

## **Determinants of Capital Structure: (Evidence from Jordanian Data)**

*Hisham Gharaibeh and Basil Al-Najjar*

### **ABSTRACT**

Unlike previous empirical work on capital structure, which is mainly confined to the United States and a few other developed countries, this paper attempts to study the issue of capital structure choice in developing countries through studying the case of the Jordanian industrial sector. This paper shows that the capital structure choice is influenced by factors such as: profitability, tax, firm's size, growth rate, market-to-book ratio, assets structure, liquidity, and dividends. In addition, the paper reveals that Jordanian industrial firms have a target capital structure and that they adjust to their target leverage ratios.

**KEYWORDS:** Capital structure, Developing countries, Jordanian Industrial Sector, Factors.

### **1. INTRODUCTION**

Ever since Modigliani and Miller (1958) and (1963) have made their irrelevance proposition that the value of the firm is not affected by its capital structure or its weighted average capital costs, a key theme in corporate finance has been to explain the conditions under which capital structure does affect firm's value. However, the existing empirical research on this issue has been largely confined to the United States and a few other developed countries that may have institutional similarities. The issue of capital structure choice in developing countries has, however, received little attention.

Only in recent years, few studies have emphasized these issues. In across-country study, Booth *et al.* (2001) have used a sample of 10 developing countries: five former British colonies (India, Pakistan, Thailand, Malaysia, and Zimbabwe) and two Latin American countries (Mexico and Brazil) with a common inflationary experience, in addition to another three

countries (Turkey, Jordan, and Korea). In a marked contrast to their predecessors, their study reveals that the factors pertaining to the issue of the determination of capital structure in the United States and the European countries are also potent enough in explaining financial decisions in the developing countries, despite the profound differences in the institutional framework in which they operate.

It is the purpose of this research to expose the issue of capital structure determinants in the less developed countries, as represented by Jordan. The research will also attempt to justify capital structure choices and the factors which may influence these choices. The end result is to help Jordanian industrial firms to reach optimal capital structure that maximizes shareholders' equity.

This paper is organized as follows: section 2 shows the literature review, section 3 reviews the determinants of capital structure, section 4 and 5 reveal the data and the methodology, respectively, while section 6 shows the statistical results, section 7 illustrates the determinants of capital structure in Jordanian firms, section 8 is concerned with the target debt ratio. Finally, section 9 demonstrates the summary of the study.

---

Received on 17/4/2005 and Accepted for Publication on 16/1/2007.

## 2. LITERATURE REVIEW

Titman and Wessels (1988) are considered among the first to extend the empirical work on capital structure theory by examining a much broader set of capital structure theories, and to analyze measures of short-term, long-term, and convertible debt. They found a negative relationship between debt levels and the uniqueness of business.

In addition, short-term debt ratios were shown to be negatively related to firm size. However, they did not provide support for the effect on debt ratios arising from non-debt tax shields, volatility, collateral value of assets, and firm growth.

Moreover, Homaifar *et al.* (1994) investigated the determinants of capital structure by including corporate tax rate which had been omitted from Titman and Wessels (1988) model. They found that in the long-run, the leverage ratio was positively related to corporate tax rate. In addition, a positive relationship appeared between firm size and the leverage ratio, while a negative relationship appeared between growth opportunities and leverage, as well as between leverage and stock returns.

In addition, Rajan and Zingales (1995) examined whether capital structure in other developed countries is related to factors similar to those that influence US firms. They found that firms with lot of fixed assets were not highly levered. Furthermore, a negative relationship between leverage and the market-to-book ratio was found. A negative relationship also existed between firm profitability and the leverage.

Furthermore, Ozkan (2001) investigated the determinants of the target capital structure of firms and the role of the adjustment process for the UK firms. The results showed that profit, liquidity, non-debt tax shield, and growth opportunities were negatively related to leverage. Finally, limited support appeared for a positive effect arising from size of firms on leverage. The study provided evidence that the UK firms have long-term target leverage ratios and that the adjustment to the target ratios is fast.

However, Booth *et al.* (2001) aimed to assess whether

capital structure theory is portable across developing countries, so they used a sample of 10 developing countries: India, Pakistan, Thailand, Malaysia, Zimbabwe, Mexico, Brazil, Turkey, Jordan, and Korea. They found that the more profitable the firm is, the lower the debt ratio becomes, regardless to how the debt ratio is defined. In addition, the more the tangible assets mix is, the higher the long-term debt ratio becomes, but the smaller the total debt ratio is. Finally, the debt ratios in the developing countries are affected in the same way by the same types of variables in the developed countries.

## 3. DETERMINANTS OF CAPITAL STRUCTURE

In this section, the various firm-specific attributes suggested by capital structure theories and the proxies that are used to capture such attributes will be discussed.

### 3.1. Asset Structure

The agency cost and asymmetric information theories of capital structure suggest that the composition of assets owned by a firm influence its capital structure choice. According to the agency cost theory, the shareholders of a highly leveraged firm have a tendency to invest sub-optimally, however, a firm with collateralized assets can restrict such opportunistic behavior. Hence, a positive association between collateralized assets and debt is expected (Bhaduri, 2001).

Another agency problem arises from the tendency of a firm's manager to consume more than the optimal level of prerequisite, which reduces the value of the firm. However, firms with less collateralized assets are more vulnerable to such agency costs since monitoring the capital outlays is more difficult for such firms. The firm can use a high debt level as a monitoring instrument to mitigate this problem.

Therefore, one can expect a negative association between leverage and collateralized assets. Moreover, in the presence of asymmetric information, firms may find it advantageous to sell secured debt as it reduces the information premium (Bhaduri, 2001).

The study uses the proxy for the collateral asset

attribute, namely, the ratio of fixed assets to total asset (Rajan and Zingales, 1995).

### 3.2. The Impact of Tax

For individual firms, defining tax variables is difficult, because the marginal value of the tax shield should be either zero or positive for all firms. To serve as a proxy for these interactions, a calculation of average tax paid from data on both earnings before and earnings after tax is used (Booth *et al.*, 2001).

Interest is tax-deductible expense, therefore the higher the firm's corporate tax rate; the greater the advantages of using debt.

### 3.3. Size

There is a considerable evidence that the size of a firm plays an important role in capital structure choice. Large firms tend to be more diversified and hence; likely to be less susceptible to financial distress. Therefore, a positive association is expected between firm's size and leverage (Bhaduri, 2001).

The natural logarithm of total assets ( $\ln(TA)$ ) is used as a proxy for firm size (Rajan and Zingales, 1995).

### 3.4. Business Risk

Since debt involves commitment of periodic payment, highly leveraged firms are prone to financial distress costs. Therefore, firms with volatile incomes are likely to be less leveraged (Bhaduri, 2001). This study uses the standard deviation of a return on assets as a business risk proxy (Booth *et al.*, 2001).

### 3.5. Growth<sup>1</sup>

For growing firms, the agency problems are likely to be more severe since they are more flexible in their choice of future investments. This is indicative of a negative association between long-term debt and future

growth of a firm. Further short-term debt could be used to mitigate this problem; growing firms can use short-term debt instead of long-term debt to avoid such agency costs (Bhaduri, 2001). This study introduces two indicators of growth rate: growth on sales measured by  $(Sales_{2000} - sales_{1996})/sales_{1996}$  (Abimbola, 1998), and the market-to-book ratio to capture the potential growth opportunities of the firm.

### 3.6. Profitability

If managers of a firm cannot credibly convey inside information to outsiders, they prefer internally-generated capital to external financing.

In the presence of asymmetric information, a firm would follow a pecking order preference pattern, it would prefer internal finance, but would issue debt if such low cost options were exhausted. The firm's last option would be to choose equity issue. Since profitable firms are likely to have more retained earnings, the study expects a negative association between leverage and past profitability (Donaldson, 1961).

On the contrary, static trade-off theories envisage a positive relation between profitability and leverage because a firm with high profits would require greater tax shelter and would have more debt-taking capacity (Bhaduri, 2001). The proxy for profitability is the return on equity.

### 3.7. Age

The existing literature considers the age of the firm as an important determinant of capital structure. Given the fact that young firms are more vulnerable to the problem of asymmetric information, they are likely to use debt and avoid the equity market (Bhaduri, 2001).

To measure this effect, the study uses natural logarithm of one plus the firm's age in years (Scherr and Hulburt, 2001).

### 3.8. Dividends

If a firm can credibly signal its quality to the outsiders, it can avoid an information premium and hence may access external sources of funds, particularly the

---

<sup>1</sup> The study tries to investigate if the growth in investment can determine the capital structure, using the following equation (Abimbola, 1998):  $(TA_{2000} - TA_{1996})/TA_{1996}$ .

equity market. This study introduces a dummy variable for dividends, which takes the value of one if the firm distributed dividend at least one time in the period of the study and zero otherwise. A firm with a reputation of dividend payment faces less asymmetric information in accessing the equity market, however, if dividend payment represents a signal of better financial health and hence more debt-taking capacity, one would expect a positive association. In addition to signaling models, agency models also draw links between the dividend payments and leverage. Specifically, agency models envisage dividend payment and debt issue as a substitute in mitigating agency problems. Therefore, the existing theories envisage an inverse relationship between leverage and dividend payment (Bhaduri, 2001).

### 3.9. Liquidity

Liquidity ratios may have a mixed impact on the capital structure decision. First, firms with high liquidity ratios may support relatively higher debt ratios due to greater ability to meet short-term obligations; this would imply a positive relation between firm's liquidity and its debt ratio. On the other hand, firms with greater liquid assets may use these assets to finance their investments. Therefore, a firm's liquidity position should exert a negative impact on its leverage ratio. To measure this effect, the study uses the ratio of current assets to current liabilities as a proxy for the liquidity of the firm's assets (Ozkan, 2001).

## 4. DATA

This study attempts to investigate the issue of capital structure choice in developing countries; as in the Jordanian industrial corporate sector case. The data for this analysis are drawn from the Jordanian Shareholding Companies Guide. From this data set, firms were selected based on the criteria that the firms should have maintained their identity and reported their annual accounts without any gaps for the period from 1996 to 2000. Screening for data consistency on the basis of this criterion led to the selection of a sample of 68 firms

across the industrial sector<sup>2</sup>. Therefore, the study adds value to the existing literature to the extent that it can adequately control for the possible sources of differentiation among firms in their optimization choices and provide more reliable insights into the validity of various mainstream capital structure theories.

All explanatory proxies, except for the business risk, the growth rate, investment, age and dividend are averaged over a five-year period (1996-2000) to reduce the measurement error due to random year-to-year fluctuation in variables.

## 5. METHODOLOGY

The study uses a two-stage regression analysis. First, multivariate regression statistical technique to investigate the determinants of the capital structure using the following model:

$$\text{Lev} = \alpha + \sum \beta_i \omega_i + \varepsilon_{it}$$

Where  $\omega^i$  represents the independent variables that are: market-to-book ratio (Mktbk), profitability (ROE), tangibility of assets (TANG), business risk (BR), firm size (size), tax paid (tax), liquidity (CR), growth (GR), investment (INV) and the dividends (DIV).

The dependent variables, the total leverage, short-term Leverage(S-T) and the debt-to-equity ratio (LEVEQUIT), and  $\varepsilon_{it}$  is a *random error*. Then the best model is selected by backward regression technique.

Second, multiple regression approach to determine whether the selected firms have target leverage ratios, and if the firms adjust to these target leverage ratios, using the following equation:

$$D_{it} = \beta_0 + \beta_1 D_{it-1} + \beta_2 D_{it}^* + \varepsilon_{it}$$

Where  $D_{it}$  is the total debt over the total assets for the year 2001,

$D_{it-1}$  is the total debt over the total assets for the year 2000,  $D_{it}^*$  is the target capital structure obtained from stage one, and  $\varepsilon_{it}$  is a random error.

<sup>2</sup> Please note that in the second stage regression, firms that provided the financial information for the period from 1996-2001 were only 58 firms. This is because the researchers added other variables that were not disclosed by all the firms in sample one.

Table (1): Regression Results.

Model	1	2	3	Best(1)	Best(2)	Best(3)
<b>Constant</b>	-.615	-1.189	-.155	-.480	-.961	-.0981
<b>Mktbk</b>	.0483 (.062)**	.119 (.028)*	.03607 (.104)	.04970 (.046)*	.120 (.021)*	
<b>ROE</b>	-.172 (.002)*	-1.054 (.000)*	-.184 (.000)*	-.179 (.001)*	-1.067 (.000)*	-.204 (.000)*
<b>TANG</b>	.05431 (.551)	.07019 (.710)	-.156 (.05)*			-.169 (.033)*
<b>BR</b>	-.162 (.738)	-.847 (.40)	-.488 (.244)			
<b>Size</b>	6.5 (.000)*	12.629 (.000)*	4.145 (.002)*	6.269 (.000)*	12.733 (.000)*	3.749 (.004)*
<b>Tax</b>	-1.683 (.022)*	-3.071 (.043)*	-1.079 (.08)**	-1.303 (.037)*	-2.829 (.0178)*	-.935 (.061)*
<b>CR</b>	-.00824 (.030)*	-.0137 (.080)**	-.0120 (.000)*	-.00964 (.004)*	-.0146 (.031)*	-.0132 (.000)*
<b>GR</b>	.01328 (.025)*	.02404 (.05)*	.01669 (.001)*	.01029 (.039)*		.01408 (.002)*
<b>INV</b>	-.0111 (.601)	-4.27E-5 (.999)	-.0284 (.123)			
<b>AGE</b>	-.0640 (.261)	.09569 (.192)	.005938 (.844)			
<b>DIV</b>	-.0640 (.138)	-.0618 (.487)	-.0501 (.176)	-.0721 (.083)**		
<b>F-test</b>	6.812	14.626	7.624	10.855	31.7	12.22
<b>P-value</b>	.000*	.000*	.000*	.000*	.000*	.000*
<b>R-square</b>	.572	.742	.600	.559	.719	.546
<b>R-square Adjusted</b>	.488	.691	.521	.507	.696	.501

\*, \*\*: significant at .05 and .10, respectively.  
Numbers between brackets are significant values (P-values).

## 6. STATISTICAL RESULTS

The study used multivariate regression approach to determine the main indicators that affect the capital structure decision. Table (1) summarizes the regression analysis, in model (1) the dependent variable is total debt over total assets, in model (2) the dependent variable is total debt over owners equity, and in model (3) the dependent variable is short-term debt over total assets. The best models are found by using the backward statistical technique. Mktbk: is the market-to-book ratio, ROE: is return on equity, TANG: is tangible asset ratio, BR: is the business risk, size: is the size of the firm, tax: is tax paid by the firm in a given period, CR: is the liquidity ratio, GR: is the growth rate, INV: is the investment index, age: is the firm's age, and DIV: is the dividend index.

## 7. THE DETERMINANTS OF CAPITAL STRUCTURE IN THE JORDANIAN FIRMS

### 7.1. Profitability

The study found that whichever the leverage is defined, there is a significant negative relationship between profitability and leverage. This means that Jordanian profitable industrial firms are likely to have more retained earnings and hence they prefer internal financing rather than debt financing.

This result is consistent with the pecking order hypothesis and different studies in the financial literature (Donaldson, 1961; Rajan and Zingales, 1995; Booth *et al.*, 2001).

### 7.2. Impact of Tax

The study found that whichever the leverage is defined, there is a significant negative relationship between tax and leverage. This represents a significant difference between the result in this study and the financial literature that expects a negative relation (Rajan and Zingales, 1995). Booth *et al.* (2001) in their study

found the same result when they used average tax rate as an index for the impact of tax.

Here, profitability also explains why this relation appears, because this tax index rather than being a proxy of tax shield, it seems to be an alternative measure of profitability (Booth *et al.*, 2001).

### 7.3. Size

The study found that whichever the leverage is defined, there is a significant positive relationship between size and leverage. This means that large Jordanian industrial firms tend to be more diversified and, hence, likely to be less susceptible to financial distress. This result is consistent with different studies in the financial literature (Bhaduri, 2002; Booth *et al.*, 2001; Rajan and Zingales, 1995).

### 7.4. Growth Rate

The study found that whichever the leverage is defined, there is a significant positive relationship between sales growth rate and leverage. This means that Jordanian growing industrial firms tend to face different investments activities to finance and so the debt is a preferable source of financing in these firms. This result is consistent with Bhaduri (2002). In addition, the market-to-book ratio has a significant positive relationship with leverage. Therefore, there is a strong evidence of a positive relationship between firms' growth opportunities and the leverage of the firm.

### 7.5. Assets Structure

When leverage is defined as a short-term debt over total assets, a negative significant relationship appears between the tangible assets and leverage. This means that managers tend to consume more debt than the optimal level of pre requisites, which reduces the value of the firm. However, firms with less collateralized assets are more vulnerable to such agency costs since monitoring the capital outlays is more difficult for such firms. The firm can use a high debt level as a monitoring instrument to mitigate this problem. This result is consistent with Grossman and Hart (1982).

**Table (2) Regression results for the target leverage using the actual leverage**

Model (1)	Beta	t-statistics	Significant
Constant	-3.90E-02	-1.138	.260
D2000	.819	17.257	.000*
Target	.263	2.505	.015*

\*: significant at .05.

**Table (3) target leverage results using the first stage regression**

Model (2)	Beta	t-statistics	Significant
Constant	-9.06E-02	-.884	.381
D2000	.907	14.443	.000*
Market-to-book ratio	4.295E-02	2.077	.044*
Profitability	4.496E-02	1.737	.089**
Liquidity	8.547E-04	.147	.884
Size	4.660E-03	.675	.503
Tax	-5.79E-02	-.210	.834
Growth rate	-4.99E-03	-.352	.727
Dividends	-3.27E-03	-.112	.911
Non-debt tax shield	.186	.363	.719

\*, \*\*: significant at .05 and .10 respectively.

### 7.6. Liquidity

The study found that whichever the leverage is defined, there is a significant negative relationship between liquidity and leverage. This means that Jordanian industrial firms with high liquid assets do not have good investment opportunities, so they do not need debt financing. This result is consistent with Ozkan (2001).

### 7.7. Dividends

When leverage is defined as total debt over total assets, a significant negative relationship appears between the dividends index and leverage. This means that Jordanian industrial firms with reputation of paying

dividends are less relying on debt financing. This can be explained by the fact that the leverage and dividends are considered to be two alternative devices to mitigate the agency conflicts. Therefore, this result is consistent with the agency models.

### 7.8. Do Jordanian Firms Have Target Leverage Ratio?

The study aims to determine if the Jordanian firms have a target capital structure and if they adjust to their target ratios. The target leverage is defined in two ways. **First**, using the historical information from the first stage, by using the best model prediction of the total debt over the total assets, and this is done by applying the following equation:

$$D_{it} = \beta_0 + \beta_1 D_{it-1} + \beta_2 D_{it}^* + \varepsilon_{it}$$

Where  $D_{it}$  is the total debt over the total assets for the year 2001,  $D_{it-1}$  is the total debt over the total assets for the year 2000,  $D_{it}^*$  is the target capital structure using the best model prediction of the total debt over the total assets, and  $\varepsilon_{it}$  is random error.

Information for this analysis is from Jordanian Shareholding Companies Guide 2002. The sample of this analysis consists of (54) companies that provided accounting information from 1996-2001<sup>3</sup>. Table (2) shows the statistical results

**Second**, using current information from year 2001 by using the following equation:

$$D_{it} = \beta_0 + \beta_1 D_{it-1} + \beta_2 \text{MKTBK} + \beta_3 \text{ROE} + \beta_4 \text{Size} + \beta_5 \text{Tax} + \beta_6 \text{GR} + \beta_7 \text{Div} + \beta_8 \text{CR} + \beta_9 \text{NDT} + \varepsilon_{it}$$

All variables have the same definitions as in stage one, except that they are for the year 2001 and that GR is (sales2001-sales2000) over (sales, 2000). The NDT is an indicator for the non-debt tax shield measured by depreciation over total assets (Ozkan, 2001).

In the two equations, the key variable is  $D_{it-1}$ , which represents the firm-specific fixed effect. Table (3) shows the statistical results.

In Tables (2) and (3) the coefficient of  $D_{2000}$  is positive and statistically significant. Therefore, the study provided evidence that the Jordanian industrial firms have a target leverage ratio and that they adjust to their target ratios.

## 8. CONCLUSION AND SUMMARY

This study attempted to investigate the issue of capital structure choice in the developing countries through the Jordanian industrial firms' case. Firms were selected based on the criteria that they should have maintained their identity and reported their annual accounts without any gaps for the financial years of (1996-2000). (68) firms across the industrial sector provided such information.

The study used a two-stage regression analysis. First, a multivariate regression statistical technique to investigate the determinants of the capital structure, with the dependent variables: the total leverage, short-term leverage(S-T), and the debt-to-equity ratio. The independent variables are market-to-book ratio, ROE, tangibility of assets, business risk, size, tax paid, liquidity, growth, investment and dividends. Second, a multiple regression approach to determine whether the selected firms have target leverage ratios and if the firms adjust to these target leverage ratios?

The study found that a significant negative relationship appears between profitability, tax, liquidity, tangible assets and dividends with leverage, and a significant positive relationship appears between firm's size, growth rate, and market-to-book ratio with leverage, but the study cannot explain why capital structure decisions are related to investment, age and business risk.

The study provided evidence that the Jordanian industrial firms have a target leverage ratio, and that they adjust to their target ratios, implying that the cost of being away from their target ratios and the cost of adjustment are equally important for those firms.

3 The sample size has been reduced from 68 to 54 Jordanian firms that provide all the required information needed to conduct the analysis.

## REFERENCES

- Adedeji, A. 1998. Does The Peking Order Hypothesis Explain The Dividend Payout Ratios of Firms In the UK? *Journal of Business and Accounting*, (25) (Nov./Dec.): 1127-1155.
- Al-Khouri, R. and Hmedat, W. 1992. The Effect of Earning Variability on Capital Structure: The Case of Jordanian Firms. *Abhath al-Yarmouk*, 8: 49-62.
- Baker, M. and Wurgler, J. 2002. Market Timing and Capital Structure. *Journal of Finance*, LvII: 1-32.
- Berger, P., Ofek, G., Eli, Y. and David, L. 1997. Managerial Entrenchment and Capital Structure. *Journal of Finance*, LII:1411-1438.
- Bhaduri, S. 2002. Determinants of Corporate Borrowing: Some Evidence from the Indian Corporate Structure. *Journal of Economic and Finance*, 26: 200-215.
- Booth, L., Aivazia, V., Kunt, A.D. and Makaimovi, V. 2001. Capital Structure In Developing Countries. *Journal of Finance*, 87-130.
- Colombo, E. 2002. Determinants of Corporate Capital Structure: Evidence from Hungarian Firms, *Journal of Applied Economics*, 33: 1689-1701.
- Connell, J. and Servaes, H. 1995. Equity Ownership and the Two Faces of Debt. *Journal of Financial Economics*, 39: 131-157.
- Donaldson, G. 1961. *Corporate Debt Capacity: A Study of Corporate Debt Policy and The Determination of Corporate Debt Capacity*. Harvard Graduate School of Business Administration, Division of Research, Harvard University.
- Grossman, S. and Hart, O. 1982. Corporate Financial Structure and Managerial Incentives. In, J. McCall, (editor) *The Economics of Information and Uncertainty*. Chicago: University of Chicago Press.
- Hamada, R.S. 1969. Portfolio Analysis, Market Equilibrium and Corporation Finance. *Journal of Finance*, March:54-58.
- Homaifar, G., Zietz, J. and Benkato, O. 1994. An Empirical Model of Capital Structure: Some New Evidence. *Journal of Business Finance and Accounting*, 21 (1): 1-14.
- Hovakiman, A., Opler, T. and Titman, S. 2001. The Debt Equity Choice. *Journal of Finance*, 1-24.
- Lie, E. 2002. Do Firms Undertake Self-Tender Offers to Optimize Capital Structure? *Journal of Business*, 75 (4): 609-639.
- Miller, M. H. 1977. Debt and Taxes. *Journal of Finance*, May 261-275.
- Modigliani, F. and Miller, M. H. 1958. The Cost of Capital, Corporation Finance and the Theory of Investment. *The American Economic Review*, June: 261-297.
- Modigliani, F., Miller, M.H. 1961. Dividend Policy, Growth and Valuation of Shares. *Journal of Business*, October: 411-435.
- Modigliani, F. and Miller, M.H. 1963. Corporate Income Taxes and The Cost of Capital: Correction. *The American Economic Review*, June: 433-443.
- Myers, S.C. 1984. The Capital Structure Puzzle. *Journal of Finance*, 575-592.
- Ozkan, A. 2001. Determinants of Capital Structure and Adjustment to Long-Run Target: Evidence from UK Panel Data. *Journal of Business Finance and Accounting*, 28 (January/March): 175-198.
- Pindado De Miguel J. 2001. Determination of Capital Structure, New Evidence From Spanish Panel of Data. *Journal of Corporate Finance*, 77-99.
- Rajan, G., Rghuram, Zingale, L. 1995. What Do We Know About Capital Structure? Some Evidence of International Data. *Journal of Finance*, 1421-1460.
- Ryen, G.T., Vasconcellos, M. and Kish, R.J. 1997. Capital Structure: What Have We Learned? *Journal of Business Horizon*, 41-50.
- Scherr, F. and Hulburt, M. 2001. The Debt Maturity Structure of Small Firms. *Journal of Financial Management*, Spring, 85-111.
- Scott, F. and Johnson, D.J. 1982. Financing Policies and Practices In Large Corporations. *Journal of Finance*, 51-59.
- Titma, S. and Wessels, R. 1988. The Determination of Capital Structure Choice. *Journal of Finance*, 1-19.

## محددات هيكل رأس المال (دراسة عن الشركات الصناعية الأردنية)

هشام غرايبة وباسل النجار\*

### ملخص

ركزت الدراسات التطبيقية المتعلقة بهيكل رأس المال على الدول المتقدمة، وأهملت الدول النامية. يحاول هذا البحث تسليط الضوء على خيارات التمويل المتاحة للشركات في الدول النامية من خلال دراسة حالة الشركات الصناعية الأردنية.

وقد تبين أن خيارات التمويل تتأثر بعدة عوامل منها: الربحية، والضرائب، وحجم الشركة، ونسبة النمو، ونسبة القيمة السوقية إلى القيمة الدفترية، وبنية الموجودات، والسيولة، والأرباح الموزعة.

كما أثبتت الدراسة وجود هيكل تمويل محدد مسبقاً لدى الشركات الصناعية الأردنية وان تلك الشركات تقوم بتعديل هيكل التمويل حسب نسبة الرفع المالي المستهدفة.

**الكلمات الدالة:** هيكل رأس المال، الدول النامية، الشركات الصناعية الأردنية، خيارات التمويل.

\* **Hisham Gharaibeh**

Professor, Faculty of Finance and Administrative Sciences, Amman- Arab University for Graduate Studies, Amman, Jordan.

\* **Basil Al-Najjar**

Lecturer/Finance and Banking Department, Faculty of Business Administration, Yarmouk University, Irbid, Jordan.

تاريخ استلام البحث 2005/4/17، وتاريخ قبوله 2007/1/16.