Research

MACRO ECONOMY AND PROFITABILITY OF INSURANCE COMPANIES: A POST CRISIS SCENARIO IN PAKISTAN

Ijaz Hussain[1]

Abstract

This paper uses firm level data of 39 companies of insurance industry of Pakistan for the period 2006-11. The findings of this study suggest that based on overall regression results, macroeconomic environment, equity market conditions and inflation have a positive and significant impact on profitability of insurance companies in Pakistan. This is also true for non-life insurance companies. However, significance and signs of the coefficients of firm-specific characteristics and macroeconomic variables vary across life, non-life and takaful insurance companies on account of varying nature of their clientele and coverage of insurance policies. Corporate managers of life insurance companies should especially focus on exploring opportunities for growth and diversification and management of underwriting risk and investment portfolios in view of changing equity market conditions. Financial strength, firm size and financial leverage cannot be ignored in profitability management of life insurance companies. The management of non-life insurance companies should also keep in view the macroeconomic environment, equity market conditions, inflation in addition to firm specific characteristics including financial leverage, relative firm size, financial soundness, growth opportunities, underwriting risk and diversification in particular to manage profitability. The takaful business managers should especially focus on underwriting risk, diversification and working capital management to manage their return on assets

Keywords: Life Insurance, non-life, takaful, performance,profitability

Introduction

The insurance sector though relatively smaller in size has shown a slow but smooth growth in its assets' base matching with overall financial sector in Pakistan (Figure 1). However, the growth rate of revenue from gross premium of insurance sector exhibits decline over time (Figure 1). Despite slow but smooth growth of assets' base, profitability demonstrates significant variation over time and across various sub-sectors of insurance (Figure 1 & 2, Annexure A) and also appears to remain vulnerable to the risks resulting from macroeconomic and equity market environment in the country (Figure 3). Insurance companies in Pakistan have two major sources of revenue i.e. premium and investment income. Investment in securities and properties as percentage of the total assets (more than seventy percent) has almost remained stable (Figure 4) while utilization of assets to generate revenue from premium (asset turnover) has significantly declined over time during the period 2006-11. Therefore, investment income and underwriting profits have especially been subjected to significant volatility on account of varying macroeconomic and equity market conditions in the country (Figure 1 & 3).

Figure 1:
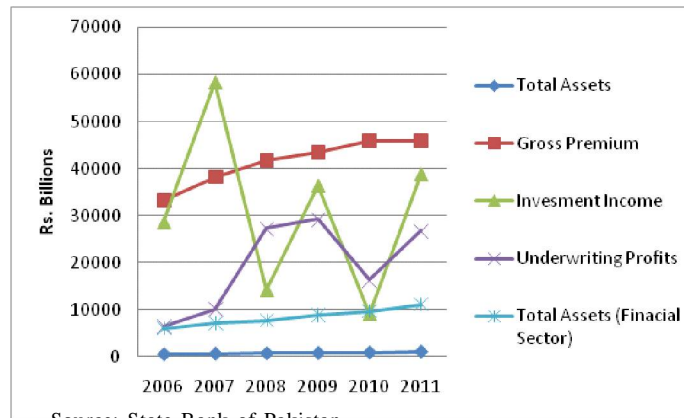
Selected Indicators of Financial and Insurance Sector
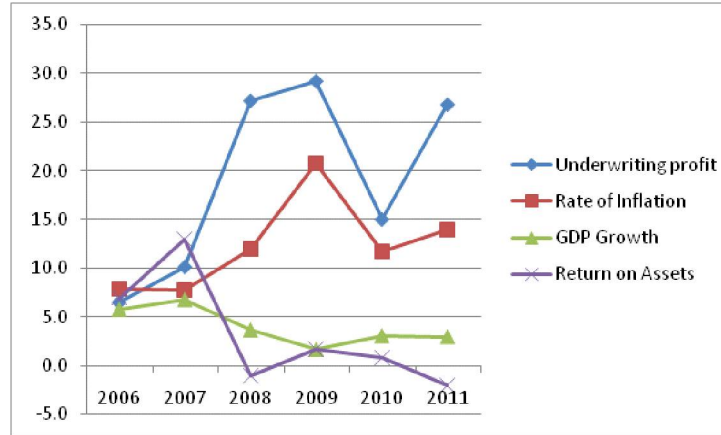
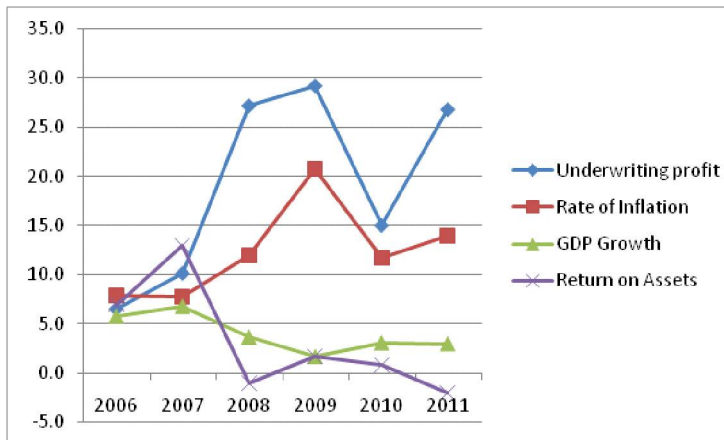

Source: State Bank of Pakistan

Figure 2:

Profitability [(Return on Assets (ROA)] by Insurance Sector

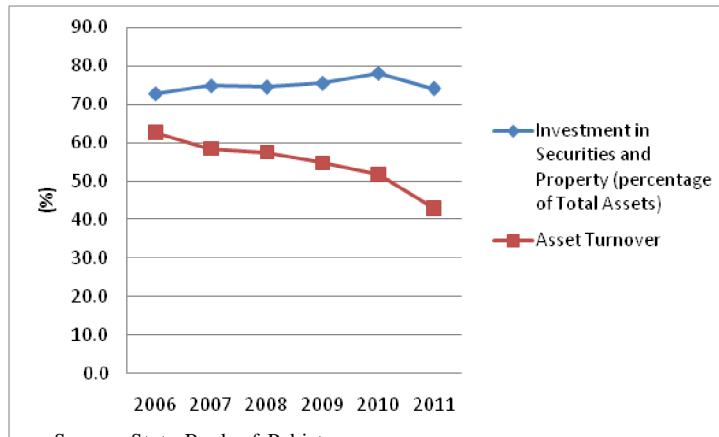Source: State Bank of Pakistan

Figure 3:

Macroeconomic Indicators and Profitability [(Return on Assets (ROA)] of Insurance Sector

Source: State Bank of Pakistan, Hand Book of Statistics on Pakistan Economy (2011)

Figure 4:

Asset Turnover and Investment in Securities and Properties

Source: State Bank of Pakistan

To the best of my knowledge, there have been only two attempts to explore determinants of profitability of insurance companies in Pakistan. Both of these ignore macroeconomic and equity market conditions.

All previous studies including those in Pakistan and India account for only the firm-specific determinants and completely ignore the impact of macroeconomic and institutional factors which are also likely to influence profitability of insurance companies. This paper fills up this void in literature and includes macroeconomic environment, inflation and equity market conditions in the country in addition to firm-specific determinants of profitability of insurance companies in Pakistan.

This paper analyzes the determinants of profitability of insurance companies in Pakistan at the aggregate level and also undertakes the analysis for three various categories of insurance companies i.e i. Life Insurance Companies. ii. Non-Life Insurance

Companies. iii. Takaful (Islamic Insurance) Companies. This paper uses firm level data of 39 companies of insurance industry of Pakistan for the period 2006-11. The findings of this study suggest that significance and signs of the coefficients of firm-specific characteristics and macroeconomic variables vary across life, non-life and takaful insurance companies on account of varying nature of their clientele and coverage of insurance policies. The profitability of insurance companies is subject to volatility in stock market. The positive impact of diversification and equity market conditions on profitability of all types of insurance companies has interesting policy implications. The findings of this study also suggest that there is a strong need for further diversification of investment portfolios and macroeconomic variables are relatively more influential on profitability in case of non-life insurance companies.

The rest of the paper is organized as follows: Section 1 reviews literature. Section 2 describes data sources, variables, research design and methodology. Section 3 presents results and discussion while Section 4 presents conclusion. Section 5 lists references

Review of the literature

Boadi et al (2013) discover a positive impact of leverage, liquidity and report negative impact of tangibility of assets on profitability of insurance firms in Ghana for the period 2005-10. Zhu (2013) applies structural equation modeling; we investigate the relations among solvency, operation ability and profitability in year 1994, 1995 and 1996. The findings of this study suggest that operating ability has a positive effect on the size and income of life insurers and has a negative impact on the return on capital during these years while the effect of solvency, asset risk and product risk on return on capital is not significant.

Ayele (2012) examines the firm specific determinants of the nine of the listed insurance companies in Ethiopia for the period 2003-

11. The findings of this study show insignificant impact of age of company and tangibility of assets; positive and significant impact of growth, leverage, volume of capital, size; and negative impact of liquidity and leverage ratio on profitability Ethiopian insurance companies.

Ćurak et al (2011) investigates key determinants of the financial performance of composite insurance companies in Croatia during the period 2004 to 2009 and report that size, underwriting risk, inflation and equity returns have significant impact on the insurers' return on equity. Regression results in Kozak (2011), show positive impact of growth in gross premiums, the GDP growth and foreign ownership of companies and negative impact of operating expenses ratio for a panel of 25 non-life insurance companies of Poland for the period of 2002–2009.

Using a panel data set for the period 1986 to 1999, Shiu (2004) identifies the determinants of the performance of United Kingdom general insurance companies. Findings of this study suggest that liquidity, unexpected inflation, interest rate level and underwriting profits are statistically significant determinants of the performance of U.K. general insurers.Chen and Wong (2004) identify size, investment performance, liquidity ratio, surplus growth and operating margin as the major factors that significantly affect general insurers' financial health in Asian economies. Greene & Segal (2004) use stochastic frontier method to estimate cost inefficiency in US insurance industry and explore that cost inefficiency relative to earnings is substantial and is negatively associated with profitability. Beck & Webb (2003) use panel with data for 68 countries over the period 1961-2000, findings of this study suggest that income per capita, inflation and banking sector development, as well as religious and institutional indicators are the most robust predictors of the use of life insurance while education, young dependency ratio, life expectancy, and size of social security do not appear to be robustly associated with life insurance consumption. These findings also suggest that profitability

of the insurance companies is also likely to be influenced by macroeconomic and institutional environment. Wright (1992) reports that profitability depends on the scale of policy holder's dividend, capital gain or losses and federal/state taxes for insurer in USA.

Agiobenebo and Ezirim (2002) examined the impact of financial intermediation on the profitability of insurance companies in Nigeria. Their results indicate that asset turnover (premium relative to total assets) has positive and significant impact on profitability of insurance companies; financial leverage, investments though positively related, but are statistically insignificant at conventional levels. In addition, the study also concludes that past profitability significantly account for profitability in current periods on account of information content, confidence in the organization and goodwill.

Adams and Buckle (2003) conclude that highly levered and low liquid insurance companies of Bermuda relatively have better profitability. They also identify positive relation of underwriting risk with profitability. McShane et al. (2010) find that the profitability i.e return on equity of US life insurance companies is positively related to regulatory competition. Ikonic, et al. (2011) use the CARMEL method to identify the level of capital as the key determinant of profitability of the insurance companies in Serbia.

Charumathi (2012) uses a sample of twenty three Indian life insurance companies for the period 2008-11 and examines the impact of firm specific characteristics such as leverage, size, premium growth, liquidity, underwriting risk and equity capital on Return on Assets. This study leads to the conclusion that profitability of life insurers is positively and significantly influenced by the size (as explained by logarithm of net premium) and liquidity. The leverage, premium growth and logarithm of equity capital have negatively and significantly influenced the profitability of Indian life insurers. This study does not find any evidence for the relationship between underwriting risk and profitability.

Malik (2011) uses a panel of thirty five life and non-life insurance firms for the period 2005-09 and examines the impact of firm-specific factors including age size, volume of capital, claims to premium ratio and financial leverage on profitability (return on assets). She reports positive and significant impact of size and volume of capital; negative and significant impact of financial leverage and claims to premium ratio on profitability and insignificant impact of age on profitability. Ahmed et al. (2011) also examines the impact of firm-specific factors including size, leverage, tangibility, risk, growth, liquidity and age on performance (return on assets) of listed life insurance companies of Pakistan for the period 2001-07. Their results indicate that size and financial leverage are the only statistically significant determinants of the performance of life insurance companies of Pakistan. Size has positive while financial leverage has negative coefficient while coefficients with growth, age and liquidity are statistically insignificant.

All these studies including those in Pakistan and India account for only the firm-specific determinants and completely ignore the impact of macroeconomic and institutional factors which are also likely to influence profitability of insurance companies. My paper fills up this void in literature and includes macroeconomic environment and equity market conditions in the country in addition to firm-specific determinants of profitability of insurance companies in Pakistan. This paper analyzes the determinants of profitability of insurance companies in Pakistan at aggregate level and also undertakes analysis for three various categories of insurance companies i.e i. Life Insurance Companies. ii. Non-Life Insurance Companies. iii. Takaful (Islamic Insurance) Companies.

Methodology
Research design

This study uses highly popular statistical model of panel data analysis that combines cross section and time series data and

estimates panel least squares regression of a standard model in the following form:

$$ROA_{it} = \beta_{0} + \beta_{1} X_{it} + \beta_{2} Z_{t} + \varepsilon_{it},\text{————————}(1)$$

where ROA_{it} denotes return on assets of firm *i* while t specifies time dimension. β_{0}, β_{1} and β_{2} are unknown constants. X_{it} represents the set of firm-specific explanatory variables which vary across firms as well as over time. Z_{t} is the set of macroeconomic or institutional explanatory variables that are common for all banks and vary over time only. ε_{it} is white noise error term.

Choice and Discussion of variables

Profitability is dependent variable in this study. We use Return on assets [ROA] as proxy for profitability because it is widely used in literature.
ROA is calculated as follows:

$$ROA_{i,t} = \frac{NPAT_{i,t}}{TA_{i,t}} * 100\text{————————}(2)$$

Where $NPAT$ is net profit after tax, TA denotes book value of total assets and i and t are subscripts for cross section (firm) and time dimension respectively.
Return on assets [ROA] serves as a nice proxy for profitability because it captures both efficiency and profitability in the sense that it is a product of asset turnover [ATO] and net profit margin [NPM].

$$ROA_{i,t} = ATO_{i,t} * NPM_{i,t}\text{————————}(3)$$

As discussed in Agiobenebo and Ezirim (2002), past profitability significantly accounts for profitability in current periods on account of information content, confidence in the organization

and goodwill, therefore, expected coefficient with past profitability is positive.

Whittington (1980) notes and attributes the positive relationship between size and profitability to the facts that the larger firm size contributes to the high degree of concentration and monopoly power, and also to efficient cost structure due to scale economies. Ammar et al. (2003) note that small, medium, and large firms differ significantly from one other in terms of their profit rate and profitability drops as firms grow beyond USD 50 million in sales. Treacy (1980) points out a strong negative correlation between firm size and return on equity. We express the book value of the assets of a firm as percentage of the book value of the assets of the insurance industry to measure relative firm size [RFS] as follows:

$$RFS_{i,t} = \frac{TA_{i,t}}{\sum_{i=1}^{n} TA_{i,t}} * 100 \text{———————————(4)}$$

Where $TA_{i,t}$ denotes book value of the total assets of firm at time while denotes book value of the total assets of insurance industry comprising if n number of firms.

Amjed (2007) reports the negative relationship between long-term debt and profitability, and the positive relationship between short-term debt and profitability. Therefore, we expect negative coefficient with financial leverage measured by debt-equity ratio calculated as follows:

$$DER_{i,t} = \frac{TL_{i,t}}{TE_{i,t}} \text{-------------------(5)}$$

Where denotes debt-equity ratio, denotes total liabilities and denotes total stockholders' equity of firm at time respectively.

This study uses Return on Assets as a measure of profitability calculated as follows:

$$ROA_{i,t} = \frac{NPAT_{i,t}}{TA_{i,t}} * 100 \text{------------------------(6)}$$

Ali (2011) confirms a significant economic impact of working capital (average days in inventory, average days receivable, and average days payable) on return on assets. Chhapra and Naqvi (2010) show a strong positive and significant relationship between working capital management and firm profitability in Pakistan's textile sector.

We use current ratio as measure of liquidity or working capital management calculated as follows:

$$L_{i,t} = \frac{CA_{i,t}}{CL_{i,t}} \text{---------------------------}(7)$$

Where stands for liquidity, denotes current assets and denotes current liabilities of firm by the end of year respectively. We measure financial soundness [FS] of insurance companies by the ratio of the book value of capital to that of assets. Calculated as follows:

$$FS_{i,t} = \frac{CS_{i,t}}{TA_{i,t}} \text{-----------------------}(8)$$

Where denote financial soundness, capital stock and total assets of firm by the end of year respectively. Financially sound firms are likely to charge higher premiums which in turn can influence firms' profitability.

We measure growth opportunities [log (TA)] as logarithm of the book value of assets. Growth in firms' assets may signal about better investment opportunities and future profitability of the firms and hence the firms with higher growth prospects are likely to be more profitable.

Insurance companies derive their income from two key sources of revenue i.e. premium and investment income. Since investment income is significant proportion in total income and is mainly from investments in stocks and property, therefore, equity market conditions [KSMI] are also likely to positively influence the profitability of the insurance firms. We use Karachi Stock Market Index as a proxy of equity market conditions. In addition, we measure diversification [DIV] of insurance companies as ratio between non-premium incomes to premium income. Such diversification is also likely to influence profitability. Hussain (2013) reports negative impact of diversification (measured as ratio of non-interest revenue to total revenue) on net interest margins of commercial banks of Pakistan for the period 2001-10.

During the period 2001-2011, there have been significant damages due to the incidents like earthquake, floods and terrorism leading to increase in claims by insurance policyholders, therefore, coefficient with underwriting risk is expected to have negative sign. We measure underwriting risk [UR] as ratio between gross insurance claims and gross premium as follows:

$$UR_{i,t} = \frac{GC_{i,t}}{GP_{i,t}} \text{----------------------}(9)$$

,and denote underwriting risk, net insurance claims and net premium of insurance company by the end of year respectively.

Inflation [INF] is likely to raise consumption expenditure of households and consequently reduced savings can reduce demand for life insurance companies. Therefore, inflation is likely to have negative impact on profitability of life insurance companies. The impact of inflation may be different for life or non-life insurance companies if households and businesses prefer to insure against inflation. Hussain (2012) identifies negative impact of inflation on profitability of textile firms in Pakistan for the period 2006-09. Macroeconomic environment [GDPG] captured by growth rate of GDP is indicative of overall business conditions and hence capacity to insure and therefore, is expected to have positive impact on profitability.

Data set

This paper uses secondary data from "Balance Sheet Analysis (2006-11) of Financial Sector published by Statistics Department of State Bank Of Pakistan." The sample of this study covers 39 firms of insurance industry comprising of three sub-sectors i.e. life insurance, non-life insurance and takaful (Islamic Insurance). Choice of the time span for this study based on following justification: (i). Baltagi (2008) identifies two types of the panel data i.e. miro-panels where the number of cross-sections is large and time can vary from a minimum of two years and macro-panels where time span is large. Micro-panels also

have an advantage because sampled cross-sections are not likely to be correlated (ii). Data for insurance companies especially for takaful companies is not available prior to 2006.

Data on macroeconomic indicators has been derived from the Hand Book of Statistics on Pakistan Economy (2010) and Statistical Bulletin (2012) published by State Bank Of Pakistan.

Results and Discussion

Regression results have been presented in Table 1. Consistent with the findings in Agiobenebo and Ezirim (2002) positive coefficient with past profitability indicates that past profitability of the companies of non-life insurance and takaful significantly accounts for profitability in current periods on account of information content confidence in the organization and goodwill. However, the effect of past profitability for life insurance companies is insignificant.

Size effects though are negative for all three insurance subsectors, yet these effects are significant only for life insurance companies. Negative coefficient with size is consistent with the findings in Ammar et al. (2003) and Treacy (1980). However, it negates the proposition of higher degree of concentration and efficient cost structure of bigger firms as noted in Whittington (1980).

Consistent with the findings in Amjed (2007), financial leverage has significant and negative influence on profitability of both life and non-life insurance companies. However, the coefficient with financial leverage is positive and insignificant for takaful companies. Positive coefficient with financial soundness of both life and non-life insurance companies confirms that firms charge additional premium from policy holders for their trust on account of financial soundness of these companies.

Positive and significant coefficient with growth opportunities of both life and non-life insurance companies is indicative of the fact that companies with higher growth opportunities are more profitable

Table 1: Regression Results

Life					Non-Life				
Dependent Variable: ROA					Dependent Variable: ROA				
Method: Panel EGLS (Cross-section weights)					Method: Panel EGLS (Cross-section weights)				
Sample (adjusted): 2007 2011					Sample (adjusted): 2007 2011				
Periods included: 5					Periods included: 5				
Cross-sections included: 6					Cross-sections included: 29				
Total panel (unbalanced) observations: 27					Total panel (unbalanced) observations: 133				
Linear estimation after one-step weighting matrix					Linear estimation after one-step weighting matrix				
White cross-section standard errors & covariance (no d.f. correction)					White cross-section standard errors & covariance (no d.f. correction)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.	Variable	Coefficient	Std. Error	t-Statistic	Prob.
C: Constant	-0.1057	0.0975	-1.0839	0.2955	C: Constant	-0.9364	0.1796	-5.2153	0.0000
ROA(-1): Past Profitability	0.0320	0.0367	0.8721	0.3969	ROA(-1): Past Profitability	0.2032	0.0612	3.3191	0.0012
RFS: Relative Firm Size	-0.0001	0.0000	-2.3851	0.0307	RFS: Relative Firm Size	-0.0005	0.0006	-0.7809	0.4364
DER: Financial Leverage	-0.1144	0.0169	-6.7867	0.0000	DER: Financial Leverage	-0.0420	0.0195	-2.1505	0.0335
D(FS): Financial Soundness	0.0910	0.0268	3.3921	0.0040	D(FS): Financial Soundness	0.1885	0.0557	3.3840	0.0010
DLOG(TA): Growth Opportunities	0.0574	0.0109	5.2762	0.0001	DLOG(TA): Growth Opportunities	0.1455	0.0242	6.0060	0.0000
IIGP: Diversification	0.0000	0.0000	19.5161	0.0000	IIGP: Diversification	0.0000	0.0000	5.1381	0.0000
GCGP: Underwriting Risk	-0.0001	0.0001	-1.4429	0.1696	GCGP: Underwriting Risk	-0.0005	0.0001	-6.0770	0.0000
L: Working Capital Management	0.0133	0.0036	3.6923	0.0022	L: Working Capital Management	-0.0579	0.0362	-1.5982	0.1126
LOG(KSMI(-1)): Equity Market Conditions	0.0223	0.0113	1.9716	0.0674	LOG(KSMI(-1)): Equity Market Conditions	0.1057	0.0200	5.2906	0.0000
D(GDPG): Macroeconomic Environment	0.0012	0.0020	0.6016	0.5564	D(GDPG): Macroeconomic Environment	0.0245	0.0023	10.6029	0.0000
INF: Inflation	-0.0004	0.0004	-0.8752	0.3953	INF: Inflation	0.0023	0.0008	2.8497	0.0051
Weighted Statistics					**Weighted Statistics**				
R-squared	0.9674	Mean dependent var	0.0307		R-squared	0.6738	Mean dependent var	0.0920	
Adjusted R-squared	0.9434	S.D. dependent var	0.0491		Adjusted R-squared	0.6442	S.D. dependent var	0.2326	
S.E. of regression	0.0118	Sum squared resid	0.0021		S.E. of regression	0.1267	Sum squared resid	1.9435	
F-statistic	40.4089	Durbin-Watson stat	1.6930		F-statistic	22.7252	Durbin-Watson stat	1.7738	
Prob(F-statistic)	0.0000				Prob(F-statistic)	0.0000			
Un-weighted Statistics					**Un-weighted Statistics**				
R-squared	0.9182	Mean dependent var	0.0240		R-squared	0.3767	Mean dependent var	0.0244	
Sum squared resid	0.0037	Durbin-Watson stat	1.4151		Sum squared resid	3.2963	Durbin-Watson stat	1.2409	

Dependent Variable: ROA					Dependent Variable: ROA				
Method: Panel EGLS (Cross-section weights)					Method: Panel EGLS (Cross-section weights)				
Sample (adjusted): 2007 2011					Sample (adjusted): 2007 2011				
Periods included: 5					Periods included: 5				
Cross-sections included: 4					Cross-sections included: 35				
Total panel (unbalanced) observation: 17					Total panel (unbalanced) observations: 160				
Linear estimation after one-step weighting matrix					Linear estimation after one-step weighting matrix				
White cross-section standard errors & covariance (no d.f. correction)					White cross-section standard errors & covariance (no d.f. correction)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.	Variable	Coefficient	Std. Error	t-Statistic	Prob.
C: Constant	0.0359	0.2796	0.1284	0.9028	C: Constant	-0.7824	0.1242	-6.2991	0.0000
ROA(-1): Past Profitability	-0.1568	0.0134	-11.7416	0.0001	ROA(-1): Past Profitability	0.1892	0.0747	2.5338	0.0123
RFS: Relative Firm Size	-0.0142	0.0095	-1.4881	0.1969	RFS: Relative Firm Size	0.0000	0.0001	-0.5369	0.5922
DER: Financial Leverage	0.0177	0.0155	1.1403	0.3058	DER: Financial Leverage	-0.0586	0.0163	-3.5888	0.0005
D(FS): Financial Soundness	-0.0306	0.0072	-4.2377	0.0082	D(FS): Financial Soundness	0.1228	0.0368	3.3350	0.0011
DLOG(TA): Growth Opportunities	-0.0066	0.0020	-3.3341	0.0207	DLOG(TA): Growth Opportunities	0.1107	0.0210	5.2790	0.0000
IIGP: Diversification	0.0000	0.0000	23.4238	0.0000	IIGP: Diversification	0.0000	0.0000	6.7353	0.0000
GCGP: Underwriting Risk	-0.0324	0.0036	-9.0669	0.0003	GCGP: Underwriting Risk	-0.0003	0.0001	-4.5390	0.0000
L: Working Capital Management	0.0300	0.0112	2.6938	0.0431	L: Working Capital Management	-0.0067	0.0123	-0.5468	0.5854
LOG(KSMI(-1)): Equity Market Conditions	0.0054	0.0282	0.1925	0.8550	LOG(KSMI(-1)): Equity Market Conditions	0.0885	0.0143	6.1967	0.0000
D(GDPG): Macroeconomic Environment	-0.0015	0.0038	-0.3949	0.7092	D(GDPG): Macroeconomic Environment	0.0173	0.0018	9.6580	0.0000
INF: Inflation	0.0006	0.0004	1.2496	0.2668	INF: Inflation	0.0016	0.0007	2.1456	0.0335
Weighted Statistics					**Weighted Statistics**				
R-squared	0.9864	Mean dependent var	-0.0240		R-squared	0.6866	Mean dependent var	0.0851	
Adjusted R-squared	0.9566	S.D. dependent var	0.0605		Adjusted R-squared	0.6633	S.D. dependent var	0.2108	
S.E. of regression	0.0129	Sum squared resid	0.0008		S.E. of regression	0.1167	Sum squared resid	2.0160	
F-statistic	33.0362	Durbin-Watson stat	2.3560		F-statistic	29.4740	Durbin-Watson stat	1.7971	
Prob(F-statistic)	0.0006				Prob(F-statistic)	0.0000			
Un-weighted Statistics					**Un-weighted Statistics**				
R-squared	0.9852	Mean dependent var	-0.0272		R-squared	0.3712	Mean dependent var	0.0243	
Sum squared resid	0.0009	Durbin-Watson stat	2.2971		Sum squared resid	3.3535	Durbin-Watson stat	1.2063	

Positive coefficient with diversification also indicates that insurance companies engaged in diverse set of activities and with relatively higher proportion of non-insurance business is more profitable; however, this is contrary to the findings in Hussain (2013) for commercial banks. Underwriting risk has highly significant and negative impact on profitability of all types of insurance companies. Our results are consistent with those in Malik (2011).

Our results indicate that working capital management or liquidity of life and takaful insurance companies has significant and positive impact on profits. This is consistent with the results in Ali (2011) and Chhapra and Naqvi (2010). However, the coefficient with liquidity of non-life insurance companies is negative and insignificant.

Among macroeconomic variables, the coefficient with equity market conditions is positive and significant for both life and non-life insurance companies; the coefficient with inflation is positive and significant for non-life insurance companies but negative and insignificant for life insurance companies; the coefficient with macroeconomic environment is positive though insignificant for life insurance companies but positive and significant for non-life insurance companies. All macroeconomic variables are insignificant for takaful companies. In short, impact of macroeconomic variables on profitability of insurance companies varies across various types of insurance companies.

Conclusion and Policy Implications

Regression results indicate that relative firm size, financial leverage, underwriting risk, financial soundness, growth opportunities, diversification, working capital management and equity market conditions are statistically significant determinants of the profitability of insurance companies. Relative firm size, financial leverage and underwriting risk have negative impact while rest of the variables have positive impact on profitability of life insurance

companies. However the impact of past profitability, underwriting risk, inflation and macroeconomic environment is insignificant. For non-life insurance companies, on the other hand, financial leverage, underwriting risk and working capital management have negative and significant impact while past profitability, financial soundness, growth opportunities, diversification, equity market conditions, macroeconomic environment and inflation have significant and positive impact. However, the impact of relative firm size and working capital management is insignificant.

For takaful companies, past profitability, relative firm size, financial soundness, growth opportunities and under writing risk have significant and negative impact while financial leverage, diversification and working capital management have positive and significant impact on profitability. However, the impact of all macroeconomic variables and relative firm size is insignificant. macroeconomic environment All macroeconomic variables are statistically significant and positive impact on profitability of especially non-life insurance companies while only equity market conditions have significant and positive coefficient for life insurance companies. On the other hand, profitability of takaful companies is not influenced at all by macroeconomic variables.

In view of the finds of this study, it is interesting to note the positive impact of diversification and equity market conditions on profitability of all types of insurance companies. Since investment in stocks and properties as a percentage of total assets and consequently investment income as percentage of total income constitutes significant fraction, therefore, profitability of insurance companies is subject to volatility in stock market. Therefore, it is not advisable for insurance companies to put all eggs in one basket and hence there exists strong need for further diversification of investment portfolios.

It is also noteworthy that macroeconomic variables are relatively more influential in case of non-life insurance companies.

Significance and signs of the coefficients of firm-specific characteristics and macroeconomic varies across various types of insurance companies on account of varying nature of their clientele and coverage of insurance policies.

Corporate managers of life insurance companies should especially focus on exploring opportunities for growth and diversification and management of investment portfolios in view of changing equity market conditions. Financial strength, firm size and financial leverage also cannot be ignored in profitability management of life insurance companies. The management of non-life insurance companies should also keep in view the macroeconomic environment, equity market conditions, inflation in addition to firm specific characteristics including financial leverage, relative firm size, financial soundness, growth opportunities and diversification in particular to manage profitability. The takaful business managers should especially focus on underwriting risk, diversification and working capital management to manage their return on assets.

References

Adams, M., and Buckle, M., (2003), The determinants of corporate financial performance in the Bermuda insurance market, Applied Financial Economics, Routledge, 13:133-143.

Agiobenebo,T.J and Ezirim C. B. 2002 "Impact of Financial Intermediation on the Profitability of Insurance Companies in Nigeria". First Bank of Nigeria Quarterly Review 2(1): 20-31.

Ahmed, N., Ahmed, Z. and Usman, A. 2011. Determinants of Performance: A Case of Life Insurance Sector of Pakistan. International Research Journal of Finance and Economics 61: 123-128.

Ali, S. (2011). Working capital management and the profitability of the manufacturing sector: A case study of Pakistan's textile industry. *The Lahore Journal of Economics*, *16* (2): 141–178.

Amjed, S. (2007). *The impact of financial structure on profitability: Study of Pakistan's textile sector*. Poster session presented at the Management of International Business and Economic Systems Conference, Larissa, Greece. Retrieved from (http://mibes.teilar.gr/proceedings/2007/poster/Amjed.pdf).

Ammar, A., Hanna, A. S., Nordheim, E. V., and Russell, J. S. 2003. Indicator variables model of firm's size-profitability relationship of electrical contractors using financial and economic data. *Journal of Construction Engineering and Management*, *129*(2): 192–197.

Ayele, A. G. (2012). *Factors Affecting Profitability of Insurance Companies in Ethiopia: Panel Evidence* (Doctoral dissertation, Addis Ababa University). http://etd.aau.edu.et/dspace/bitstream/123456789/4326/1/(cited, Dec., 23, 2014)

Baltagi, B. H. (2008)[1]. Econometric Analysis of Panel Data. 4th Edition. John Wiley & Son. p.1.

Beck, T., & Webb, I. (2003). Economic, demographic, and institutional determinants of life insurance consumption across countries. *The World Bank Economic Review*, *17*(1), 51-88.

http://www.tilburguniversity.edu/webwijs/files/center/beck/publications/other/consumption.pdf (Cited, Dec. 24, 2014)

Boadi, E. K., Antwi, S., & Lartey, V. C. (2013). Determinants of Profitability of Insurance Firms in Ghana. *International Journal of Business and Social Research*, *3*(3), 43-50. http://www.thejournalofbusiness.org/index.php/site/article/view/231/231 (cited, Dec. 24, 2014)

Charumathi B. 2012. On the Determinants of Profitability of Indian Life Insurers – An Empirical Study. In Proceedings of the World Congress on Engineering 2012 Vol I WCE 2012, July 4 - 6, 2012, London, U.K. http://www.iaeng.org/publication/WCE2012/WCE2012_pp505-510.pdf [cited, January 05, 2013]

Chhapra, I. U., & Naqvi, N. A. (2010). Relationship between efficiency level of working capital management and profitability of firms in the textile sector of Pakistan. http://mpra.ub.uni-muenchen.de/51057/1/MPRA_paper_51057.pdf (Cited, January 05, 2013)

Chen, R., & Wong, K. A. (2004). The determinants of financial health of Asian insurance companies. *Journal of Risk and Insurance*, *71*(3), 469-499. http://onlinelibrary.wiley.com/doi/10.1111/j.0022-4367.2004.00099.x/pdf (cited, Dec., 23, 2014)

Ćurak, M., Pepur, S., & Poposki, K. (2011). Firm and economic factors and performance: Croatian composite insurers. *The Business Review Cambridge*, *19*(1), 136-142. http://bib.irb.hr/prikazi-rad?lang=en&rad=553926 (Cited, Dec. 24, 2014)

Financial Statements Analysis of Financial Sector (2006-201). Statistics and DWH Department. State Bank of Pakistan, Karachi.

Greene, W. H., & Segal, D. (2004). Profitability and efficiency in the US life insurance industry. *Journal of Productivity Analysis*, *21*(3), 229-247. http://link.springer.com/article/10.1023/B:PROD.0000022092.70204.fa#page-2 (cited, Dec., 24, 2014)

Hand Book of Statistics on Pakistan Economy (2011). Statistics and DWH Department. State Bank of Pakistan, Karachi.

Hussain, I. 2012. The Consequences of Easy Credit Policy, High Gearing, and Firms' Profitability in Pakistan's Textile Sector: A Panel Data Analysis. *The Lahore Journal of Economics* 17(1): 33–44

Hussain, I. 2013. Banking Industry Concentration and Net Interest Margins (NIMs) in Pakistan, Journal of Business Economics and Management, DOI:10.3846/16111699.2012.732105

Ikonic, D., Arsic N. and Miloševic, S. 2011. Growth Potential and Profitability Analysis of Insurance Companies in the Republic of Serbia, Chinese Business Review 10 (11): 998-1008.

Kozak, S. (2011). Determinants of profitability of non-life insurance companies in Poland during integration with the European financial system. *Electronic Journal of Polish Agricultural Universities, 14*(1). http://www.ejpau.media.pl/articles/volume14/issue1/art-01.pdf (cited, Dec., 23, 2014)

Malik, H. 2011. Determinants of Insurance Companies Profitability: An Analysis of Insurance Sector Of Pakistan. Academic Research International 1(3): 314-320. http://www.savap.org.pk/journals/ARInt./Vol.1(3)/2011(1.3-32).pdf [cited, January 05, 2013]

Michael K. McShane, Larry A. Cox and Richard J. Butler, (2010), Regulatory competition and forbearance: Evidence from the life insurance industry, Journal of Banking & Finance, 34: 522-532.

Shiu, Y. (2004). Determinants of United Kingdom general insurance company performance. *British Actuarial Journal, 10*(05), 1079-1110. doi:10.1017/S1357321700002968. (Cited, Dec. 24, 2014)

Treacy, M. (1980). *Profitability patterns and firm size.* Working Paper No. 1109-80. Cam*bridge, MA: Massachusetts In*stitute of Technology, Alfred P. Sloan School of Management.

Whittington, G. (1980). The p*rofitability and size of United Kingdo*m companies, 1960–74. *Journal of Industrial Economics*, *28*(4), 335–352.

Wright, K. M. (1992). *The life insurance industry in the United States: an analysis of economic and regulatory issues* (Vol. 857). World Bank Publications.

Zhu, S. (2013). A structural equation modeling analysis on solvency, operation and profitability of life insurers. http://repositories.lib.utexas.edu/bitstream/handle/2152/22568/ZHU-MASTERSREPORT-2013.pdf?sequence=1 (Cited, Dec. 24, 2014)