

## **ON STOCK MARKET PRICES AND THE CAPITAL STRUCTURE OF INDUSTRIAL SECTOR ON THE JORDANIAN CAPITAL MARKET**

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### **Abstract**

*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. This research aims to examine the impact of stock market prices (MBV) on the capital structure, on the Jordanian capital market (Amman Stock Exchange[ASE]), to achieve this objective the study was set to test a number of hypotheses regarding the determinants of capital structure decisions and impact of stock market price (MBV). These hypotheses were related to the effects of profitability, stock market price (MBV), Asset Tangibility, and size. Based on a panel data methodology (2011-2013) is used for data analysis. Data of all industrial sectors of Jordan is used for this research. The results indicate that the stock market price (MBV) of firms is negatively related with the capital structure.*

*Keywords: Market to book ratio (MBV), Leverage, Jordanian capital market, capital structure. Industrial sector, financial crisis*

## INTRODUCTION

The fact remains that the 2008 financial crisis “was unique in terms of the wealth destruction, estimated at US\$ 50 trillion equivalent to one year of world GDP” (Aisen&Franken, 2010). Indeed, this crisis was unprecedented in its impact on the market value of stocks, and many other assets. For example, by October 2008, the crisis had erased around US\$25 trillion from the value of stock markets (Naude, 2009).

In common with many stock markets around the world, the Jordanian market experienced some heavy losses. The weighted price index fell from 7519.3 points in 2007 to 6243.1 points in 2008 and to 5520.1 points in 2009 (ASE,2014), the value of the index has fallen to 5318.0 points, 4648.4 points, 4593.9 points, and to 4336.71 points by the end of 2010, 2011, 2012, and 2013 respectively (ASE,2014). The consistent losses which the Jordanian capital market has suffered from, provides researcher with an important issues that can be examined. That is listed firms capital structure.

The theory of capital structure is one of the most important financial themes in corporate finance and various studies use capital structure theory to highlight the significance of debt financing. Capital structure of a firm is defined by its leverage; that is a mix of debt and equity financing which is subject to different financial difficulties.

The importance and significance of undertaking this study is supported by several factors. First, the firms under study in this paper operate in an emerging stock market with some features quite different from those prevailing in the developed markets. Some of these features include thin trading, inefficiency, weak organization and poor information disclosure. Moreover, the Arab stock markets including Amman stock market are still smaller and less active than the developing countries average. In addition to being a small market, the market suffers from concentrated ownership, modest number of listings and a fair number of closed companies.

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.

The purpose of this paper is to examine the relationship between debts; stock market price (MBV), for the industrial companies listed on the Jordanian capital market, this paper is motivated by known argument: (efficiency effect) is due to (Greenwood & Jovanovic, 1989). Liquid stock markets provide investors with superior diversification benefits and this leads to a shift in investment portfolios from safe and low-return projects to riskier and high-return projects.

The rest of the paper is organised as follows. Section 2 provides a brief review of the determinants of capital structure. Section 3 contains a discussion of the data and methodology. Finally, sections 4 and 5 include a presentation and discussion of the results and a summary and conclusions, respectively.

## **LITERATURE REVIEW**

### **THE DETERMINANTS OF CAPITAL STRUCTURE**

The theory of capital structure is closely related to the firm's cost of capital. Capital structure is the mix of the long-term sources of funds used by the firm. The primary objective of capital structure decisions is to maximize the market value of the firm through an appropriate mix of long-term sources of funds. This Mix, called the optimal capital structure, will minimize the firm's overall cost of Capital.

Modigliani & 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 & 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, the agency theory and market timing theory.

In market timing theory, firms decide their mode of financing, whether they should use equity or they should use debt. According to (Baker & Wurgler, 2002) market timing theory defines the capital structure but it also does not care whether a company uses debt for financing or equity. According to market timing theory, company uses that instrument which is more valued in market at that time. Under the market timing theory, companies issue stock when their stock price in the market is high and purchase their stock when their market price is low.

These theories point out a number of firm-specific factors that may affect the capital structure choice of firms. The present study attempts to reduce the gap of capital structure studies which are based on evidence from developed and developing countries, because most capital structure studies to date are based on evidence from developed countries, but there are few studies that provide evidence from developing countries.

Therefore, the final results could be very important for both private and public scoters in Jordan. Also, it provides further evidence of the capital structure theories which pertain to developing countries. It examines the explanatory power of capital structure theories (determinants) applicable to Jordanian companies and how the Jordanian managers of the industrial companies choose appropriate amount of debt for their firms.

In addition, the capital structure issue in Jordan was examined by (Omet & Mashharawe., 2002; Abdelal, K., & Omet, G., 2010; Khrawish, H. A., 2010). The results indicate that the Jordanian, companies have low leverage ratios and extremely low long term debt in their respective capital structures. However, in this study, the issue Market to book ratio (A proxy for growth opportunities) is not investigated after 2008 financial crises in Jordanian market. As argued by (HARRISON, B., & WIDJAJA, T. W., 2013) during 2008 financial crisis, the coefficients of Market to Book (MTB) ratio exert a stronger influence on capital structure choices than prior to 2008.

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 & Wessel's, 1988) and (Harris & 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.

### **Dependent Variable**

The selection of the variables (dependent and independent) is primarily guided by the results of the previous empirical studies and the availability of data.

### ***Leverage ratio***

This is measured by total debts to total assets. It is argued by (Harris & Raviv., 1991; Rajan & Zingales., 1995; Bevan & Danbolt., 2000; Antoniou, A., Guney, & Paudyal, K. 2002; Chen, 2003; Buferna, F. M., Bangassa, K., & Hodgkinson, L. 2005; Abdelal, K., & Omet, G., 2010). This ratio demonstrates the relationship between total liabilities and total assets. Selecting this measure is attributed to the fact that using debts for funding purposes within the financing structure constitutes an incentive and target for many companies to increase their return on investment. Meanwhile, the capital structure policy involves venture and returns trade-offs simply because using debt extensively increases the risks faced by the industrial company, but amplifies total invested funds and expected return.

### **Independent Variables**

#### ***Company size***

Size is measured by the natural logarithm of total assets. As stated in the trade-off theory; firms decide how much debt/equity financing it requires by weighing the costs and benefits of such

decision, Industrial company size has been selected as an independent variable because industrial companies with large total assets normally have more business diversification than small firms in terms of credit ratings, constant cash flow, and lower risk of bankruptcy. Furthermore large firms are capable of decreasing transaction costs of issuing long-term debt at a favourable low rate of interest (Rajan & Zingales, 1995). Moreover, the cost of funding for these companies will be lower. It has been indicated by various studies that there is a positive sign is expected between firm size and leverage (Titman & Wessels, 1988; Agrawal & Nagarajan, 1990; Rajan & Zingales, 1995; Wald 1999; Supanvanij, 2006; Akhtar & Oliver, 2009, Liaqat. A., 2011; Abdelal, K., & Omet, G., 2010 Qureshi1, M. A., Imdadullah, M., Ahsan, T. 2012).

### **Asset Tangibility**

Variation in cash flow generation is more difficult from tangible assets than the intangibles. Therefore, the scope of tangible assets to reduce risk transfer, and is in line agency theory, business and more debt will be supported by tangible assets (Abor&Biekpe., 2009;Yartey, 2006).

Asset tangibility is the ratio of fix asset to total assets. Capital structure of firm will depends on the ability of owners to engage in speculation at the cost of creditors and other parties. This, in response, to some extent debt equity ratio depends on the assets composition of company. (Pandey&Chotigeat, 2004) analysed the Malaysian companies' financial characteristics and their financial policy. Outcome of their study states that tangibility, have influence on debt. The company has a high proportion of the total assets are expected have longstanding debt. An optimistic association among tangible assets and debt levels exists as trade-off theory proposes. Therefore, a positive sign is expected between leverage and tangibility of assets (Titman &Wessels, 1988; Rajan&Zingales, 1995; Chen, 2003; Akhtar& Oliver, 2009; Taleb, G. A., & AL-Shubiri, F. N., 2011; Qureshi. et al., 2012).

### **Profitability**

Many theoretical works made since the Modigliani and Miller (1958), no forecast has been agreed among the profitability and debt relationship. Due to the tax deductibility of interest payments, it is argued that highly profitable companies tend to have high levels of debt (Modigliani & Miller, 1963). However, (Myers &Majluf, 1984) argued that as a result of asymmetric information (pecking order hypothesis), companies prefer internal sources of finance. This scenario shows that profitable organizations employee less debt in their capital structure. This at the end signals to creditors that they have low bankruptcy risk, however,

among the internal and external shareholder, the optimal contract can be understood as a debt equity mix, and profitable organizations are less inclined to use debt. Empirical research shows that the most significant negative correlation between leverage and profits. (Friend & Lang., 1988; Titman & Wessel's; 1988) surveyed to U.S. companies and got such results. (Antonion, et al., 2002; Buferna, et al., 2005). Mentioned studies used data from developed economies. (Chen, 2003; Kim & Berger, 2008; Abdelal K., & Omet G., 2010; Sheikh & Wang, 2011; IM Alnajjar, M., 2014). Used data from developing countries. This paper is using EBIT for measuring the effect of profitability on the financial policy.

### **The market-to-book ratio (MBV) is used as a proxy for growth opportunities**

Growth is defined as the annual percentage growth in the firms' total assets between two successive years (Alkhatib, K., 2012). A rise in growth rate is regarded as an indication of a firm's financial strength. (Myers, 1984) 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 (proxy by the ratio of the market value to the book value of equity) tend to have low leverage ratios. The empirical evidence regarding the relationship between leverage and growth opportunities is, at best, mixed. Many studies predict a negative relation between market to book ratio and leverage, (Smith & Watts, 1992; Barclay & Smith, 2005; Buferna et al., 2005; Frieder & Martell, 2006; Akhtar & Oliver, 2009; Lipson & Mortal, 2009; Liaqat.A., 2011; Sheikh & Wang, 2011). On the other hand various studies showed a positive relationship between firm growth and leverage (Ozkan, 2001; Nguyen T.D & Neelakantan R. 2006; Alnajjar, B., 2011)

## **METHODOLOGY**

### **The study**

This study uses the market data of industrial sector listed companies of Jordan over the period of (2011 to 2013). However, accounting data is taken from balance sheet analysis of industrial sector. There are 11 industrial sectors therefore this paper is using the data of all 11 industrial sectors of Jordan, Subsequently, some companies removed from sample and finally it reduced to 58 out of 68 listed companies on Amman stock exchange (ASE) from (2011-2013).

### **Hypotheses**

*H1: The level of leverage is positively related to company size*

*H2: The level of leverage is negatively and or positively related to profitability.*

*H3: The level of leverage is positively related to the level of tangibility.*

*H4: The level of leverage is negatively related to MBV.*

## The Data

The study depended on the following sources for collecting the needed data:

1- Annual reports issued by Jordanian industrial companies.

2- Annual report issued by Amman Stock Exchange.

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 used measures of leverage. Divides total liabilities by total assets. Similarly, the explanatory variables that could be collected are measures of company size, profitability, tangibility, and Market to book ratio (MBV) (A proxy for growth opportunities).

## The model specification and Estimation approach

To estimate the panel regression model, the Ordinary Least Squares (OLS) was used to examine the determinants of the capital structure (leverage) and Market to book ratio (MBV) of the industrial companies in Amman Stock Exchange (ASE) over the period (2009-2011). Descriptive stats are used for describing the central tendency of data and standard deviation of values of data. Panel data set is used for broader set of data, 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. And collinearity diagnostics are used for confirming that there is no multi-collinearity in the variables. Following model is specified on the basis of financial theories and previous empirical studies.

$$\text{Leverage}_{i,t} = \alpha_0 + \beta_1 \text{TANG}_{i,t} + \beta_2 \text{PROFIT}_{i,t} + \beta_3 \text{MBV}_{i,t} + \beta_4 \text{Size}_{i,t} + \varepsilon_{i,t}$$

Where LEVERAGE = Total liabilities divided by total assets, TANG = Book value of fixed assets to total assets, MBV = Market value of equity to the book value of equity (A proxy for growth opportunities), PROFIT = Earnings before interest and tax to book value of total assets., SIZE = Natural logarithm of total assets,  $\varepsilon_{i,t}$  = the error term which represents measurement errors in the independent variables, and any other explanatory variables that have been omitted, i stands for company i (i = 1, ....about 58) and t for the time period (t = 2011 – 2013).

## EMPIRICAL RESULTS AND DISCUSSION

Table 1 report some descriptive statistics about the capital structure and the other variables for our sample of companies. Table 2 is describing the values of collinearity diagnostics, and table 3 is describing the results of regression analysis.

### Descriptive Statistics

Table 1 reports the descriptive information for the full sample of firms used in this study. It contains the mean values and standard deviations values of the key variables used in the study.

Table 1: Descriptive Statistics for All Variables

	N	Mean	Std. Deviation
	Statistic	Statistic	Statistic
LEVERAGE	174	.330	.208
TANG	174	.361	.190
Profitability	174	.029	.092
MBV	174	1.178	1.156
SIZE	174	7.299	.584

Based on this Table, we can make the following Comments. First, leverage has a mean value of (0.330) and standard deviation of (0.208). It is important to compare these indications regards to leverage with the results reported by some of the studies that have been conducted in the context in both developed & developing countries. Jordanian industrial companies leverage can be estimated as a low mean compared to those means estimated in developed countries such as the one estimated in Germany (0.73), Japan (0.69), United States (0.58), and United Kingdom (0.54), reported by (Rajan & Zingales,1995). However, more recent work for (Molina, 2002) reported a leverage with a mean around (0.29) for a sample of US companies covering the period between 1992-2000, in line with these findings came the efforts of (Frank &Goyal, 2003), in which they report a number of leverage measurements with an average mean a round (0.24). This mainly suggests that firms in developed countries such as the US firms have changed their financing behaviour from debt to equity or retained earnings. Regards to developing countries the similarity in the results would be clearer since these countries shares the same economic conditions and suffers the same repercussions of the recent financial crisis. (Sbeiti, 2010) reported a leverage with a mean of (.201) for Saudi Arabia & (.266) for Kuwait. A year later (Dawood, M. H. A. K., Moustafa, E. I., & El-Hennawi, M., 2011) reported leverage with a mean of (.242) taking number of Egyptian firms as a sample. Several other studies also conducted in Jordan such as the one presented by (Khrawish & Khraiweh, 2010) also conducted a study using the Jordanian Industrial companies as a sample for the period (2001\_

2005) estimating the leverage mean of (.303), (Faris, A. S., 2010) reported a leverage with a mean of (.316) for the same sample with period (2004-2007) , so clearly that the leverage ratio become high after 2008 financial crises as current study period sample present.

Secondly, the growth variable (MBV), which is measured by the market to book ratio, shows a mean value of (1.178) with standard deviation of (1.156). Compare these indications regards to growth with the results reported by some of the studies that have been conducted in Jordan. Can be estimated as a low mean compared to those means reported by (Faris, A. S. 2010) shows a mean value of (1.99), (Abdelal, K., & Omet, G., 2010) in their results shows mean value of 1(1.481). Based on presented results we can comments that growth variable (MBV) in this research is below than it before 2008 financial crises for main reason that the Jordanian stock market experienced some heavy losses, also that explain the rises in leverage ratio presented above at the same period. (Jensen, 1986) higher growth opportunities provide incentives to invest in more risky projects which could result in the increasing of the cost of debt since investing in more risky projects exacerbates the asset substitution problem. As a result, high growth firms tend to rely more on internal resource (retained earnings) or even equity capital rather than debt. Finally, high growth firms might not want to commit themselves to debt servicing as their revenue might not be available when needed. Thus, high market-to-book firms are expected to have lower leverage.

### Collinearity Diagnostics

Table 2: Collinearity Diagnostics

Model	Collinearity Statistics	
	Tolerance	VIF
Tangibility	.957	1.045
Profitability	.810	1.235
MBV	.946	1.057
Size	.864	1.157

Multicollinearity misleadingly inflates the standard errors. Thus, it makes some variables statistically insignificant while they should be otherwise significant, so it may be helpful to study whether there is a causal link between the variables. In multiple regression, the variance inflation factor (VIF) is used as an indicator of multicollinearity. Computationally, it is defined as the reciprocal of tolerance:  $1 / (1 - R^2)$ . Most commonly, a value of 10 has been recommended as the maximum level of VIF. The VIF recommendation of 10 corresponds to the tolerance

recommendation of .10 (i.e.,  $1 / .10 = 10$ ). Since the VIF for all variables are ranged between (1.045 – 1.235) as shown in table (2) which indicates that the model does not suffer from any multicollinearity problem. Therefore linear regression model can be used for analysing the data.

## Regression analysis

Table 3: regression analysis

Variables	Regression Coefficients	T – Statistics	Standard Errors	Sig.
Tangibility	.213	2.980	.078	.003
Profitability	-.163	-2.097	.174	.037
MBV	-.222	-3.096	.013	.002
Size	.203	2.706	.027	.008
R Square	.376			
Adjusted R Square	.357			
F – Statistics	9.052			
Overall P Value	0.000			

Results are showing that (MBV) growth variable is significantly related with industrial sector firms and has significant negative impact on firm's financial policy. Profitability is also significantly related with industrial sector firm's financial policy and has negative relation with firm's financial policy in industrial sector, this result, which 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 (Abdelal, K., & Omet, G.2010). Asset tangibility also has a significant effect on financial policy of industrial sector firms and has a positive relation with financial policy. Finally, size of firm (Ln Total assets) has a significant effect on financial policy of industrial sector firms and has a positive relation with financial policy, R-square and adjusted R-square values are 0.376 and 0.357 are showing that how much this model is explaining the relationship. F-stats values 9.052 are showing the fitness of model. As this study is conducted in a developing economy but the results of this study are also in line with the studies conducted in the developing economies by the (Akhtar & Oliver, 2009; Lipson & Mortal, 2009; Liaqat. A., 2011; Sheikh & Wang, 2011).

## SUMMARY AND CONCLUSIONS

Analysis of economic value creation process has been the core field of study for financial and business economics researchers. Analysts always observed the variables and factors that have influence on economic value creation process and try to augment these variables by controlling

their effects. Therefore, analysing of optimal capital structure factors is very important. This paper has examined empirically the relationship between the capital and market to book ratio (as a proxy for growth opportunities), by using the data for the period of 2011-2013. The sample of this study consists of panel data for all industrial companies listed within the Amman Stock Exchange (ASE), a total of 58 companies.

The results of the paper reveal that the leverage ratios of listed industrial companies in Jordan are relatively low. The results of the indicates significant differences among the companies in the sample with respect to growth opportunities, size, Tangibility and Profitability as determinants of capital structure. The regression analysis shows that total debt is positively and significantly related to size and tangibility, negatively and significantly related to both growth and profitability. 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. This study results are useful for lenders, analysis and for investors as well.

## LIMITATIONS AND FURTHER RESEARCH

Limitations occurred in this study as, the period of this study is three years it's not more enough, We believe, longer period its will give us more clearly result, in addition take another sector beside industrial sector it will be good to compares the results, and see the effect of financial crisis on market stock prices in the whole market, and its effect on capital structure decisions for different investment fields.

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