

Determinants of Capital Structure of Life Insurance Companies in Bangladesh: An Empirical Study

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Abstract

The study was conducted to explore the impact of firms' characteristics on the capital structure decision of life insurance companies in Bangladesh. For this research, 7 (seven) life insurance companies was chosen as a sample from listed insurance companies in Dhaka Stock Exchange (DSE) during the period 2010-2014. Our study was based on secondary data and SPSS was used to calculate multiple linear regression analysis. Each independent variable along with the dependent variable (leverage) was measured separately. Based on the regression result the study finds profitability (ROA), growth (GR), liquidity (LIQ) and dividend payout (DVP) have significant impact on the capital structure choice of life insurance companies in Bangladesh. However, size (LnGRP), tangibility (ASTG), business risk (RISK) and non-debt tax shield (NDTS) have no significant impact.

Keywords: *Insurance Company, Optimal capital structure, Leverage, Firm characteristics.*

Introduction

Capital structure theory attempts to explain the financial mix used to finance corporations and firms. Capital structure decisions are essential for business survival and prosperity. It is a controversial issue since the time that Modigliani and Miller (1958) raise the optimality of capital structure. Any immature capital structure decision can result in high cost of capital; thereby lowering firm's value while effective capital structure decision can do the opposite.

Literature revealed that various external and internal factors affect the capital structure of corporate organizations. The external factors include factors such as tax policy, capital market conditions and others and the internal factors are those that relate to individual firm characteristics. Capital structure theories have identified a wide range of internal factors potentially influencing capital structure choice (Mazur, 2007). Pinkova (2012) identified some of these internal factors to include: firm size, profitability, assets tangibility, taxation, firm growth rate and liquidity. However, the

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factors affecting capital structure vary from one country to the other due to variation in the level of social, environmental, economic, technological and cultural development.

Insurance Industry Scenario in Bangladesh

In Bangladesh, during the 1970s, government-owned Jiban Bima Corporation (JBC) and Shadharan Bima Corporation (SBC) was the only provider of life and general insurance coverage for individual and business properties. During that time insurance products were very few in number and the industry did not take innovative efforts for product development. In the country the first private insurance company was set up in 1985. Since then non-government insurers have shown rapid growth in terms of institutional set-up, policy design and business expansion. When non-government insurers gradually have gained the foothold in the country, real competition in the sector has begun. However, the insurance industry in Bangladesh is very small compared to its economy and the number of insurance policyholders is still not increasing satisfactorily (Islam & Mamun, 2005). At present, there are 44 (forty four) general insurance and 18 (eighteen) life insurance companies are operating in Bangladesh which are inadequate to provide insurance services to about 150 million people (BIA, 2000; Ahmed, 1977; Siddiqui, Islam and Chowdhury, 1995).

The insurance companies of our country perform a wide range of activities such as service designing, preparing contract and policy, marketing and selling, underwriting, rating, reinsurance and other services and claim settlement. The two governments owned insurance companies i.e., the Shadharan Bima Corporation (SBC) and Jiban Bima Corporation (JBC) get all the government insurance business by virtue of the Insurance Act of Bangladesh. According to the rule, all insurance in the government sector is done through these two nationalized insurance companies, so they enjoy a monopoly. None of the private insurance companies is allowed to offer insurance services to government organizations. Furthermore, these two corporations are also allowed to underwrite private businesses, and people feel confident about their reliability.

Literature Review

In optimal capital structure decision, many pioneering theories have been emerged time to time. For the first time, Modigliani and Miller (1958) proposed that in a world without corporate tax, the value of a levered firm is same as the value of unlevered firm, which designate the irrelevance of capital structure. Again in Modigliani and Miller (1963) argued that, if corporate tax imposed the value of levered firm will be higher than the value of unlevered, due to the interest tax shield on debt, which proves the relevance of capital structure for a firm (Imran & Akram, 2015). On the contrary, according to static trade off theory Scott (1977), an ideal capital structure can be gained when the trade off occurs between the interest rate shield and financial distress cost. This theory denotes that, debt financing is desirable till the optimal level and equity is adopted after the optimal level. The pecking order theory popularized by (Myers and Majluf, 1984 and Myers, 1984) denotes that, due to information asymmetry between equity provider and firm manager issuance of equity becomes expensive. Retained earnings are the main source of financing due to zero cost, followed by debt financing and equity financing. According to Jensen and Mecking (1976) for the conflict of owners and managers the problem of agency cost arises. To mitigate this problem, Jensen (1986) suggests that debt holders use their credit as a means of controlling. Firm characteristics are significantly related with capital structure. Rajan and Zingales (1995), Gill et al. (2009) and Lim (2012) also found similar set of factors as determinants of capital structure.

According to Static tradeoff theory, the risk of bankruptcy is minimized in case of larger firms. Debt financing is more suitable for larger firms. (Ahmed et al. 2010; Kumar et al. 2012; Najjar and Petrove 2011; Sharif et al. 2012; and Titman and Wessels 1988) supported this argument by empirical studies.

Theoretically pecking order by Myers (1984) exhibits that; profitable firms are less dependent on debt financing. Rather, retained earnings are main source of dependency. Empirical evidences from financial and non-financial firms (Ahmed et al., 2010, Gill et al., 2009, Najjar and Petrov, 2011, Hijazi and Tariq, 2006, Oliyinka, 2011, Rajan and Zingales, 1995, Sharif et al., 2012, and Teker et al., 2009) found profitable firms use less debt financing in line with the pecking order theory.

Firms with high growing tendency have higher risk and have less access to debt financing. Rather it has more internal source of financing and equity. Both static trade off theory Scott (1977) and agency costs theory (Myers; 1977 and Jensen and Meckling; 1976) support these arguments. Empirically (Hassen 2011; Najjar and Petrove 2010; Olayinka 2011; Rajan and Zinglas 1995; Shah and Khan 2007; and Titman and Wessle 1988) found growing firms are more financed by equity instead of debt.

A firm with more tangible assets can arrange debt financing more efficiently. Because it can use most of its assets as collateral to prove sound financial condition to its creditors. Jensen and Meckling (1976), in their agency cost theory and Modigliani and Miller (1963), under trade-off theory support this argument. Empirically, (Hassan 2011; Najjar and Petrov 2011; Noulas and Genimaks 2011; Rajan and Zingales 1995; and Titman and Wessels 1988) found relevance of this argument.

Firms with more liquid assets prefer to use these assets to finance future projects than debt or equity. Empirically, (Ahmed et al. 2011; Harris and Raviv 1990; Najjar and Petrov 2011; Sharif et al. 2012) found firms with more liquid assets prefer to use these assets to finance their investments and constrain to raise external funds (either equity or debt).

Static trade-off theory Myers (1984) argues risky firms have less access to debt compared to safe firms. This is because risky firms have more chance to face financial distress which can offset the tax benefit of debt. (Abor 2008; Barel 2004; Booth et al. 2001 and Bradley et al., 1984) found firm with high risk profile uses less long-term debt to finance its assets.

The interest expenditure on debt gives tax shield benefit to firms. Modigliani and Miller (1958) and Modigliani and Miller (1963) support this arguments. The interest tax shields give incentives for firms to use debt financing. But the tax deductions from depreciation and other non debt tax shields are substitutes for the tax benefits of debt financing (DeAngelo and Masulis, 1980). Empirical evidences (Bradley et al., 1984, Gill et al., 2009, Teker et al., 2009, and Titman and Wessels, 1988) found this relationship true.

According to static trade-off theory, negative relationship exists between the dividend payout ratio and debt level of a company (Myers, 1984, and Myers and Maljuf, 1984). Empirically, Abor (2011) and Bancel and Mittoo (2002) found negative relationship between dividend payments and long-term debt by supporting the static trade-off theory.

By reviewing the literature, it is clear that there are many factors which can affect the capital structure decision of a financial organization. In Bangladesh, various researches were done on the capital structure analysis by selecting different financial and non financial organization except insurance industry. Here the researchers try to find out the significance of different factors on leverage by selecting 7 (seven) life insurance companies in Bangladesh over the period of 2010-2014.

Objectives of the study

- To identify several factors of capital structure decisions of listed life insurance companies in Bangladesh.
- To analyze how the factors affecting capital structure decision.

Hypotheses of the Study

Taking into account the literature on capital structure debate, the null hypotheses have been proposed by the researchers about the possible determinants of the capital structure decisions of listed life insurance companies are as follows:

H01: There is no significant relationship exists between firm characteristics and capital structure in life insurance sector in Bangladesh.

H02: There is no significant relationship between profitability and leverage.

H03: There is no significant relationship between growth and leverage.

H04: There is no significant relationship between tangibility of assets and leverage.

H05: There is no significant relationship between liquidity and leverage.

H06: There is no significant relationship between size and leverage.

H07: There is no significant relationship between business risk and leverage.

H08: There is no significant relationship between Non-debt tax shield (NDTS) and leverage.

H09: There is no significant relationship between dividend payment (DVP) and leverage.

Research Design, Methodology and Measurement Issue

Data Sources and Data Collection Method

The study is based on secondary data. The main source of data is the Dhaka Stock Exchange (DSE). Information was collected from annual reports of the concerned listed companies from DSE library and also from the website of individual companies.

Sampling Method

According to the report of Bangladesh Insurance Association (BIA) on its website, there are 18 (eighteen) life insurance companies currently operating in Bangladesh. All insurance companies which have full data for the period 2010-2014 are selected purposively using judgmental sampling in the sample frame. Thus, the study considered 7 (seven) insurance companies during the period of 2010-2014.

Methods of Data Analysis and Model Specification

The study employs descriptive, correlation and inferential statistics to analyze the collected data using SPSS (Version 21) software. Descriptive statistical tools such as mean, standard deviations, minimum and maximum were applied to describe relevant information about each variable. Correlation statistics is also used to identify directions of relationships and associations among variables. Inferential statistics is used to test the hypotheses formulated above. The data were analyzed using correlation coefficient and regression analysis. The regression model is as follows:

$$LEV_{it} = \alpha_0 + \beta_1 ROA_{it} + \beta_2 GR_{it} + \beta_3 ASTG_{it} + \beta_4 LIQ_{it} + \beta_5 LnGRP_{it} + \beta_6 RISK_{it} + \beta_7 NDTs_{it} + \beta_8 DVP_{it} + \varepsilon$$

Where,

α_0 = The constant term,

β_1 - β_8 = The coefficients of the independent variables, ε = The error term,

i=Insurance company, t=Year or time.

Table 1: Variables Definition

<i>Variables</i>	<i>Definitions of variables</i>	<i>Authors used the variables in their research and year</i>
<i>LEV</i> (Leverage)	The proportion of total liabilities to total assets.	Rajan and Zingales (1995)
<i>ROA</i> (Profitability)	The ratio of net income to total assets.	Ahmed et al. (2010), Gill et al., (2009).
<i>GR</i> (Growth)	The percentage change in total asset.	Ahmed et al. (2010), Najjar and Petrov (2011).
<i>ASTG</i> (Tangibility)	The proportion of total fixed assets to total assets.	Hassan (2011), Najjar and Petrov (2011).
<i>LIQ</i> (Liquidity)	Current assets divided by current liabilities.	Harris and Raviv (1990), Sharif et al. (2012)
<i>LnGRP</i> (Size)	Natural logarithm of gross written premium.	Shah and Khan (2007) and Titman and Wessle (1988).
<i>RISK</i> (Business risk)	The standard deviation of total claim divided by total premium.	Abor (2008), Barel (2004).
<i>NDTS</i> (Non-debt tax shield)	The proportion of depreciation and amortization to total assets.	Bradley et al. (1984), Titman and Wessels (1988)
<i>DVP</i> (Dividend payout)	The division of dividend paid to net income.	Myers and Maljuf (1984)

Results and Discussion

Descriptive Statistics

The results of the analysis are presented in this section with the discussion of findings. The analysis begins with a range of descriptive statistics on the dependent variable and the independent variables. The descriptive statistics in table 2 presents, Bangladeshi life insurance industry tends to have averagely 94% debt and 6% equity. ROA, on average, is 1.065 Or 106%. Similarly, the mean value of growth (GR) is 0.1846 which indicate during the sample period the Bangladeshi insurance industry has grown by 18% annually on average with respect to their asset size. The proxy of

tangibility of assets (ASTG) during the sample period for the sampled insurance firms has the mean value of 0.094. Similarly, liquidity (LIQ) of sample insurance firms' assets has the mean value of 21.11 which indicates the sampled insurance companies have more than liquid assets in twice. The mean value of the LnGRP is 9.45. The mean value of the Non-debt tax shield (NDTS) is 0.0072, indicates, the sampled insurance companies have 0.72% of their total assets as non-debt tax shields.

Table 2: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
LEV	35	.0607	.9360	.311074	.3714335
ROA	35	.2592	1.4592	1.065498	.2987532
GR	35	-.0203	.5612	.184625	.1156419
ASTG	35	.0031	.4408	.094390	.1193750
LIQ	35	3.4033	46.3488	21.10604	12.55206
LnGRP	35	9.1526	9.8831	9.456881	.2741194
RISK	35	.0010	18.0503	4.795156	5.842391
NDTS	35	.0002	.0189	.007239	.0051268
DVP	35	.0000	.1180	.007214	.0195825

Correlation Coefficient

Initially, the researchers have conducted a Pearson correlation test to determine the direction of relationships and associations among the dependent and independent variables. The results of the correlation reveal that firm's liquidity, NDTS and DVP have negative relationship with leverage, meanwhile each of ROA, Growth, Tangibility of assets and Risk have positive relationship with leverage which have been shown in table 3.

Table 3: Summary of Pearson Product Moment Correlations

	LEV	ROA	GR	ASTG	LIQ	LnGRP	RISK	NDTS	DVP
LEV	1								
ROA	.069	1							
GR	.020	.209	1						
ASTG	.040	.091	-.019	1					
LIQ	-.185	.341(*)	.111	-.174	1				
LnGRP	.430(**)	-.377(*)	-.051	.168	-.308	1			
RISK	.148	.647(**)	-.226	.249	-.429(*)	.711(**)	1		
NDTS	-.222	.249	.007	-.162	-.211	-.687(**)	-.462(**)	1	
DVP	-.014	.505(**)	-.135	-.064	-.092	.254	.391(*)	-.272	1

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Regression Results

Table 4 presents a summary of the regression model used in this study. It reveals R^2 value of 0.572 meaning that only 57% of the variation in leverage can be explained by the degree of Growth, ROA, Tangibility, Liquidity, LnGRP, Risk, NDTS and DVP.

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.756(a)	.572	.429	.3623687	.572	4.011	8	24	.004

a Predictors: (Constant), DVP, ASTG, Growth, LIQ, LnGRP, ROA, Risk, NDTS

b Dependent Variable: Leverage

Table 5: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.214	8	.527	4.011	.004(a)
	Residual	3.151	24	.131		
Total		7.365	32			

The researchers have applied standard F-test and t-tests for hypothesis testing. For the hypothesis that all variables are jointly significant an F-test have been used and a t-test for testing each variable separately and standard confidence intervals at 95% significance levels. Summary results from hypothesis testing are shown in Table 6.

Table 6: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	15.146	29.726		.510	.615
	ROA	1.539	.430	.602	3.578	.002
	GR	.165	.314	.079	.526	.004
	ASTG	-.242	.123	-.279	-1.974	.060
	LIQ	-.529	.298	-.328	-1.776	.048
	LnGRP	-5.219	10.047	-.136	-.519	.608
	RISK	.149	.095	.358	1.573	.129
	NDTS	-.257	.255	-.237	-1.009	.323
	DVP	.230	.096	.349	2.383	.025

From the above table, it is obvious that the overall model is statistically significant. Moreover, Profitability, Growth, Liquidity and Dividend Payout are statistically significant while Tangibility of Assets, Size, Risk and Non-Debt Tax Shield are not.

Overall Model: The regression results emphasize a strong relationship ($R=0.756$) between the independent variables and the Leverage, therefore rejecting the first null hypothesis ($F = 4.011$, Sig. $0.04 < 0.05$).

Profitability: The result indicates significant positive ($t = 3.578$, Sig. $0.002 < 0.05$) relationship between Profitability and the Leverage, indicated by rejection of the 2nd null hypothesis (H_{02}).

Growth ratio: Growth opportunity of insurance companies, as shown on table 5, have significant and positive ($\beta = 0.165$, $0.004 < 0.05$), impact on the decision of insurance companies capital structure. Here, this result indicates as the insurance companies' assets grew by 1%, debt financing increases by 16.5%. Thus the alternative hypothesis is accepted meaning that growth rate is one of the most important determinants of leverage. This finding is in compliance with previous studies of Hassen (2011), Kumar et al. (2012), Najjar and Petrov (2010), Olayinka (2011), Rajan and Zinglas (1995), Shah and Khan (2007), Sharif et al. (2012) and Titman and Wessle (1988).

Tangibility of Assets: The null hypothesis for Tangibility of Assets is accepted (Sig 0.060>0.05) and shows a negative relationship with the Leverage. This finding is in compliance with recent studies by Naveed, Zulfqar and Ishfaq (2010).

Liquidity: The calculated t-value ($t = -1.776$, Sig. 0.048<0.05) of liquidity rejects the 5th null hypothesis (H_{05}). Negative effect of Liquidity on debt indirectly confirms the Pecking Order Theory and is largely consistent with Kila and Mansoor (2009), Eriotis, Vasilou and Neokosmidi (2007) and Harris and Raviv (1990).

Firm Size: The size of the insurance firms negatively ($t = -.519$, Sig. 0.608>0.05) influence on the choice of capital structure. Thus the 6th hypothesis (H_{06}) has been accepted. The result is consistent with empirical study of Kinde (2011).

Business Risk: The 7th hypothesis (H_{07}) has also been accepted ($t = 1.573$, Sig. 0.129 >0.05). Positive sign indicates that at the time of the destruction or loss of the subject matter, insurance companies prefer to use debt financing for settlement of claims than internal source of financing or equity financing. This result is in compliance with Ahmed et al. (2010), Barel (2004) and Kinde (2011).

Non-debt tax shield: Our 8th hypothesis has also been accepted ($t = -1.009$, Sig. 0.323 >0.05) that is there is no significant relationship between Non-debt tax shield (NDTS) and leverage.

Dividend Payout: The relation between dividend payout and financial leverage is positive ($\beta=0.230$) and statistically significant at 5% significant level (with t-value of 0.2383, Sig. 0.025<0.05). Thus, the alternative hypothesis is accepted, rejecting the null hypothesis (H_{09}) that there is no significant relation between dividend Payout (DVP) and leverage.

Conclusion

In the field of financial management, the issue of capital structure has attracted intense debate. The basic question is whether there exists an “optimal” capital structure and what might be its determinants. Extensive research has attempted to identify these factors; while there are similar studies for both developed and developing economies.

This study has tested the influence of several determinants on capital structure, through using Least Square method by running multiple regression analysis on the data set of selected life insurance companies of Bangladesh for the period 2010 to 2014. Our study conforms to results from many previous studies, our contribution lies in our ability to study specifically the life insurance sector of Bangladesh and to isolate the four significant determinants of capital structure such as Profitability, Growth, Liquidity and Dividend Payout. From an empirical point of view, our study is important in confirming a large range of previous studies. From a practical point of view, our study is important in providing financial managers with practical means of determining their capital structure.

Suggestions & Limitations

Insurance companies should pay special attention to firm characteristics in determining their optimal capital structure. Also, like any good business, they should maintain good banking relationships to finance themselves when needed at competitive low rates in order to reduce their overall cost of financing. Most research has been conducted for capital structures in developed

countries. Research in developing countries has been neglected and limited, and therefore, much needed. The macro-economic factors which have an impact on the capital structure choice and the effect of regulation on solvency and capital structure of insurance companies are recommended as promising area for further research.

However, our primary limitation is the limited number of observations. With only 7 companies and a period of only 5 years, our results are admittedly weak. The natural extension to our research is to add more companies, more years, and potentially more explanatory variables. Another limitation is that this study only uses total debt to total assets as a dependent variable, the other definition of leverage can be used in future study to identify which definition of leverage is powerfully explained by given control variables. In conclusion, overall results can be improved by including new explanatory variables and observations and management preference to debt and equity.

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