debt to total assets is extremely low, we can state that our sample of companies did not reflect the 1996 tax reduction by adjusting their capital structure. Finally, the results which are reported in both Tables (7 and 8) (Panels B), show that the differential slope coefficients of all the used variables are not statistically significant. In other words, the 1996 changing tax regulation on all listed companies did not lead to any significant change in the impact of main-stream determinants of leverage on the capital structure choice of our sample of companies.

6. SUMMARY AND CONCLUSIONS

While corporate governance as a public policy issue dates back to the writings of Adam Smith (1776) and Berle and Means (1932), recently has generated a worldwide and growing research interest due to several reasons. These include the questioning of the efficiency of the prevailing governance mechanisms, the debate over the comparative corporate governance structures that exist in the American, German and Japanese models, the Asian financial crisis, and the recent corporate scandals in

the United States (U.S.), the United Kingdom (U.K.), the Netherlands and other countries. Similarly, the corporate capital structure choice has long been an issue of great interest in the corporate finance literature. This interest is due to the fact that the mix of funds (leverage ratio) affects the cost and availability of capital and thus, firms' investment decisions. To date, much of the empirical research has been applied on companies listed on advanced stock markets.

This paper has examined empirically the relationship between the capital and ownership structure of industrial firms listed on the Jordanian capital market. In addition, the fact that the Jordanian Tax Authority reduced the rate of corporation tax from 55% to 25% in 1996, this paper took up this changing regulation and examined its impact on their capital structure choice.

The results of the paper reveal that the leverage ratios of listed industrial companies in Jordan are relatively low. Indeed, based on the fact that the ratio of long term debt to total assets is equal to 8% only, we can state that reliance on the long term debt market by Jordanian companies is extremely limited. In addition, the reported figures reveal that the mean ratio of the shares held by block-holders (those who own 5% or more of the shares) is equal to 38%, and this ratio is much lower than those found in other markets especially the Asian markets. In addition, the results indicate that while much of the main-stream determinants of the capital structure choice are applicable to the Jordanian scene, it is found that the ownership structure of companies has no impact on the leverage ratios of our sample of companies. Finally, following the 1996 tax reduction on corporate profits, the overall results reflect the fact that our sample of Jordanian companies did not adjust their capital structures as expected.

It is hoped that the results of this paper will encourage some further work on the listed Jordanian companies. For example, the issue of corporate governance in terms of its various issues like its impact on corporate performance will be looked at. In addition, some work is needed to understand the reasons behind the relatively low leverage ratios that prevail in Jordan. A survey of the Chief Financial Officers of these companies will probably shed some answers to this observation.

NOTES

(1) For a good review of the corporate governance literature, see Farinha (2003).
(2) See Jensen (1993) and Porter (1997).
(3) See Shleifer and Vishny (1997).
(4) For example, see La Porta et al. (2001), Drobetz et al. (2003), Gompers et al. (2003), Klapper and Love (2003), Black et al. (2004), Durnev and Kim (2004).

(5) By the end of 2003, the market capitalization of the market as a proportion of Gross Domestic Product (GDP) was equal to 110%.
(6) A survey of capital structure theories is published by Harris and Raviv (1991).
(7) For example, the mean annual ratio of long term debt to total assets is equal to 5.4%, 8%, 12.8% and 9% in Jordanian, Kuwaiti, Omani and Saudi Arabian non-financial companies respectively.

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