

Business Risk Impact on Capital Structure: A Case of Jordan Industrial Sector

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Abstract

This research study aims to investigate that how industrial sector firms decide about their capital structure with reference to risk exposure. This research concludes about the manager's behavior with respect to business risk, profitability, firm size and sales growth. Design/methodology/approach: Data of industrial sector of Jordan, over the period of 2009-2011 is used for this study. Linear regression model is used for data analysis. Findings: This research study results show that industrial sectors firm's managers are risk averse, whereas sales growth and firm size are positively related to financial policy decision. Profitability is negatively related with financial policy of the firm.

Index terms— business risk, profitability, size, sales growth, capital structure.

1 I. Introduction

Since the theory of irrelevance of firm's value presented by Modigliani & Miller (1958), capital structure determinants have been a core research topic for financial researchers (Ullah et al., 2012). Several theories have described the elements allied to capital structure namely trade-off theory, agency theory, free cash flow theory, signaling theory, market timing theory and pecking order theory. These theories attempted to prove the best arrangement of debt and equity mix needed to increase the company's value.

According to signaling theory, more information is available to insiders regarding the firm than the outsiders. When the firm's future is bright then managers use debt instrument for raising finance at low interest rates. At that time risk of default is less. Another reason is, the gain sharing become less because of fewer shareholders. In the bad times, managers issue equity for sharing their losses and it reduces the risk of bankruptcy.

Signaling theory explains the capital structure very good but still the relation between debt usage and firm quality measures is ambiguous, particularly from the perspective of reverse problem causation of whether a manager take hazardous decision about issuing long term debt or not.

Pecking order theory gives weight to internal financing and considers the external financing as more costly for risky stock. The reason behind is asymmetry of information among managers and security holders. Therefore firms give preference to internal financing and then leverage and lastly issue the equity (Myers & Majluf, 1984). Theory of Trade-off decides the optimal debt equity mix by weighing the benefits of increased leverage (agency cost reduction and tax benefits) against the increased leverage cost (bankruptcy cost) (Korajczyk & Levy, 2003).

According to Andersen (2005), trade-off theory put forward a comparative relation between economic performance & financial leverage from bankruptcy cost perspective. Probability of bankruptcy increases as leverage increases which also increase the risk of firm's inability of repayment of interest and loan. ??an Horn (2002) argued that highly levered firms are less attractive for investors as compare to low levered firms because of significant bankruptcy risk and associated bankruptcy costs.

Firms risk can be defined as financial risk and business risk (Ward, 1993). Business risk is affected by volatility in earnings and earnings become volatile when the environment is uncertain. Financial risk is allied with the promises related to debt obligation. Effect of risk was studied by Abor and Biekpe, (2005) in the economy of Ghana and later on firms' financing decision with reference to risk exposure was also examined by Bokpin and

Isshaq, (2008). Furthermore, Abor and Biekpe, (2009) extended the research and studied the risk exposure relation with capital structure for the developing countries firms. Likewise, the changes in capital structure made by managers with reference to risk exposure were investigated by Bokpin, Anthony and Kofi (2010). This whole discussion points to the importance of risk elements with reference to capital structure determination and Kale, Noe and Ramirez, (1991) also points to the risk as primary determinant for describing the optimal debt equity mix.

There is a disagreement about the effect of business risk on the optimal debt level. Bradley, Jarrell & Kim (1984); Carleton & Silberman (1977) and Castanias (1983) argued favorably about the effect of business risk on debt equity mix; Long & Malitz (1985) found a negative effect; but Ferri & Wesley (1979); Flath & Knoeber (1980) and Titman & Wessels (1988) conclude that business risk have no significant relationship with leverage. This study provides a clear answer about the question of effect of business risk on optimal level of debt (Kale, Noe & Ramirez, 1991). All these researches are indicating the importance of the business risk for the business. Therefore it is important to consider the business risk factor for the firms while increasing leverage (Ullah, et al., 2012).

Considering the above discussion, it seems that risk factor is critical for capital structure decision. Therefore, level of risk should be determined while deciding about the capital structure. Global financial crisis has increased the importance of business risk factor now days. Therefore it is important to identify that: Does risk exposure affect the capital structure of the non-financial listed firms from industrial sector at Amman Stock Exchange?

This research contributes in the literature by considering the sample size from Jordan and analyzing the risk exposure factor in relation to the capital structure decisions made by the managers. This study investigates that do the firms regulate their capital structure decision in relation to the business risk and do the sales growth, size and profitability impacts the capital structure. An extensive review of literature reveals that "how capital structure is adjusted due to risk factors" is minimally examined avenue of research in Jordan. Keeping in mind, the suggestions of Amidu, (2007), present study incorporate the business risk factor.

This research gives empirical evidence and put significant value in the capital structure literature. The study has a unique importance as it will provide knowledge to financial analysts, researchers, academicians and financial practitioners about the risk mechanism effects on the financial policy and returns related decisions. Furthermore it will add value to the literature of capital structure by providing practical evidence concerning the risk effect on the capital structure of the non-financial listed firms from industrial sector at Amman Stock Exchange. Managers can use this research for analyzing the current scenario of Jordan relevant to risk and its effect on capital structure.

For examining the effect of business risk, this study considers the data of five nonfinancial sector listed firms of Amman Stock Exchange for the period of five years from 2006-2010. Bokpin, Anthony and Kofi, (2010); Abor and Biekpe, (2009); Abor and Biekpe, (2005) and Bokpin and Isshaq, (2008) studied the effect of risk exposure on the debt equity mix in emerging economy but all these all studies are on Ghana Stock Exchange. According to author's knowledge, Alnajjar (2014) carried out a sole study in the Jordan relevant to risk exposure. Therefore, this study contributes in literature by examining the risk factor impact on capital structure of the firm listed on Amman Stock Exchange.

2 II. Literature a) Business Risk

Scholars have given intense attentions to the issues related to capital structure from last few decades. Capital structure is a mixture of debt and equity in a suitable ratio, required for running the routine operations of corporations. Choice of capital structure (debt equity mix) is related to firm's financing decision (Glen and Pinto, 1994). According to Graham and Harvey (2001) the decision of capital structure is critical for corporations. Later on, a similar argument was also given by Bancel and Mittoo (2004) after surveying the American and European corporations that management considers the financing decision very crucial for their success and earning point of view. Furthermore, a survey conducted by Colombage (2007) in an Asian economy Sri Lanka also supports this argument by saying that a corporate executive in Sri Lanka considers the corporate financial policy very crucial.

Financial policy has significant effect on the profitability of the firm and the risk related factors as well (Bos and Fetherston, 1993). Up to this time, many theories have emerged which describe the important factors determining the capital structure of corporations. Earth breaking study of Modigliani and Miller (1958) presented the theory of irrelevance of firm's value and since that debt equity mix became the hot issue for finance researchers. This ground breaking study considers that firm's value is unrelated with its financial policy under some conditions. Modigliani and Miller (1958) considers that bankruptcy risk, transaction costs and tax shield benefits are the potential factors which increases the value of capital structure decisions. In the absence of these factors, financial policy decision is not of any importance and do not have significant impact on the firm's value and consequently, financial policy decision does not change the firm's market value and cost of capital. Hamada (1972) investigated the risk factor in relation to capital structure and described that capital structure is significantly associated with systematic risk and explains about 21% to 24% systematic risk of firm. Moreover, the result of study of Castania (1983) conducted on 36 business lines shows that firms considering bankruptcy risk use less debt in their capital structure because of increased risk association. This depicts that increased bankruptcy risk lead the firms towards the less usage of debt in their debt equity mix.

Afterward their earth-breaking theory of irrelevance of firm value, Modigliani and Miller (1963) stated that imperfection of capital markets provide the room to leverage for increasing the firm value. This study of Modigliani

and Miller (1963) provided the base to the subsequent research work in the area of capital structure determinants. Resultantly, research scholars started the investigation of importance of various factors for capital structure determination and their strength of impact for determining the capital structure. Like, importance of size of the firm for determining the capital structure was investigated by Scott and Martin (1976). Fama and Miller (1972) investigated financial policy issue by using the agency cost theory and subsequently Jensen and Meckling (1976) also researched the similar idea. Harris and Raviv (1991) reaffirmed the significance of agency issue in the formation of capital structure. There is a slight disagreement by Bradley, Jarrell & Kim (1984) about the agency cost significance in the formation of capital structure. They consider that it is a partial feature for defining the financial policy of corporations. Baxter (1967) says that short-term debt is used to minimize the agency conflict in the organization and similar conclusion was also given by Leland and Toft (1996) in their study.

Firms risk can be defined as financial risk and business risk (Ward, 1993). Business risk is affected by volatility in earnings and earnings become volatile when the environment is uncertain. Financial risk is allied with the promises related to debt obligation. When the business increased then the bankruptcy risk also increases which is positively related with financial risk of company (Peirson, Bird, Brown & Howard, 1990). Firms with more volatile cash flows experience high operating risk and there are high chances of failure to pay their debt payments (Johnson, 1997). According to Kim & Sorensen (1986), firms with high operating risk uses smaller amount of debt in their debt equity mix because of increased financial risk. Hence the firms working in highly risky environment should reduce their debt usage so that they can reduce business risk which will reduce their bankruptcy risk. This shows that business risk and bankruptcy risk are inversely related with use of debt (Andersen, 2005).

Increased leverage in the capital structure increases the rate of interest and subsequently bankruptcy risk also increases (Baxter, 1967). When the debt is less risky than the interest rate increases slowly but when the debt is more risk than interest rate also increase accordingly at a higher rate. Riskiness of debt is related to volatility of firm's earnings (Baxter, 1967). If the earnings are stable and less volatile then the debt is considered as less risky and interest would be low but the volatility is higher and lead toward instability in earnings then debt is considered as highly risk and interest rate charged would be higher. Most of the above discussed studies were conducted in the developed markets of Europe and America. Therefore, findings of these studies could not be applied in the developing economies are under-developed economies because of difference of economic conditions. As (Eldomiaty, 2007) says that level of efficiency and institutional arrangements in the emerging economies are different from the developed economies. Glen and Singh, (2004) argues that corporations in emerging economies apply less debt in their capital structure and this level of debt inclusion have fallen down in recent years. This argument was give about a decade ago. Therefore, it is essential to conduct a study in an emerging economy for providing the insights about the present situation of capital structure arrangement in the organizations. As Jong, Kabir and Nguyen (2008) also argue that firm' specific determinants of capital structure diverge from country to country and region to region. Therefore, this study is conducted in an emerging economy. Ho = Business risk of the firm influences the financing policy of a firm. Hi = Business risk of the firm does not influence the financing policy of a firm.

3 b) Profitability

Many researchers conducted investigation on the determinants of capital structure after the Modigliani & Miller (1963) study but there is a contrasting argument about the profitability relationship with capital structure. Bos and Fetherston (1993) consider that profitability is significantly related with capital structure formation decision. Pecking order theory is related to profitability and describes the relationship of capital structure with profitability. When the profitability of the firm increases, firms go for internal financing (Rajan and Zingales, 1995; Supanvanij, 2006 and Akhtar and Oliver, 2009) which lowers their bankruptcy risk. Although firms cannot enjoy the tax shield benefits which could be availed because of increased leverage. Under the pecking order theory, firms use the retained earnings and profits for furthering their investments and afterward these investments became the part of their capital structure. So, in accordance with pecking order theory, firms with high profitability incorporate less debt while forming their financial policy. Friend and Lang (1988) study results are also in line with the pecking order theory.

Ho= Profitability of the firm influences the financing policy of a firm. Hi= Profitability of the firm does not influence the financing policy of a firm.

4 c) Size

Firm size has varying relationship with short term debt financing and long term debt financing. Study of Marsh (1982) stated that large firms prefer to go for long term debt and comparatively firms with smaller size go for short term debt. Firm size provides the economy of scale to large firms. Therefore, there bargaining power also increases. Issuance of debt to large firms is also beneficial because of low bankruptcy risk and stable earnings. Large firms do not consider the direct bankruptcy costs as an active variable in deciding the level of leverage. This view is supported by Marsh (1982), Buferna et al. (2005), Supanvanij (2006) and Akhtar and Oliver (2009).

Availability of information of large firms is also easy for lenders ??Fama and Jensen, 1983) therefore they prefer to extend them loans. Information disclosure is always high in large firms comparative to smaller firms (Rajan and Zingales, 1995), thus the reliability of large firms is greater for lenders. Sometime, large firms are

appeared to be the followers of pecking order theory and they have low level of debt and comparatively more equity in their capital structure. High cash flows and stability in earnings make the large firms more diversifies comparative to small firms and therefore their probability of bankruptcy is also very low.

Both types of arguments are available, which are supporting the relationship between size and leverage negatively and positively. Stulz (1990) and Harris and Raviv (1990) argue that when the value of the company increases it leads to increase in firm's leverage. Rajan Zingales (1995), Booth et al. (2001), Marsh (1982) and Wald (1999) found a positive relation between of leverage with the size of the company. Whereas, Wald (1999) and Rajan and Zingales (1995) found that firms with large size have less debt.

Ho= Size of the firm influences the financing policy of a firm.

Hi= Size of the firm does not influence the financing policy of a firm.

5 d) Sales Growth

Many studies suggest a negative relationship between sales growth and incorporation of debt in capital structure. This view is supported by Smith and Watts (1992), Rajan and Zingales (1995), Lang, Ofex and Stulz (1996), Barclay and Smith (2005), Buferna et al. (2005), Supanvanij (2006) and Akhtar and Oliver (2009). Firms will use less debt when there would be growth in sales. This concept is in line with the pecking order theory. With the increased sales, firms earning will increase got more stability which will in turn lead to internal financing for expanding investment. Harris and Raviv (1991) argues about the negative association of long term financing with the growth. Ho = Sales growth of the firm influences the financing policy of a firm. Hi = Sales growth of the firm does not influence the financing policy of a firm.

6 III. Methodology

This study uses the data of industrial sector of Amman Stock Exchange for the period of 2009-2011. Data is taken from the balanced sheet analysis issued by the Amman Stock Exchange. Panel data of 11 industrial sectors of Amman stock exchange are used for this study because of data accessibility concerns. Descriptive stats are used for describing the characteristics of data. Collinearity diagnostics are used for checking the multi-collinearity of data so that linear regression model can be used. Below mentioned econometric equation expresses the suitability of common effect model for the analysis of panel data.

Equation (1) is used to denote the capital structure which is measured through the ratio of debt and equity. Subscript i is the representation of firms and t is the representation of time. α is constant of the linear regression model. σ depicts the business risk for the firms which is measured by standard deviation in earnings before interest and taxes. P is denoted for profitability measured through the ratio of return on asset. K is denoted to size which is measured by firms total assets and H is denoted to sales growth measured through current year's sales -last year's sales / last year's sales. ϵ is an error term of the common effect model.

7 IV. Results and Discussion

This section describes the results of descriptive statistics along with collinearity diagnostic and the results of linear regression model. Descriptive statistics Mean value for the capital structure is .6416299441 with the differing value of .29070654970 which shows a high standard deviation value as compare to mean value. Mean for business risk is 14.406910734 and standard deviation is 1.8413670111 which depicts a small variation. Profitability shows mean value 3.3358728002 with a standard deviation of 7.34518498470. Size mean value is 18.768967976 with standard deviation value 1.3216150033. Sales growth mean value is 0.098288790 with a very high standard deviation.2434462291. Collinearity diagnostics observes the multicollinearity factor in the study variables so that linear regression model could be applied for data analysis. Level of tolerance and VIF values determine the absence or presence of multi-collinearity in the observed variables. Analysis statistics shows that business risk have negative association with the debt equity ratio. Business risk is impacting the debt equity mix with the negative value of 0.053. Profitability is also negatively related with the debt equity mix and reporting the negative value of 0.004. Size also have relationship with firm's capital structure and has positive correlation with debt equity mix with the positive value of 0.103. Sales growth is positively related with the capital structure of the corporations in industrial sector with the positive value of 0.424.

Outcomes are representing that industrial sector managers are considering the business risk when they decide about their firm's capital structure. When, the firm's earnings become more unstable than managers reduce the level of debt from their financial policy. So that bankruptcy risk could be avoided. Hence, industrial sector executives have deep concern about the risk related factors and they act like risk averse. One more reason behind acting like risk averse is to avoid the uncertainty prevailing in the Jordan economy. Therefore executives do not take high risks. These results are harmonized with the results of Long and Malitz (1985).

As the industrial sector managers' attitude is risk averse therefore lender organizations could extend the loans to them. Industrial sector managers will not extend their debt level beyond the certain limit because of increased bankruptcy risk. Therefore lenders should feel free to lend their money to industrial sector firms in registered on Amman stock exchange, Jordan. Results of profitability also support the risk averse behavior of industrial sector managers and results of profitability are also in line with the pecking order theory. Managers always go for internal financing when their profitability increases which decreases the level of debt in the capital structure.

Increased profitability provides the opportunity to the managers to finance their operations through internal financing which decreases their reliance on the external financing. Through internal financing managers avoid the business risk. Result of profitability relationship with capital structure is in line with the study of Carleton and Silberman (1997) conducted on United States corporations. Although present study is conducted in an emerging economy but results are supporting the pecking order theory and confirming the relationship of profitability with capital structure found in developed economy by Wiwattanakantang (1999), Wald (1999), Rajan and Zingales (1995) and Booth, Varouj, Asli and Vojislav (2001).

Result shows that firm size is significantly related with capital structure. With the increase in firm size, debt equity ratio also rises. Fix asset of firms provide the bases to debt. Therefore, corporations with more total assets use the higher level of debt in their debt equity mix. More total assets provide the opportunity to the managers that they could incorporate more debt in their capital structure by putting the more assets as collateral. Collateral provide more security to lenders against their money. Therefore, managers use this opportunity of incorporating more debt for enjoying the tax shield benefits and maximizing their profits. It also minimized the loss ratio against equity as the liability of the public limited firm is limited to its equity. This is evident that increased firm size make the managers risk seeker therefore they incorporate more debt in their financial policy. Studies of Wald (1999), Marsh (1982) This study results show that sales growth is significantly related with capital structure. Results show that managers of industrial sector firms go for incorporating more debt when their sales go higher. Managers consider that increased revenue provides the opportunity for easy interest payments and hence it will also result in high profitability through tax shield benefits. This incorporation of debt in debt equity mix also increases the market investment of firms which eventually increases the sales of firms.

8 V. Conclusion and Implications

This research study investigates the behavior of industrial sector firm's managers about the capital structure formation decision with respect to business risk, profitability, size of the firm and sales growth factors. Panel data of industrial sector of Amman Stock Exchange of Jordan is used in this investigation. Analysis reveals that managers become risk averse while deciding about their financial policy when there is volatility in revenues. Thus, the bankruptcy risk could be avoided. Profitability is found positively associated with the financial policy formation which demonstrates that executives of industrial sector firms use more debt when there is stability in revenues and profit increase so that they could enjoy the tax shield benefits.

Industrial sector executives incorporate debt in accordance with the size of the corporation. As the firm size goes larger, they use more debt in their capital structure. Large firm managers use assets as collateral for acquiring more debt from the lender organizations. Managers of high sale growth firms consider the pecking order theory and prefer the internal financing policy so that they could avoid bankruptcy risk. This internal financing provide the basis to agency issue because executives do not offer dividend to owners. Consequently this internal financing become the reason for decreased earnings because of not having the tax shield benefits. Therefore, firms with high sales growth are under the problem of agency issue.

Analysis confirms that executives of industrial sector are very sensitive about risk factor. They give considerable importance to sales growth, profitability, business risk and size while incorporating and increasing the level of debt in their capital structure. Hence, moneylender should not be much worried about their advancing to industrial sector firms. This research study outcomes are valuable for investors, moneylenders, analysts and for scholars as well.

9 Global

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Figure 1: 2 Global

explains

the mean values and standard deviation values.

a) Descriptive stats

	Table 1		
	Mean	Std. Deviation	N
Capital Structure	.6416299441	.29070654970	33
Business Risk	14.406910734	1.8413670111	33
Profitability	3.3358728002	7.34518498470	33
Size	18.768967976	1.3216150033	33
Sales Growth	.098288790	.2434462291	33

Figure 2: table explains

2

		Tolerance	VIF	
Business Risk		0.244	4.100	
Profitability		0.902	1.108	
Size		0.235	4.263	
Sales Growth		0.980	1.020	
c) Regression Model				
	Table 3			
Variables	Regression	T -	Standard	P
	Coefficients	Statistics	Errors	Values
(Constant)	-.549	-.665	.825	.051
Business	-.053	-1.261	.042	.021
Risk				
Profitability -.004		-.533	.008	.059
Size	.103	1.758	.059	.050
Sales	.424	1.959	.216	.060
Growth				
R -Square .482				
Adjusted R	.418			
Square				
F -	6.789			
Statistics				
Overall P	.000			
Value				

Figure 3: Table 2

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