Determinants of Capital Structure: A Case of Life Insurance Sector of Pakistan

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Abstract

Current study investigates the impact of firm level characteristics on capital structure of life insurance companies of Pakistan. For this purpose, leverage is taken as dependent variable while profitability, size, growth, age, risk, tangibility of assets and liquidity are selected as independent variables. The result of OLS regression model indicates that size, profitability, risk, liquidity and age are important determinants of capital structure of life insurance companies.

Keywords: Capital structure, firm level characteristics, life insurance companies.

1. Introduction

Capital structure refers to relationship between long term, short term forms of financing such as debentures, bonds, bank and trade credits, commercial papers, preference share capital and equity capital. In another words, it refers to relationship between equity capital and debt capital that are combined in target proportion to attain the goals of the firm. Insurance companies are especially interested in determining the capital structure patterns, because these companies require funds to settle the claims or pay damages at the time of loss. The current business world without insurance companies is unsustainable because risky businesses have not a capacity to retain all types of risks that they are faced during the operations. If insurance companies discontinue to providing insurance in the economy then it might happen that firms or businesses stop their operations or might face insolvency due to high risk.

For the last sixty years life insurance industry of Pakistan has shown an impressive progress which not only expands the business activities but also creates the employment opportunities in the economy. Currently five life insurance companies are working in Pakistan. Statistics are also reported the inspiring growth of these life insurance companies as the premium of life companies increased by 36% in 2007 (Insurance Year Book, 2007). In addition, these five life insurance companies comprise 69% and 52% share of entire insurance market in terms of assets and net premiums respectively (Insurance Year Book, 2007). This progress might be the result of improving the services of insurers or introducing new products (types of insurance) in the market which were not available in previous decades.

2. Theoretical Framework

The real debate on the capital structure was started after the publication of the celebrated paper of Modigliani and Miller (MM) in 1958. With the assumptions of perfect market and no tax world MM proposed that the selection of debt-equity was independent of the value of the firm. Modigliani and Miller provide path and guidelines for the researchers to analyze the financing patterns and later several hypotheses have been put forward or considerable work has been done by researchers to analyze the determinants of capital structure. In 1963, Modigliani and Miller wrapped up the corporate tax assumption and intended that the value of the firm or cost of capital varied with the variation in the utilization of debt capital due to tax benefits (Baral 1996).

Jenson and Meckling (1976) developed agency cost hypothesis and identifying the two types of conflicts i.e. between shareholders and managers and debt holder and equity holders. Agency cost hypothesis suggests that firm's managers are mainly interested to maximize their own benefits than to maximize shareholders wealth. Therefore, the stockholders of the firm try to discourage these interests by means of monitoring and control actions which also prospects cost i.e. agency cost.

Myers and Majluf (1984) and Myers (1984) made a valuable addition in capital structure literature by providing Pecking Order and Static Trade-off Hypothesis respectively. According to the Pecking Order Hypothesis, the firm should follow specific hierarchy for financing its assets. Initially, the firm utilize internally generated fund i.e. retained earnings then debt and If more funds are required then assets are financed by equity capital. Trade-off hypothesis proposed that firm should have optimal capital structure based on balancing between the benefits of debt and costs of debt. In other words, firm sets target debt-equity ratio according to the nature and requirements of business and then gradually moves to achieve it.

In Pakistan, various studies investigated the determinants of capital structure by selecting the sample of only non-financial firms of Pakistan. However, to the best of author's knowledge, no single study has focused on financial sector especially insurance companies of Pakistan. Therefore, the current study investigates the determinants of capital structure of life insurance sector of Pakistan over the period of seven years from 2001 to 2007.

3. Methodology

3.1. Sample and Data

Currently five life insurance companies are working in Pakistan and all these companies are selected for final analysis over the period of seven years from 2001 to 2007. Various sources have used for data collection. The book value based yearly financial data has collected from the financial statements (Balance Sheet & Profit and Loss A/c) of insurance companies, financial publications of State Bank of Pakistan and "Insurance Year Book" which is published by Insurance Association of Pakistan.

Model

$$LG = \beta_0 + \beta_1 (SZ) + \beta_2 (GR) + \beta_3 (PR) + \beta_4 (TA) + \beta_5 (LQ) + \beta_6 (AG) + \beta_7 (RK) + \varepsilon$$

Where:
- LG = Leverage
- SZ = size
- GR = growth
- PR = profitability
- TA = tangibility of assets
- LQ = Liquidity
- AG = age
- RK = risk
- ε = the error term

Table 3.1: Summary of Explanatory Variables and Their Expected Relationship

Determinants	Definitions / Proxies	Expected Relationship
Size	Natural Log of Premiums	positive
Growth	Percentage Change in Premiums	negative
Profitability	Net Income Before Interest and Tax divided by Total Assets	negative
Tangibility of Assets	Fixed Assets Divided by Total Assets	negative
Risk	Standard Deviation of Total Claims Divided by Total Premiums	negative
Liquidity	Current Assets Divided by Current Liabilities	negative
Age	Difference Between Observation Year and Establishment Year	negative

4. Empirical Results

The impact of seven explanatory variables i.e. size, profitability, growth, age, liquidity, risk and tangibility on capital structure of life insurance companies of Pakistan has examined by using Ordinary Least Square Regression model. Table 4.1 reports the results of regression analysis in which seven independent variables are regressed by using the data of life insurance sector of Pakistan from 2001 to 2007. The value of R square (0.968) indicates that debt ratio is nearly 97% dependant on control variables i.e. size, profitability, growth, tangibility, age, risk and liquidity. Therefore, leverage is mainly defined by these seven variables of life insurers in Pakistan over seven years. The adjusted value of R square is slightly lower than the R square i.e. 0.968. F statistics of regression model shows that the results are statistically significant at 1% level and hence prove the validity of estimated model. Furthermore, t values of regression statistics of size and risk are positive and statistically significant at 1% and 5% level respectively while growth and tangibility are positive but statistically insignificant. Moreover, table indicates that the t values of control variables size, profitability and liquidity are negative and statistically significant at 1% level.

Table: 4.1: Regression Coefficients & Significance level of Model A (Life Insurance)

Variables	Unstandardized Coefficients		Standardized Coefficients	t-value	Sig.
	B	Std. Error	Beta		
(Constant)	.321	.079		4.053	.001
Size	.111	.009	.838	12.538	.000*
Growth	.001	.000	.066	1.479	.155
Profitability	-1.182	.402	-.198	-2.940	.008*
Tangibility	.513	.804	.031	.637	.531
Liquidity	-.016	.005	-.252	-3.092	.006*
Age	-.019	.004	-.242	-5.001	.000*
Risk	.010	.004	.168	2.566	.019**

R Square 0.977
Adjusted R Square 0.968
F statistics 115.101
Significant at 1% level
**Significant at 5% level*

Table 4.1 shows that coefficient of variable size is positive and statistically significant at 1% level. This predicts that large size life insurance companies in Pakistan are preferred to utilize more debt in formation of capital. Thus, shows a positive relationship between the leverage and size of life insurance sector over seven years. These results also confirm the notion that large firms are employed more debt because these are less risky and diversified in nature (Static trade- off Theory). In addition, larger firms are preferred to issue more debt because it reduces direct bankruptcy costs due to market confidence. Moreover, smaller firms prefer to acquire lower debt because, these firms might face the risk of liquidation at the time of financial distress (Ozkan, 1996).

The positive coefficient of growth indicates a positive relationship between growth and debt ratio. However, this positive relationship is found statistically insignificant with the p-value of 0.155. Though positive sign confirms that growing firms are expected to have high debt ratio (Pecking Order Theory) but insignificant result indicates that growth is not considered as a proper explanatory variable of leverage in life insurance sector. Therefore, results rejected the hypothesis that agency cost of debt are expected to be higher of growing firms because these firms are more flexible with respect to future investments.

The coefficient of control variable profitability is found negative and statistically significant at 1% level. This negative sign indicates the negative relationship between leverage and profitability and predicts that, in Pakistan, profitable life insurance companies are preferred to utilize small portion of debt. This result confirms the notion that Pakistani life insurance companies follow Pecking Order pattern i.e. preferred to employ internal financing than debt. In addition, negative relationship also confirms the implication of Agency Theory which predicts that profitable firms are avoidable to get loan from inefficient markets due to the disciplinary role of debt.

Table 4.1 also depicts that the beta value of explanatory variable tangibility of assets is 0.513 with the positive coefficient sign. However, tangibility is not statistically significant with the large p-value. Although positive relationship shows that a firm with the large portion of fixed assets can easily raise debt or obtains more debt at relatively lower rates by providing collaterals of these assets to creditor but due to the insignificant relationship tangibility is not considered a powerful explanatory variable to define the debt ratio of life insurance companies in Pakistan over seven years. Results of regression model indicate that the control variable liquidity with the negative coefficient value -0.016 is statistically significant at 1% level. This negative sign shows the inverse relationship between the liquidity and debt ratio. Therefore, Pakistani life insurance companies with high liquidity ratios or more liquid assets are preferred to utilize these assets to finance their investments and discourage to raise external funds.

Negative coefficient of variable age specifies the negative relationship between age of the life insurance companies and debt ratio. This inverse relationship predicts that in Pakistan older or mature life insurance companies are preferred to utilize small portion of debt in formation of capital. One key reason to employ less debt ratio is that when firm survives in business for a long time then it can accumulates more funds for running the operations of the business and subsequently keeps away the firm to go for debt financing. (Nivorozhkin, 2005). In addition, positive relationship between leverage and age is not likely to apply in transition economies because experience or maturity of the firms before economic reforms is likely to be limited (Al-Bahsh and Sentis, 2008).

Table 4.1 shows that the coefficient of variable risk is positive and statistically significant at 5% level. Risk is only variable that is significant at 5% level among all the other control variables (size, profitability, liquidity and age) which are significant at 1% level. According to the nature of insurance industry ratio of total claims to total premiums is used as a proxy to measure the risk of the life insurance companies in Pakistan. Positive sign shows a positive relationship between capital structure and risk of the insurance companies i.e. debt ratio increases with the increase of claim ratio. This indicates that in order to fulfill the claims of the life insurance policyholder at the time of death or expiry of the policy, risky companies acquires external funds. Rafiq *at al* (2008) *is* also found positive relationship between leverage and risk.

Conclusion

This study investigates the determinants of capital structure of life insurance companies of Pakistan over the period of seven years from 2001 to 2007. Empirical results indicate that size, profitability, liquidity and risk are important determinants of capital structure of life insurance companies of Pakistan. In addition, life insurance companies follow Pecking Order pattern in terms of profitability, liquidity and age as leverage has a negative relationship with profitability, liquidity and age while positive relationship between leverage and size shows consistency with the Trade-off theory. The

results also indicate that leverage has statistically insignificant relationship with growth and tangibility of assets.

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