Determinants of Capital Structure Decision of Pakistani Insurance Industry

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Abstract

An optimal Capital Structure is the main decision for any business management to be taken for persistent growth and wealth maximization of the shareholders. The study is conducted to investigate firm-level characteristics and macroeconomic determinant that influence Capital Structure Decision of insurance industry in Pakistan from the study period of 1999 to 2013. The Hausman's specification and Breusch, and Pagan Lagrange Multiplier Test are employed to find out the most appropriate models among fixed effects, random effect and pooled regression model. The tests confirm that pooled regression model and fixed effect model are the most prominent models for the study. In addition, the findings of the study reveals that profitability and business risk are inversely but significantly related with debt across both estimation techniques. The negative relationship of profitability and business risk with debt confirm Pecking Order Theory. However, tangibility of assets and inflation rate are positive and statistically significantly effect on Leverage, which supports Trade off Theory. Inflation rate is significant on pooled regression model however fixed effect estimation give insignificant result of inflation rate. Growth of the firm is also insignificant factor of Capital Structure in insurance sector of Pakistan across both regression models. According to the best knowledge of the authors, this is the first study, which considers both financial and economic variables of capital structure in insurance sector. The study is recommended that senior-mangers can make an optimal- mix of debt and equity by selecting endogenous (i.e. profitability, growth, tangibility and business risk) and exogenous factor like inflation of insurance sector of Pakistan.

Keywords: Insurance industry, Capital Structure, Determinants, Macroeconomic, pooled model, fixed effect model, Pakistan.

The foundation of research on Capital Structure Decision has been gained momentum since the pioneer paper of financial economists Modigliani Miller (1958), which is based on few unrealistic assumptions. Moreover, financing choices cannot influence value of the firm in the presences of zero taxation and no bankruptcy cost. Afterward relaxation of aforementioned assumptions make it possible that firm can employ any structure of debt and equity, which affect valuation of firm (Modigliani Miller, 1963). These arguments prolong to create interest and contribution in the field of corporate finance. The financing decision is also known as Capital Structure Decision, which is one of the three core decisions among (i.e. Acquisition Decision, Financing Decision and Management of Assets) that financial manager involves in corporate financial management. The selection of how much debt and equity would

be optimal for a firm that can maximize wealth of shareholders. Thus, an optimal decision of ownership structure would be a mix of both or one of between equity and debt, which reflects high valuation of a firm and sustain low cost of capital.

In this way, numerous research scholars and academician have documented the importance of financing decision to evaluate the decisive factors that affect managerial decision in developed and developing nations. As a result, different studies are conducted in developed countries such as, Titman and Wessels (1988) for US; Wald (1999), Rajan and Zingales, (1995) for G-7, Vivani (2008) for France and Kozak (2011) in UK. Moreover, many research studies have completed in developing nation too, but are scant in number for instance, Boot *et al.* (2001), De Jong, Kabir, and Nguyen, (2008), Octavia and Brown (2010), Shah and Khan (2007), Ali (2011), and Memon *et al.* (2015), are also accomplished research studies in Pakistan by selecting non-financial institution exclusively. However, Ahmed *et al.* (2010) and Rahman *et al.* (2014), investigate Capital Structure in the area of Insurance Sector by selecting firm-level characteristic. According to the best knowledge of the author's there is a gap in literature of Capital Structure in Pakistan regarding the affect of Country-level factors and theory selection in Insurance Sector. Hence, this study is endured to satisfy the literature gap to some extent by examining the impact of Micro and Macroeconomic factors that influence Capital structure Decision of Pakistani Insurance Industry.

Literature Review

Frank & Goyal (2009), reveal that important determinants of leverage for publicly traded American firms during 1950-2003, are "market median industry leverage (+ effect on leverage), market-to-book assets ratio (−), tangibility (+), profits (−), log of assets (+), and expected inflation (+)". Thus, the results in line with some version of Trade-off theory of Capital Structure. Beattie, Goodacre, & Thomson (2006), evaluate the ownership structure of listed firms in United kingdom by confirming Pecking Order and Trade-Off Theories. Brounen, Jong, & Koedijk, May (2006), study the capital structure of European firms and conclude that empirical results is in line with Pecking Order Theory. On the other hand, Allen & Mizuno (1989), find out prediction of Trade-off theory in financing behavior of japans firms. Ahmed *et al.* (2010), identify the effect of firm attributes on Capital Structure in life insurance companies of Pakistan. However, Leverage has been selected as dependent variable while, "size, growth, age, risk, tangibility of assets and liquidity" opted as independent variables in the study. The findings of the ordinary least square (OLS) regression model shows that liquidity, profitability, size and risk have negative but significantly linked with Debt ratio. In this way, this study is steady with Pecking Order and Trade-off Theory of Capital Structure. Hence, the Leverage has insignificantly associated with growth and tangibility of assets. Saddam

(2014), evaluates firm's specific and country specific of financing decision in insurance sector, for the study period of 2007 to 2014 in the environment of Ethiopia. In addition, random effect model shows that firm's micro factors like business risk, size, age and inflation rate are positive and statistically significantly associated to Capital Structure. On the contrary, growth, profitability, liquidity, and macro factors (i.e. GDP growth rate and interest rate) are insignificant determinants of Ethiopian insurance sector. Hence, the results are congruent with Pecking Order and Trade-Off Theory. Rahman *et al.* (2014), explain financial factors in life insurance sector of Pakistan during the period of 2007-2013. The regression model identifies that liquidity of the firm, profitability, business risk, age of the firm and size are significant parameters of Capital Structure. Furthermore, liquidity, profitability and age are inverse but significantly associated to Leverage while, tangibility and growth are insignificant factors of the study Thus, business risk and size are positively related to ownership structure in life insurance sector of Pakistan. Memon *et al.* (2015), study the firm's level and macroeconomic determinants of ownership structure during the study period of 2001-2012, by selecting 143 non-financial firms in Pakistan. The pooled OLS and fixed effect model reveal that size of the firm, tangibility and profitability of the firm are significant determinants of debt ratio across unlike proxies and different estimation techniques. Furthermore, fixed effect model investigates that inflation rate and interest rates are significant factors on Capital Structure Decision. As a result, the prominent theories for the study are Pecking Order and Trade-Off Theory.

Determinants of Capital Structure and their Hypothesis

Profitability

The Pecking Order Theory of financing decision identifies by Donaldson (1961), by concluding that top-echelon employ internal source of fund while making Capital Structure Decision. Profitability enhances the availability of retained earnings and provides a pool of internal resources; thus, it decreases the dependence on external source (Myers and Majluf, 1984). This determines the negative relationship of return with Leverage. On the other hand, the Trade-Off Theory anticipates direct association between debt ratio and profitability, because low return may inclines the chances of bankruptcy (Fama and French, 2002). Conversely, Ali (2011) and Sharif *et al.* (2012), have found inverse linkage between earnings and Capital Structure in Pakistani firms. Frank and Goyal (2003), find inverse association between profitability and debt ratio. The researchers in this study also hypothesize inverse relationship of profitability with Leverage.

Growth

Firms' growth is considered as intangible assets and hence cannot be employed as security. Therefore, Trade-Off Theory confirms inverse association of debt and growth, in the study of Shah and khan (2007), Antoniou *et al.* (2008), Titman and Wessels (1988), Barclay *et al.* (1995) and (Sheikh & Wang, 2011). Deesomsak *et al.* (2004) and Ali (2011), find direct association of growth with Leverage. However, Ahmed *et al.* (2010), Rahman *et al.* (2014), report insignificant influence of growth with debt ratio in Pakistani insurance companies. As a result, there is much contradiction about the connection of growth and debt ratio. The pecking order theory explores that firm use internal fund on first priority and then go for external source, which concludes that growing firm employ high percentage of debt (Drobetz and Fix 2003). The researchers hypothesize inverse association of growth with Capital Structure. We also employ same technique for Growth rate to determine the impact of growth prospect with Leverage.

Tangibility

According to Trade-off theory, tangibility of assets has positive relationship with debt ratio, due to the existence of collateral. In addition, collateral decreases uncertainty (risk) for lenders thus, more debt could be employed (Delcoure, 2007). Hence, Borrowing could be made on low interest by providing the security of these fixed assets. (Jensen & Meckling, 1976), , (Frank & Goyal 2009) has found positive relationship of tangibility and leverage in developed nations. On the other hand, Shah and khan (2007) and Ali (2011), indicate positive relationship of tangibility with Capital Structure in Pakistani firms. The aforementioned relationship of tangibility and Leverage stand on line with the findings of Rajan and Zingales (1995). On the other hand, Sheikh and Wang (2011), Ahmad and Shabir (2014), identify negative linkage of tangibility and debt ratio in Pakistan. At the last, Ahmad *et al*. (2010) and Rahman *et al.* (2014), find insignificant relationship in Pakistani companies. The positive relationship of tangibility with debt is hypothesized for this study.

Business Risk

Business risk inclines the chances of bankruptcy, because the inability of firm to meet the obligation of lenders **(**Sheikh & Wang, 2011). Moreover, business risk is a parameter of management efficiency because volatility in earnings reflects inefficient practices of management. In this way, financial distress cost of the firm inclines, which lead to bankruptcy. Thus, those firms, which face high risk, could use lower debt. In this way, Ahmed *et al.* (2010), Ahmad, and Shabir (2014), report negative linkage of earning volatility with Leverage in Pakistani insurance sector. The negative association of business risk with leverage is the combined predication of Pecking order theory and Trade-

off theory. We hypothesize same inverse relationship of business risk with debt.

Inflation Rate

Inflation shows the efficiency of government that how efficiently handles this country level factor; hence, Demirguc and Maksimovic, (1996), conclude that inflationary economy face huge risk. In this way, high inflation rate inclines interest rate and reduction occurs in the use of debt (Brigham & Ehrhardt, 2005). The Trade-Off Theory predicts positive relationship of Leverage with debt. Memon *et al.* (2015), find positive association of inflation with debt ratio therefore, we hypothesize positive influence of inflation on Leverage. The Proxy of inflation is taken as Annual inflation rate, which is also used by numerous studies such as Frank, & Goyal, V. K. (2009), Ali (2011) and Saddam (2014).

Table 1. *Variables their proxies, expected sign and theory support*

Variables	Proxies	Empirical evidence	Expected Sign	Theory support
Lev	Total debt/ total assets	Titman and Wessels (1988), Rajan and Zingales 1995)	Dependent variable	
Prof	Operating income/ total assets	Abor (2005), Memon *et al.* (2015)	–	P*
Grwth	Change in assets	Myers (1984),	–	T**
Tang	Fixed assets/ total assets	Rajan and Zingales(1995),	+	T**
Br	Standard deviation of operating income/ total assets	Wald (1999), Saddam (2014),	–	P*, T**
Inf.r	Annual inflation rate	Frank, & Goyal, V. K. (2009),Ali(2011),	+	T**

Source: Compiled by researcher in the light of literature and prior research studies

Note: *Pecking Order Theory, ** Trade-Off Theory.

Research Methodology

Data

The study employs financial data, which has been extracted from the websites of the State Bank of Pakistan, Insurance Books and Annual Reports of Insurances Companies. On the other hand, Economic data has been obtained from State Bank of Pakistan and World Bank for the study period of 1999 to 2013. The purpose of the study is to investigate the firms' specific and Country specific of Capital Structure in insurance sector of Pakistan. The sample size is composed of 41 firms out of 50 insurance companies, which provide services in Pakistan. Number of insurance companies has not fallen into the group to cover the total period of 15 year. Therefore, the financial data of 36 companies have been opted from 1999 to 2013, however three companies financial data has been selected from 2005 to 2013. At last, the two companies' data has been selected from 2007 to 2013. An unbalance panel data with 540 companies' year observation has been employed. The study uses proxy

of debt the ratio of total liability to total assets this measures are mostly used such as Jensen and Meckling (1976), Titman and Wessels (1988), Saddam (2014), Ahmad and Shabir (2014), Rahman *et al.(*2014), Memon *et al*.(2015).

Following Shah & Khan (2007), Ali (2011), Rahman *et al.(*2014), using panel data by considering both time series and cross section attributes, therefore it is also known as pool data or longitudinal data. Thus, the following form of research model has been selected for the study

$$Yit = \alpha + \beta Xit + \mu it$$

Y is the dependent variable (Debt). α = constant. X is explanatory variable. i = firm and t= time with μ = error term. Moreover, the dependent variable is Leverage (Lev) and explanatory variables are profitability (Pro), tangibility (Tan), growth (Gwt), business risk (Br) and inflation rate (Inf.r). The researcher use pooled OLS model and fixed effect model for the study to identify any significant difference in the result. Equation 1 presents pooled regression model (also known as constant coefficient method), which presume that intercept (α is same for all cross section i.e. firms) (Asteriou & Hall, 2007). The selected sample might be of various intercept because of different management styles and markets. On the other hand, model 2 is fixed effect model, which considers slope coefficient as constant or resemble for all.

$$LVit = \beta 0 + \beta 1Proit + \beta 2\ GRit + \beta 3Tang + \beta 4\ B.rit + \beta 5\ Infit\ + \varepsilon it.\text{--}(1)$$

$$LVit = \beta 0i + \beta 1Proit + \beta 2\ GRit + \beta 3Tang + \beta 4\ B.rit + \beta 5\ Infit\ + uit.\text{--}(2)$$

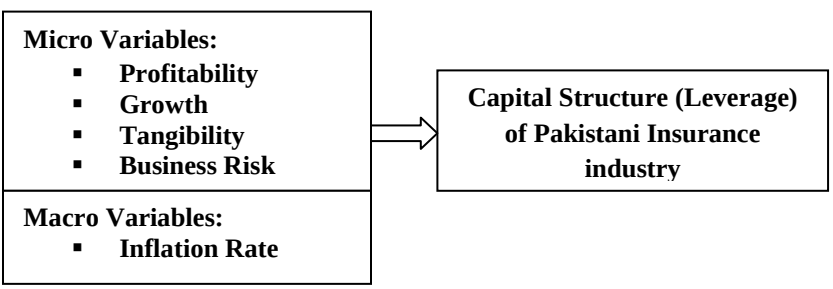

Figure 1. Conceptual Framework

Compiled by Researcher

The above diagra-m displays the firm Economic and Macroeconomic variables, the dependent variable are debt ratio however, independent variables are profitability, growth, Tangibility, business risk and inflation rate. According to the knowledge of Authors the micro level determinants such as profitability, growth, tangibility and

business risk and macroeconomic factors for instance inflation rate is the significant determents of Capital Structure.

Results and Discussion

Table 2 shows the correlation between dependent and independent variables. Moreover, the empirical results of Pearson Correlation Matrix reports no multicollinearity problem in the model because the values does not surpass the cut point i.e. 0.6. According to Asterious and Hall (2007) explain that numerous researchers conclude that correlation coefficient more than 0.9 can cause the problem of multicollinearity. According to the aforementioned researchers, there is correlation among variables but it does not exceed the value 0.9.

Table 2. *Pearson Correlation matrix for Insurance companies*

	Lev	Prof	Grwt	Tang	Br	Inf. R
Lev	1.0000					
Prof	-0.5459	1.000				
Grwt	0. 16532	0.1374	1.0000			
Tang	0.2653	-0.4374	0.2834	1.0000		
Br	-0.3871	-0.2484	-0.0454	0.4325	1.0000	
Inf. R	0.06342	-0.0484	-0.07343	0.2574	-0.0543	1.0000

Table 2 explains the empirical outcomes of pooled regression model and fixed effects model for Debt ratio. The hypothesis is developed for the constant coefficient model (i.e. Pooled OLs) that there is no individual firm effect on Capital Structure Decision. Moreover, individual differences of firms (firm's heterogeneity) are measured with fixed effect and random effect model. Thus, null hypothesis of same coefficient of both models are rejected. After executing Hausman test the significant result ($P<0.05$) confirms fixed effect model for the study. On the other hand, Breusch, and Pagan Lagrange Multiplier Test has used for the selection of most prominent model between pooled regression model and random effect model. The insignificant result (Prob > chi2 = 0.1153) supports Pooled OLs for the study.

Profitability

Table 3 depicts that Profitability of the firm has inverse and significantly influence on Leverage across both models (i.e. pooled regression model and fixed effect model). The coefficient value for pooled OLS and fixed effect model is -0.404, -0.1965 respectively. It has the highest t-value 7.4 and 4.5 across both models. The results of both models are consistence with Pecking Order Theory, because the inverse relationship of profitability and debt is the argument of Pecking Order Theory. This inverse association has concluded that when firm inclines their debt, it will decrease profitability, because high debt incline debt burden and high indebted firm might lead to bankruptcy. This

relationship validates the acceptance of our first hypothesis. The results conclude that internal financing is the main source of finance for insurance sector in Pakistan. The management of the insurance sector has to raise money from the internal source like retained earnings because the external sources are expensive and difficult to raised. However, this positive association of profitability and debt ratio is contrary with free cash flow predication. These results are consistent with the research finding of Frank and Goyal (2003). In Pakistani context, Shah and Khan (2007), Ahmad *et al.(*2010), Rahman *et al.(*2014), and Memon *et al.* (2015).

Table 3. *Determinants of Leverage using Pooled Model and Fixed Effect Model*

Variables	Pooled Model	t. value	Fixed effect	t. value
Prof	-0.4048554	-7.45	-0.196578	-4.54
Grwth	0.0061452	1.34	0.000592	0.045
Tan	0.284859	5.24	0.17853	3.45
Br	-0.215462	-4.77	-0.116948	-2.96
Inf.r	0.0857625	2.54	0.006459	0.095
Constant	-0.14755	-0.47	0.11454	0.63
R-Squared	0.2354		0.45896	
Adjusted R	0.2285		0.42475	

Source: stata software outcomes from financial statements of insurance companies and World Bank

Growth Rate

The results of pooled and fixed effect model show that the coefficient value of Growth is 0.0061452, and 0.000592, respectively. The positive coefficient of growth mention a direct linkage between debt and growth and hence growing firm are predicated to have high debt percentage (Pecking order theory). The lower value of t=1.34 and 0.045, verify that growth rate has no impact on debt level of insurance companies. The insignificant parameter of Capital Structure is growth because common coefficient model (pooled model) and fixed effect model report positive but insignificant results. The senior management of insurance sector could not think critically while making Capital Structure Decision. Hence, Ahmed *et al.* (2010), Rahman *et al.* (2014), support this insignificant result of growth with debt in Pakistani insurance sector. Shah and khan (2007) and Antoniou *et al.* (2008) have founded various results.

Tangibility

Tangibility of assets has positive and statistically significantly related to leverage because of highest t-values of 5.25 and 3.45 in pooled model and fixed effect model. Furthermore, the coefficient value is 0.284859, 0.17853 in both models, respectively. This relationship confirms that tangibility of the firm is most imperative factor in insurance sector of Pakistan during the study period. The positive company with high tangibility means high portion of tangible assets could easily raised debt with low interest rates. The high tangibility firm can produce collateral to the creditors for taking long-term loans. However, this result is contrary to some research studies in Pakistan such Ahmad *et al*. (2010). The regression model results suggest that Pakistani insurance companies employ tangible assets for raising secured debt. When senior management takes Capital budgeting decision, they would raise money from external source by providing fixed assets as collateral. In this way, the prior studies also find positive affect of tangibility on Capital Structure in developed nations such as (Jensen & Meckling, 1976) and Frank & Goyal 2009). In developing nations Rajan and Zingales (1995), Shah, and khan (2007) and Memon *et al*. (2015) also find same results. Hence, Trade-Off Theory also supports these arguments.

Business risk

Business risk is negative but significantly related with Capital Structure of insurance sector of Pakistan across both models (see table 3). These results are in favor of our expectation, thus more volatile company in term of earnings does not raise money from debt source because debt burden incline the probability of bankruptcy. Furthermore, this finding verifies that in time of death of policyholders or expiration of the policy, companies do not acquire from external source of funds. The findings clarify that high volatile companies before tax earnings are more indebted that the less volatile companies before earnings in Pakistani insurance industry. Pecking Order and Trade-Off Theory support the negative relationship of earning volatility (business risk) and Capital Structure. In Pakistani insurance context, few research studies find same results such as Ahmed *et al.* (2010), Ahmad, and Shabir (2014).

Inflation rate

Country-level factor like inflation rate is turn out to be insignificant parameter of debt ratio in fixed effect model. However, pooled regression model confirms that inflation is positive and significant determinant of Capital structure. The large value of R square concludes that explanatory power of fixed effect model is higher than the pooled model. Therefore, it takes into accounts the heterogeneity of firm and hence, there are firm specific omitted variables that influence the Leverage. The findings of this study reveal that insurance companies in

Pakistan collect more debt in that year which inflation rate is high than in year of low inflation rate during the sampled period. Similarly, when inflation rate is high, insurance companies raise more money in the form of debt to finance their operational activities. Trade-Off Theory of Capital Structure supports this positive relationship of inflation and debt ratio. In Pakistani context, Ali (2011) finds similar positive association of inflation rate and Capital Structure.

Conclusion

The aim of this study is to investigate the affect of Financial and Economic Factors that affect Capital Structure Decision in insurance industry of Pakistan by using to variants of panel data model. The financial data has been collected from the website of State Bank of Pakistan however; the macroeconomic data is extracted from World Bank. The study period of unbalanced panel data has been opted from 1999 to 2013, by using proxy of Leverage for measurement of Capital Structure. Pooled regression and fixed effect model are selected on the bases of Hausman's Specification and Breusch, and Pagan Lagrange Multiplier Test. The empirical results reveal that three firm level variables profitability, Tangibility and Business risk are significant determinants across both estimation technique (i.e. pooled regression and fixed effect model). Profitability of insurance sector has inversely but significantly related to leverage by confirming Pecking order theory of Myers and Majluf (1984). Tangibility is positive and statistically significantly related to Leverage, which confirms Trade-Off Theory of Capital Structure. However, Inverse relationship of business risk is the combine predication of Pecking Order and Trade-Off Theory. The macroeconomic variable i.e. inflation rate has positive and significantly affect on Capital Structure in pooled regression model, which conforms Trade-Off Theory. The study identify Growth rate as insignificant parameter of insurance sector in Pakistan. The management and policy makers of insurance sector could imply this study as a benchmark to enhance wealth of the shareholders by decreasing the cost of debt and use internal source of funds for financing.

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