Does Pakistani Insurance Industry follow Pecking Order Theory?

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Abstract:
Current study examines the Pecking Order Theory of capital structure by using firm level characteristics of insurance companies of Pakistan over five years from 2007 to 2011. The results of regression analysis indicate that size, profitability, tangibility, risk and liquidity are important determinants of capital structure of insurance companies of Pakistan. In addition, the results also indicate that profitable, more liquid, more tangible and risky insurance companies follow Pecking Order Hypothesis.
Keywords: Pecking Order Theory, Insurance Companies, Pakistan

Introduction:
The real debate on the capital structure started after the publication of the pioneer 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 provided the base and guidelines for the researchers to analyze the financing patterns of the firms and later on a considerable work has been done by researchers to analyze the determinants of capital structure. Myers and Majluf (1984) made a valuable addition in corporate finance literature by proposing the Pecking Order hypothesis. This theory came up as a result of asymmetric information. According to their theoretical framework, firm managers possess more information about the magnitude of investments, return on investments and different characteristics of the firm than the outsiders or investors. Therefore, when information asymmetry exits between investors and managers, investors prefer to purchase stocks only at a discount. Apprehending this problem, firms follow specific hierarchy to finance their assets. Initially, firms prefer to utilize internally generated fund i.e. retained earnings. If retained earnings are insufficient then firms raise additional funds through debt and as a last resort, firms issue equity if more funds are required. Therefore, firms prefer retained earnings to debt and debt to external equity. This paper examine the Pecking Order Theory of capital structure by using financial data of insurance companies of Pakistan from 2007-2011.

The remainder of paper is as follows. Section two reviews the literature regarding determinants of capital structure. Section three explains the methodology used for estimate the relationship between dependent and independent variables. Section four illustrates the data analysis and their results. Finally, conclusion of this study is presented in Section five.

2.0 Literature Review:
Many academicians made a valuable addition by examining the determinants of capital structure. 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. Titman and Wessels (1988) analyzed impact of firm level determinants on capital structure. The result found that uniqueness, size and profitability were negatively related with debt ratio whereas tangibility, volatility, growth and non-debt tax shield seemed to be ineffective to determine the capital structure. Chiarella et al. (1991) indicated that profitability, tangibility of assets and non debt tax shield negatively related with leverage while debt ratio had positive relationship with size, growth opportunities and cash holdings. Kjellman and Hansen (1995) investigated the pecking order and trade-off theories of capital structure by using the financial data of 54 listed firms of Finland and showed majority of Finnish firms followed the Static Trade-off pattern to finance their assets than Pecking Order pattern.

Wiwattanakantang (1999) provided the empirical evidence that ownership concentration, non debt tax shield and profitability were found negatively related with leverage. Miguel and Pindado (2001) indicated that tax and non debt tax shield have greater influence on debt ratio. Nivorozhkin (2002) reported that tangibility and profitability had a negative relationship with leverage while debt ratio was positively related with size and growth. Cassar and Holmes (2003) supported the Pecking Order and Static Trade-off hypothesis as size and growth positively and profitability negatively related with capital structure.

Yee Low and Chen (2004) analyzed the cross country affects of product diversification and international diversification on capital structure. The regression analysis found inverse relationship between leverage and international diversification while product diversification was found positively related with debt ratio. Buferna et al. (2007) strongly supported the Pecking Order and Static Trade-off theories of capital structure. Huang and Song (2006) found that growth opportunities, profitability, non-debt tax shield, managerial shareholding, and volatility had negative relationship with debt ratio. Conversely, leverage had positive relationship with size and tangibility of Chinese listed firms.

Daskalakis and Psillaki (2007) supported both Pecking Order and Static Trade-off theories. In a subsequent study conducted by Mitton (2007) showed that size, tangibility, credit market development and financial openness were positively related with leverage while debt ratio was negatively related with profitability, market to book ratios and stock market development. Bhaird and Lucey (2008) reported that leverage had positive relationship with size and provisions of collateral while age and ownership structure was found negative relationship with leverage. Mittoo and Zhang (2008) found positive relationship was found between the leverage and firms which had access in international bond markets.

Vasiliou and Daskalakis (2011) indicated that market timing, financial distress and competitiveness were significantly affected on capital structure. In order to refine the findings of Titman and Wessels (1988), a subsequent study was conducted by Chang et al. (2011). They found that debt ratio tended to increase with the increase in growth opportunities, non debt tax shields, fixed assets and firm's size and decreased with the decrease of volatility, profitability and uniqueness of the product. Akhtar and Oliver (2011) empirically analyzed the capital structure determinants of domestic and multinational firms and showed that MNCs were relatively less leveraged than domestic firms. Cespedes et al. (2011) found that tangibility, growth opportunities and size positively related with the firm's leverage.

3. Research Methodology:

3.1 Sample size and Sources of Data:

Currently twenty eight non-life and five life insurance companies are working in Pakistan and all these companies are selected for this study over the period of five years from 2007 to 2011. Various sources have been used for data collection. The book value based yearly financial data has been collected from the financial statements (Balance Sheet & Profit and Loss A/c) of insurance companies and various "Insurance Year Books" published by Insurance Association of Pakistan.

3.2 Regression Model:

$$\text{Leverage} = \beta 0 + \beta 1 \,(\text{Size}) + \beta 2 \,(\text{Profitability}) + \beta 3 \,(\text{Tangibility}) + \beta 4 \,(\text{Liquidity}) + \beta 5 \,(\text{Risk}) + \varepsilon$$

Leverage is dependent variable while size, profitability, tangibility, liquidity and risk are selected as independent variables. Debt ratio or leverage is determined by ratio of total debts to total assets. Natural log of premiums is a proxy of firms Size. Ratio of net income before interest and tax divided by total assets chooses for measuring the profitability. In addition, ratio of current assets to current liabilities and standard deviation of ratio of total claims to total premiums are proxies of liquidity and risk.

4.3 Statistical Analysis
4.3.1 Descriptive Statistics
Table 4.1 provides the descriptive statistics of leverage, size, risk, tangibility, liquidity and profitability. The average value of leverage is approximately 0.57 over five years of all insurance companies in Pakistan. In 2009 leverage reaches at maximum level i.e. 0.60 which shows the aggressive behavior of insurers about utilization of large portion of debt. On the other hand variation in selection of debt capital also seems to be at minimum level in 2008 i.e. 0.54 as compare to other years. Size is explanatory variable which is proxy by log of total premiums. Statistics show that on average premium revenue is continuously increasing of insurance companies from 2007 to 2011. which predicts that in Pakistan, people prefer to transfer their risk by getting insurance policy.

Profitability of entire insurance sector is given in third column of Table 4.1. An increasing trend can be seen in mean values of profitability from the minimum value 0.05 in 2007 to a maximum value 0.12 in 2011. In the same manner variation in profitability is having increasing trend from 2007 to 2011. Table 4.1 also presents the descriptive statistics for independent variables tangibility, liquidity and risk of entire insurance sector. As insurance companies face uncertainty for settlements of claims, so these companies are preferred to keep large

portion of current assets than fixed assets. The average values of Table 4.1 also shows minor portion of fixed assets of insurers and depicts consistency in mean values from 2007 to 2011 approximately 0.12. The standard deviation of tangibility is around 0.21 over five years.

Table 4.1 shows insurance companies, on average, continuously improving their liquidity position through out five years. This trend shows that life and non-life insurers keep large portion of funds in liquid form for settlement of claims. The highest mean value of liquidity is observed in 2011 which is 3.84. But in the same year the value of standard deviation is at maximum level i.e. 1.61 among all the years which also predicts inconsistency in liquidity position. Standard deviation of ratio of total claims to total premiums is used as a proxy to measure the risk of insurance companies. Statistics of Table 4.1 describes that in 2007, the mean value of risk seems at minimum level with the ratio of 4.37 which reaches at 7.55 in 2011. On the other hand, in 2008, the value of standard deviation is 10.1 which is the highest value over five years.

4.3.2 Correlation
Table 4.2 depicts the correlation analysis by using the data of entire insurance sector (both life and non-life) of Pakistan. The maximum correlation value exists between risk and tangibility i.e. (43%), shows that the problem of multi co-linearity is not existed among all the independent variables.

4.3.3 Regression Analysis
Table 4.3 of shows that coefficient of variable size is positive and statistically significant at 1% level. This predicts that large size insurance companies (life plus non-life) in Pakistan are preferred to utilize more debt in formation of capital. Thus, shows a positive relationship between the debt ratio and size of insurance sector over five years. These results also confirm the implication of Static trade- off Theory on insurance sector of Pakistan from 2007 to 2011. Shah and Khan (2007) also found positive relationship between leverage and size in Pakistani non financial firms whereas Rafiq et al (2008) also depicts the same relationship in chemical industry of Pakistan.
The coefficient sign of control variable profitability is found to be negative and statistically significant at 5% level. This negative sign shows the negative relationship between leverage and profitability and predicts that, in Pakistan, profitable insurance companies (both life and non-life) discourage to employ debt capital over five years. This result confirms the notion that Pakistani insurance companies follow the Pecking Order pattern i.e. preferred to employ internal source of financing than debt.
Table 4.3 depicts that the beta value of explanatory variable tangibility of assets is 0.185 with the positive coefficient sign. This positive relationship shows that Pakistani insurance companies (both life and non-life) with large portion of fixed assets discourage to employ debt capital. Al-Bahsh and Sentis (2008) also found the negative relationship between tangibility and leverage by taking the sample of less developed economies. Various studies like Joeveer (2006) and Daskalakis and Psillaki (2007) also predict the same negative relationship between debt ratio and tangibility.
The results of regression model indicate that the control variable liquidity with the negative coefficient value – 0.017 is statistically significant at 10% level. Therefore, Pakistani 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 over five years from 2007 to 2011. Ozkan (2001) and Mashharawe (2003) also show the inverse relationship between liquidity and debt ratio. Table 4.3 also shows that the coefficient of variable risk is negative and statistically significant at 5% level. This negative sign shows that as claim ratio of insurance companies increases, ratio of debt decreases in formation of capital.
Therefore, results indicate that at the time of the destruction or loss of the subject matter, risky Pakistani insurance companies do not acquire external source of financing for settlement of claims. Pandey(2001) and Delcour(2007) are also found the negative relationship between risk and leverage of the firms. (both life and non-life) with large portion of fixed assets discourage to employ debt capital. Al-Bahsh and Sentis (2008) also found the negative relationship between tangibility and leverage by taking the sample of less developed economies. Various studies like Joeveer (2006) and Daskalakis and Psillaki (2007) also predict the same negative relationship between debt ratio and tangibility.

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increases, ratio of debt decreases in formation of capital. Therefore, results indicate that at the time of the destruction or loss of the subject matter, risky Pakistani insurance companies do not acquire external source of financing for settlement of claims. Pandey(2001) and Delcour(2007) are also found the negative relationship between risk and leverage of the firms.

Conclusion

This study examines Pecking Order Theory of Capital Structure by using the financial data of insurance companies of Pakistan over the period of five years from 2007 to 2011. Empirical results indicate that size, profitability, liquidity tangibility and risk are important determinants of capital structure of insurance companies of Pakistan. In addition, Pakistani insurers follow Pecking Order pattern in terms of profitability, risk, tangibility and liquidity as leverage has a negative relationship with profitability, risk, tangibility and liquidity while positive relationship between leverage and size shows consistency with the Trade-off theory. Moreover, the results also indicate that the management of profitable, more liquid, more tangible and risky non-life insurance companies emphasize on retained earnings or equity than debt financing.

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TABLE 4.1: Descriptive Statistics for Study Variables

Years	Leverage				Size				Profitability			
	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max
2007	0.56	0.26	0.04	0.95	5.43	1.30	1.26	8.99	0.05	0.05	-0.20	0.22
2008	0.54	0.31	0.08	0.95	6.56	1.35	1.33	9.17	0.07	0.04	-0.16	0.26
2009	0.60	0.24	0.04	0.91	6.73	1.31	1.22	9.28	0.06	0.06	-0.17	0.28
2010	0.59	0.26	0.09	0.88	7.29	1.59	1.84	9.33	0.08	0.09	-0.04	0.23
2011	0.58	0.21	0.13	0.95	7.66	1.78	1.19	9.55	0.12	0.07	0.01	0.41

TABLE 4.1 (Continued): Descriptive Statistics for Study Variables

Years	Tangibility				Liquidity				Risk			
	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max
2007	0.13	0.22	0.00	0.91	2.59	1.52	0.41	8.64	4.37	5.11	0.23	22.21
2008	0.12	0.17	0.01	0.94	2.77	1.36	0.63	8.47	5.03	6.50	0.03	32.74
2009	0.13	0.19	0.00	0.90	2.82	0.56	0.52	3.87	6.44	4.82	0.06	21.14
2010	0.11	0.21	0.03	0.92	3.68	1.27	0.38	5.14	7.18	10.1	0.00	71.04
2011	0.12	0.18	0.02	0.85	3.84	1.61	-0.82	7.25	7.55	9.22	0.01	64.47

Table 4.2: Results of Correlation

		Leverage	Size	Profitability	Tangibility	Liquidity	Risk
Leverage	Pearson Correlation						
	Sig. (2-tailed)						
Size	Pearson Correlation	.632**					
	Sig. (2-tailed)	.000					
Profitability	Pearson Correlation	-.469**	.066				
	Sig. (2-tailed)	.000	.254				
Tangibility	Pearson Correlation	-.294**	-.256**	-.277**			
	Sig. (2-tailed)	.000	.000	.000			
Liquidity	Pearson Correlation	-.364**	-.346**	.048	-.037		
	Sig. (2-tailed)	.000	.000	.421	.532		
Risk	Pearson Correlation	-.374**	-.295**	.046	.435**	.038	
	Sig. (2-tailed)	.000	.003	.375	.000	.479	

Table: 4.3 (a) Regression Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.869[a]	.734	.728	.11230

Table: 4.3 (b) ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	7.669	5	1.534	121.632	.000[a]
	Residual	2.497	198	.013		
	Total	10.166	203			

Table: 4.3 (c) Regression Coefficients & Significance level

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	.341	.033		10.388	.000
	Size	.080	.005	.639	16.098	.000*
	Profitability	-.827	.068	-.561	-12.499	.03**
	Tangibility	-.185	.047	-.164	-3.556	.000*
	Liquidity	-.017	.007	-.248	-6.526	.09***
	Risk	-.006	.004	-.116	-3.156	.025**

*Significant at 1% level

**Significant at 5% level

***Significant at 10% level