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MACRO ECONOMY AND CAPITAL STRUCTURE DECISION IN PAKISTANI INSURANCE SECTOR

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ABSTRACT

An optimal Capital Structure is the fundamental decision for any business management for wealth maximization of the shareholders and economic development. This study is designed to analyze important determinants of Capital Structure in insurance industry of Pakistan. The firm related characteristics (liquidity, profitability, tangibility and business risk,) and macroeconomic variables (Inflation rate and GDP rate) have been studied. The secondary data for 41 insurance companies life-insurance, non-life insurance and takaful (Islamic) sector have used for the period 2001-2015. The Hausman's specification and Breusch, and Pagan Lagrange Multiplier Test have select fixed effect and pooled regression models for the study. The findings of the study has revealed that profitability, liquidity and business risk are significant but inversely associated to debt ratio in both estimation technique i.e. fixed effect and random effect model. The negative relationship of debt ratio and profitability and liquidity support pecking order predication, while the inverse association of financing policy and earning volatility support both trade off and pecking order theory. However, tangibility is positive and significantly associated to capital structure in both models. Inflation rate is significant and positive in pooled model but insignificant in fixed effect model, while GDP are insignificant factor of Leverage. The financial manager should be more careful to make Capital structure decision in insurance sector of Pakistan by focusing firm level factors like liquidity, profitability, tangibility, business risk and country level factor i.e., inflation rate. The management of insurance sector might not incline the debt ratio because the profitability will decease and volatility in earnings would also be diminished. Moreover, the management of insurance sector can incline the debt portion as the tangibility of the firm enhanced.. The results and relationship support the predication of pecking order and trade off theory of Capital Structure. According to the best knowledge of the author this is the first study in the insurance sector that has consider both firm specific and exogenous factors that affect capital structure decision and also used most appropriate models of panel data fixed effect and random effect.

Key words: Capital Structure, Determinants, Insurance Sector, Pecking Order Theory, Trade Off Theory.

INTRODUCTION

The financing policy of a firm is a fundamental decision for the management and it has a diverse impact on the other various core decisions. In addition, the subject of Capital Structure is become a highly debatable topic in the field of finance after the pioneer study of Modigliani and Miller in 1958. The mix of debt and equity is irrelevant to the value of the firm with the presence of few key assumptions. After the relaxation of the

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aforementioned assumption, Modigliani Miller (1963), offer another theory that the portion of debt and equity affect the value of the firm. Thus, the Capital Structure reflects the idea that how a firm could establish its composition of capital or total assets with the assistance of issuing equity, debt and hybrid instrument. Such firms used different sources to raise funds for the continuation of overall process by purchasing plant assets as well as liquid assets. The Capital Structure concept has been discussed in a large number of theories, which provide clear evidence in support of such theories (Casser and Holmes, 2003). The Capital Structure Decision is of prime importance for any business venture that aims to meet the needs of primary and secondary stake holders. It is obvious that any country, business is considered as a parameter for its economic growth and stability, because business venture creates employment and prosperity. So, it is important to investigate the required return of financial decision. In this way, the diverse policies are developed to raise fund from different sources; for this purpose. Hear question arises, whether these firms follow, which type of Capital Structure Theory. The Capital Structure Decision may vary in different industries, according to their size. The smaller firms would require such type of Capital Structure for perceiving uncertainties that are caused by agency cost. The empirical research studies advocate a mounting concern in financial management practices among business ventures in emerging market in less developed countries. Wald (1999) elaborates the developed economies such as U.S., German and U.K and their value of different parameters of Capital Structure. Therefore, Capital Structure Management is prerequisite, if cost of capital has an impact on financing decision (Keown et al., 2005). In this way, rich literature is available in the field of corporate finance and particularly in the area of capital structure in developed and developing nation such as Titman and Wessels (1988); Frank & Goyal (2009) for US; Rajan and Zingales, (1995) for G-7, Vivani (2008) for France and Kozak (2011), Boot et al. (2001), De Jong, Kabir, and Nguyen, (2008), Ali (2011), and Memon et al. (2015), in various sector of financial and non financial sector around the world. However, Ahmed et al. (2010) Naveed et al. (2010) and Rahman et al. (2014), particularly focus insurance sector in Pakistan by considering micro level factors, while Rahman and kakakhel (2016) have taken internal factor along with inflation rate as macroeconomic factor by leaving the other exogenous factors(GDP, tax rate etc) for further studies. Thus, the current study is aimed to satisfy the literature gap to some extent by evaluating the influence of capital structure decision on firm specific and macroeconomic factors in Insurance sector of Pakistan.

Statement of the Problem

Financing decision plays a crucial role in the making of other core decisions in the interest of firms and shareholders. Moreover, many firm level and systematic factors that affect the management decision in the way of creating optimal structure that incline the wealth of shareholders and decrease the overall cost of the firm. The current study investigates Capital structure decision affects on firm specific and macroeconomic factors in Insurance Sector of Pakistan.

Objective of the study

1. To evaluate the relationship of capital structure with firm specific factors (e.g.;

Profitability, Liquidity, Business Risk, and Tangibility) in Insurance Sector of Pakistan.

2. To examine the association of capital structure decision on country level variables (e.g.; Inflation rate and GDP) in Insurance industry of Pakistan.
3. To investigate the prevailing theory of capital structure in insurance sector of Pakistan.

LITERATURE REVIEW

Myers (1984), describes the Pecking Order Theory concerning to the firms first priority, which is to raise capital through internal financing, while balance between bankruptcy cost second rankings should be considered the tax shield. When firms depict strong financial position and best performance, then these firms opt retain earning for raising funds. Those firms predicate less profitable use less debts. Hence, performance of the firms and debt is inversely related. On the other side, Antoniou et al. (2008) and Haron and Ibrahim (2012) find the negative relationship of debt and inflation rate.

Fischer et al. (1989), study give empirically outcomes about the financing mix and profitability. Thus, the inverse relationship is found between profitability of a firm and Capital Structure. However, the researcher calculates that the steady upshot of Pecking Order Theory in distinction to the Trade off Theory. Conversely, this relation shows the undemanding linkage between firm performance and Capitals Structure. Practically, all the firms adopt such a policy that high return earning firms might retire their debt and uphold leverage near to inferior verge. When firm find huge losses, companies have high debt and next to higher boundaries. Consequently, the profitability shows the growth phase of the company. Prior research studies are evidenced that profitable firms can reduce the percentage of leverage as compared to less profitable firms. Hence, the results become in contrast of Static Trade-off Theory and debt depends undirected to performance.

Myers (2001), identifies various assumptions to demonstrate three theories of Capital Structure. Eldomiaty and Ismail (2009) explore logic arguments that business situations are vibrant which caused change in the theories of Capital Structure, for instance, firm issue debt when taxes rate are high and get tax shield (TOT). On the other hand, Internal financing i.e. retained earnings are used when debts become less prominent (POT). If firm predicates low equity risk in market then firms finance their project with internal fund (Market timing). Hence, the Capital Structure influences many country factor (economic factor) such as Gross Domestic Product (GDP), Growth, Inflation Rate, Interest Rate, Capital Market Development, and situational factors.

Shah and khan (2007), analyze none-financial firms for the study period of 1994-2002, by using pooled regression and fixed effect model for number of industries. In addition, tangibility and profitability is significant and positively related to leverage. The size is insignificant determinants of Leverage however; growth is negative and significantly associated to Capital Structure. Hence, tangibility supports trade-off theory and growth rate is consistent with Agency cost theory. On the other hand, profitability confirms pecking order theory of Capital Structure.

Naveed et al. (2010), un-fold a study about life insurance sector of Pakistan, that

that liquidity and leverage have inverse relationship. It means that when liquidity enhances, then leverage decreases, and 'vice versa'. On the other hand, Ahmad et al. (2010), explore the idea about the determinants of Capital Structure of insurance industry in Pakistan. The study concludes that liquidity size, profitability and risk are decisive parameters for life insurance companies while determining Capital Structure. Thus, this industry adapts Pecking Order Trend in provision of liquidity, profitability and age, hence, age is inversely related with debt. The size displays, direct association with leveraged and result steady regarding Trade-Off Theory; further leverage has insignificant association with growth and tangibility of the asset.

Mbugua (2010), applies regression analysis in his study on Pecking Order theory and Static Trade Off theory; which reveals a positive relationship between debt and internal funds. Moreover, this study supports Pecking Order Theory with some extent; however, internal funds deficiency is significant in explaining debt variations in line with Static Trade off Theory.

Ali (2011), scrutinizes Capital Structure of nonfinancial Pakistani firms from 2003 to 2008 by using fixed effect and pooled model. The estimation techniques show that profitability, tangibility, size, growth, dividend and inflation rate are significant coefficients for Capital Structure. Furthermore, tangibility, size, inflation rate, growth and dividend are positively related to debt. In contrast, inverse relationship is found between profitability and Capital Structure. Thus, the results are confirms pecking order theory, trade-off theory and market timing theory.

Rahman et al. (2014), show significant determinants of Capital Structure in life insurance sector for the study period of 2007 to 2013 by employing multiple regression model. The regression model concludes that profitability, risk, liquidity, size and age of the firm are the prominent determinants of Capital Structure in life insurance sector of Pakistan. Moreover, profitability, liquidity, and age of the firm are significant and inversely related to Leverage while, risk and size are positively related to Capital Structure.

Memon et al.(2015), investigates firm characteristic and external factors of debt level of non-financial firms in Pakistan over the period 2001-2012 by using pooled OLS and Fixed effect regression technique with various proxies of debt. The estimators conclude that tangibility, size, and profitability of the firm are significant parameters of leverage across different proxies. In addition, fixed effect model measure that inflation rate and interest rate are significant variables of capital structure thus, the calculated results are consistent with Pecking order theory and Trade-off theory.

Rahman and kakakhel (2016), study micro and country-level factors that affects the financing decision of insurance industry in Pakistan during the study period of 1999 to 2013. The research uses two econometric models like fixed effect and pooled model on the bases of diagnostic test Housman specification and Breusch, and Pagan Lagrange Multiplier Test. The study shows that profitability (ROA) and volatility of income are negative but statically significantly associated to debt ration across both estimation techniques which support pecking order theory. Moreover, tangibility of assets and inflation rate are positive and significantly related to financing policy by supporting trade off theory. Additionally, inflation rate is significant on Pooled OLS while insignificant fixed effect model. However, growth is not significant factor of capital

structure decision in insurance sector.

Table 1: Variables, Expected Sign and Theory Support

Variables	Type of variable	Theory support	Expected Relationship
Leverage	**D**		
Profitability	E	P	N
Volatility	E	P, T	N
Liquidity	E	P	N
Tangibility	E	T	P
Inflation rate	E	T	N
GDP rate	E	T	P

Sources: in the light of prior literature review

D=Dependent, E= Explanatory, P=Pecking Order theory, T=Trade off theory, N=Negative, P=Positive

RESEARCH METHODOLOGY

Fifty life and non life insurance companies have been providing services in Pakistan. Therefore, forty one companies have been taken as a convenient sampling due to the availability of financial data. In addition, few firms have not fallen into the category to fulfill the total time period thus, 36 firms financial data has been extracted from 2001 to 2015, while three companies data has taken from 2007 to 2015 and two firms data from 2009 to 2015. The financial data has taken from the website of state bank of Pakistan however macroeconomic data has been taken from World Bank.

METHOD AND MODEL

Following Booth et al. (2001), Shah & Khan (2007), Ali (2011), Rahman and Kakakhel (2016), the study is using panel data by considering both time series and cross section feature. Therefore, two tests have been used for the selection of most reliable models. Hausman specification model has used, which select fixed effect model between fixed effect and random effect. However, brush pagan langrage multiplier test has been executed, which choose pooled OLS model for the panel data.

$$Lvit = \beta0 + \beta1Liqit + \beta2\,Probit + \beta3Tang + \beta4\,B.rit + \beta5\,Infit\ ++\ \beta6GDP + \varepsilon it. \text{---------}(1)$$

$$LVit = \beta0i + \beta1Liqit + \beta2\,Probit + \beta3Tang + \beta4\,B.rit + \beta5\,Infit\ ++\ \beta6GDP + \varepsilon it. \text{-------}(2)$$

Table2: Diagnostic Testing and Models Specification

Test normality Data	Shapiro-Wilk test	(P-value is greater than 0.05) shows that the distribution is normal.
Heteroskedasticity Test	Breusch-Pagan / Cook-Weisberg test	"The result is found P-value is 0.5516, which is greater than 0.05, therefore, this model does not face any heteroskedasticity problem".
Testing for Multicollinearity	Variance Inflation Factor (VIF) and Tolerance (TOL)	"Value of VIF is less than 10 and tolerance (1/TOL) is less than 1 indicates that the data is free of multicollinearity"

Model Specification between Fixed effects and Random effects	Hausman specification test	"The Hausman's specification test presents significant results because the model has the value of p=0.0000 (P<0.05), then it is more suitable to employ fixed effects model instead of the random effects model"
Model specification between Random effects and Pooled OLS	Breusch-Pagan LaGrange Multiplier (LM) test	"The insignificant result (Prob>chi2=0.1320) conforms pooled regression model for the study"

Sources: Output of STATA and SPSS software for various tests.

Table 3: Pearson correlation analysis

	Lev	Lqt	prof	Tang	Br	Inf.r	GDP
Lev	1.0000						
Lqt	-0.3545	1.0000					
Prof	-0.5453	-0.223	1.0000				
Tang	0.3843	0.46535	-0.5637	1.0000			
Br	-0.3845	-0.3535	0.4343	0.4485	1.0000		
Inf.r	0.1745	0.0645	-0.07483	0.2473	0.0543	1.0000	
GDP	0.1897	0.3483	-0.36438	0.0543	-0.4343	-0.3243	1.0000

Stata output software, data collected from website of state bank of Pakistan and world bank

The Pearson correlation analysis shows the relationship of two variables wither positive or negative therefore, leverage is negative related to liquidity of the firm, profitability and business risk while the relationship of tangibility, inflation and GDP are positive. In the above table correlation coefficient are ranging from -1.00 to +1.00 shows perfect correlation however there is no perfect correlation which cause multicollineraty problem i.e., all the value are less than 0.09 which is suitable value, do not cause serious problem.

Table 4: Result of Fixed Effect Model

Regression Model 1(Leverage)

Variables	Coefficient	Std. Err.	T	P. Value
Liquidity	-0.121120	0. .0060627	-3.186	0.004**
Profitability	0.148783	0.049864	-4.141	0.000*
Tangibility	0.174853	0.089752	2.786	0.000*
Business Risk	-0.11694	0.0794922	-2.435	0.000*
Inflation	0.004592	0.0385245	0.095	0.009
GDP	0.045830	0.0473485	0.006	0.542
Constant	0.11235	0.823456	2.137	0.012
Total Number of Groups		41		
Number of Observation		540		

Observation per Group:	Min. = 6	Max. = 15	Avg. = 13.2
R-Squared		0.72	
Adjusted R		0.69	
F-Statistic		15.637	
Prob>F		0.000	

Sources: Stata software outputs of Financial and Economic data from Financial Statements of insurance companies , State Bank of Pakistan and World Bank during the year (2001-2015)

RESULTS

The value of R-square is called coefficient of determination, which shows that how dependent variables like capital structure is explained by the explanatory variables. The results of table 4.2 shows that profitability, liquidity and business risk are negative but significantly associated to Leverage of insurance sector, however tangibility are positive and significantly related to debt ratio while inflation and GDP are non significant factor of leverage in Pakistani insurance sector.

Table 5: Pooled Regression Model

Regression Mode 2 (Leverage)

Variables	Coefficient	Std.Err.	T	P. Value
Liquidity	-0.1865	0.031212	-6.04	0.000*
Profitability	0.13585	0.038494	5.75	0.000*
Tangibility	0.28485	0.039755	5.24	0.002**
Business Risk	-0.21546	0.054866	-4.77	0.000*
Inflation	0.08576	0.04875	2.546	0.000*
GDP	0.00558	0.05637	0.012	0.102
Constant	-0.18342	0.16574	-3.67	0.002
Number of Observation		540		
Number of variables		9		
R-Squared		0.431		
Adjusted R		0.412		

Sources: Stata software output of financial and Economic data from insurance companies of financial statement, State Bank of Pakistan and World Bank during the period of (2001-2015).

Table 4.3 shows that internal variables like liquidity, profitability, tangibility and business risk and macroeconomic factor eg.; inflation are significantly associated to debt ratio, however liquidity, profitability and business risk are negative but significantly linkage to financing behavior while tangibility and inflation rate are positively and significantly related to debt ratio.

DISCUSSION

Liquidity

- **Fixed Effect Model**

There is significant and indirect association of liquidity and Leverage found in the study (see table 4.2).

✶ **Pooled Regression Model**

There is a significant and negative relationship of liquidity and Leverage in insurance industry of Pakistan (see table 4.3).

The researcher concludes from the above tables 4 and 5 that liquidity of the firm has statistically significant effect on the insurance industry of Pakistan. The top management could consider the liquidity while making decision about the Capital Structure. The inverse and significant relationship of liquidity and debt ratio also support the Pecking order theory of Myers (1984). The insurance industry of Pakistan prefers internal financing as compared to external financing. If the internal funds are not sufficient to meet the needs of the firm, then firms go for external source, which is also suggested by Myers (1977). In developing countries external financing is very expensive as compared to internal funds generation. Therefore, Naveed et al. (2010), Rahman et al. (2014); Ahmad and Shabir (2014), also support the same relationship of liquidity and Leverage in the context of Pakistani insurance industry. The negative relationship of liquidity and leverage supports Pecking Order Theory. This theory is also prevailing in the firms belongs from developed and developing economies mentioned by Myers (1984).

Profitability

✶ **Pooled Regression Model**

There is inverse and significant relationship between Profitability and leverage of the insurance industry of Pakistan.

✶ **Fixed Effect Model**

There is a negative and significant relationship between Return on Assets and Capital Structure in the insurance industry of Pakistan.

The tables such as 4 and 5 displays that profitability and Capital Structure are significant and inversely related, because both of the models fixed effect and pooled regression model give statistical significant and inverse relationship of leverage and performance of the insurance industry. The results clarify that top management will take optimal decision about debt portion because high percentage of loans can decline the profitability of the firm which further diminish the market share. The policy holders are interested to get high rewards therefore this decision is very crucial for insurance sector particularly. These research studies support the negative relationship of profitability and capital structure Myers (1984), Naveed et al. (2010),Ali (2011), Rahman et al. (2014),Rahman and kakakhel(2016). Moreover, the aforementioned studies are supporting Pecking order theory.

Tangibility

✶ **Fixed effect Model**

There is positive and statistically significant relationship between tangibility and capital structure of insurance industry of Pakistan.

✶ **Pooled Model**

There is negative and significant relationship between tangibility and leverage

The result of Fixed Effect and Pooled OLS show the relationship of tangibility and Capital Structure positive and significant. When tangibility of assets is increased it also inclined the leverage level of the insurance industry. Moreover, the tangible of assets enhance the debt percentage of the firm because management required huge fund for capital budgeting decision and it cannot be meet without borrowing. The top management is very careful while selecting such project, which requires huge financing. The weighted average cost of capital is also evaluated because rate of return should be fulfilled both fixed and variable cost. The consistent positive cash flow can give better results for the management because the top-management pays to all stakeholders and creates revenue for the firm. The prior studies provide empirical result, which has positive in association between debt and asset level. Therefore, firms having strong position in tangible assets would tend to raise greater portion of debt (Myers, 1984). Shah and Khan (2007),Rahman and kakakhel (2016). These studies support positive and significant relationship of debt ratio and tangibility of assets which is in line with Trade off theory. On the other hand, Naveed et al. (2010) finds insignificant association between debt ratio and tangibility of the insurance sector in Pakistan.

Business risk

- **Fixed effect Model**

There is negative and statistically significant relationship between debt and business risk.

- **Pooled Model**

There is inversely and significant association between business risk and leverage.

The researcher concludes from the above table of 4 and 5 that Business risk has significantly and inversely effect on Capital Structure Decision. This is earning volatility in the operation of business or inefficiency of the management practices. It is the proxy for the financial distress and firm have to pay the risk premium to stakeholders Moreover, to minimize the cost of capital, the insurance companies use internal fund to fulfill overall cost of the firm. If the retain earnings are not too much to meet need of the firm then it goes for external source (Myer, 1977). This connection clarifies that earning volatility or business risks are negatively related. The greater bankruptcy and agency cost reflects less use of debt in the Book value of capital structure. Inconsistent operating income enhances chance of default thus such firms are not heavily depending on external source. Both of the theories Pecking order theory and trade-off theory support this relationship support the negative association of debt ratio and business risk. In Pakistani context, Naveed ahmad (2010), Ahmad and Shabir (2014) and Rahman et al. (2014) find significant and negative determinant of capital structure in Pakistani insurance sector.

Inflation rate

- **Fixed Effect Model**

There is a positive and statistically insignificant results between debt ratio and inflation rate (see table 4.2)

- **Poled Model**

There is a positive and significant association between debt and inflation rate in t h e study period of 2001-2015 (see table 4.3)

The researcher concludes from the table 4.2 and that there is positive and insignificant relationship of inflation and Leverage. On the other hand, table 4.3 depicts positive and significant association of inflation and Capital Structure. The high rate of inflation in Pakistan forces Insurance sector to raise more debt than equity finance for the operation. This finding is consistent with the Trade-Off Theory. Antoniou et al. (2008) and Haron and Ibrahim (2012) find the negative relationship of debt and inflation rate. Moreover, inclination of the inflation is positively relates to the leverage, therefore the high rate of inflation cause rise in cost and firms change the financing decision. Inflation has a strong relationship with leverage because in developing countries mostly debt is taken as short term (Booth et al. 2001). Hence, any variation in inflation may cause cost of the debt in countries such as Pakistan and other developing countries. However, the relation has found significantly positive between inflation rate and Capital Structure by Rahman and kakakhel(2016) in Pooled regression and insignificant result has been found in fixed effect model in insurance sector of Pakistan.

GDP rate

- **Fixed Effect Model**

There is also insignificant association between GDP rate and Leverage in the study (see table 4.2)

- **Pooled Model**

Insignificant but positive relationship is found between GDP rate and debt ratio in the insurance industry of Pakistan (see table 4.3)

The researcher concludes from the result of Fixed Effect model, there is insignificant but positive association is found between debt ratio and GDP growth rate. However, Constant Coefficient Model that there is insignificant but negative relationship between GDP and debt ratio. The relationship of Fixed Effect is prominent because the Fixed Effect Model is best model to explain the Panel Data in this study. Memon (2015) in Pakistan also supports the same insignificant result of GDP and Capital structure.

CONCLUSION

The Capital Structure Decision is of prime importance for any business venture that aims to maximize the wealth of diverse shareholders. Capital Structure Decision is one among three core theories like Pecking order and Trade off and agency cost theory in strategic financial Management. In this way, independent variables of this study are selected on the bases of aforementioned theories as well as the findings of other empirical studies. For this purpose, empirical data has been extracted from a number of website notably, Audited Financial Statements, State Bank of Pakistan and World Bank. The study is designed to evaluate the determinants of firm-level factors (liquidity, profitability, tangibility, business risk) and macroeconomic factors (Inflation rate and GDP growth rate) of Capital Structure Decision in Pakistani Insurance Industry. The researcher uses stata software 12, for the empirical analysis. Therefore, Hausman test and Breusch, and Pagan Lagrange Multiplier test select Fixed Effect and Pooled

Regression Model for the study. The findings of the study have revealed that liquidity, profitability and business risk, are negative but significantly related to debt ratio, while tangibility are positively and significantly associated to capital structure across both models. Moreover, Inflation rate is significant factors of Capital Structure Decision in pooled regression model but insignificant determinants in fixed effect model. GDP is not significant factor of financing behavior in insurance sector. Use of firms fixed effect model also increases the illustrative power of the model signifying that individual firms' heterogeneity issues influential to the leverage. Hence, the relationship of the variables supports Pecking-Order theory and Trade-Off theory of Capital structure. Future studies should be considers other macroeconomic factors like Tax rate, interest rate, Corruption index, while for capital structure short term debt formula could be used. Generalized Method of Moments (GMM) estimation technique could be used for the optimal capital structure in insurance sector.

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