Research

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

Ijaz Hussain¹

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 nonlife 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

JEL Classification: E 020

1-Department of Economics, School of Liberal Arts and Social Sciences, Beaconhouse National University, Lahore, Pakistan

243 **PAKISTAN BUSINESS REVIEW JULY 2015**

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

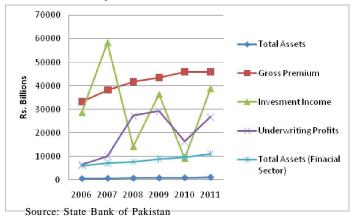
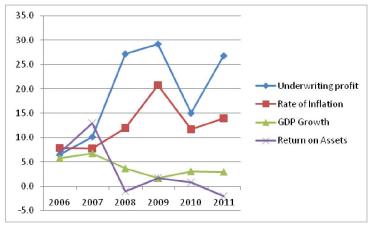


Figure 2:

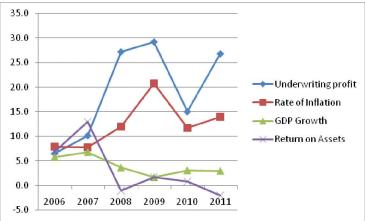
Profitability [(Return on Assets (ROA)] by Insurance Sector



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



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 firmspecific 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

PAKISTAN BUSINESS REVIEW JULY 2015

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

$$ROA_{it} = \beta_{0+}\beta_1 X_{it} + \beta_2 Z_t + \varepsilon_{it}, \tag{1}$$

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:

$$ROA_{i,t} = \frac{{}^{NPAT_{i,t}}}{{}^{TA_{i,t}}} *_{100} \tag{2}$$

Where NPAT is net profit after tax, TA denotes book value of total assets and t 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].

$$ROA_{i,t} = ATO_{i,t} * NPM_{i,t}$$
 (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:

$$RFS_{i,t} = \frac{TA_{i,t}}{\sum_{t=1}^{n} TA_{i,t}} *100$$
 (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 longterm 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:

calculated as follows:
$$DER_{i,t} = \frac{TL_{i,t}}{TE_{i,t}}$$
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:
$$ROA_{i,t} = \frac{NPAT_{i,t}}{TA_{i,t}} * 100-----(6)$$
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. Research

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

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

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:

$$FS_{i,t} = \frac{CS_{i,t}}{TA_{i,t}}$$
Where denote financial soundness, capital stock and total

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:

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

,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

			Tab	le 1: Regres	sion Results				
Life			1.00	ic I. Regres	Non-Life				
Dependent Variable: ROA					Dependent Variable: ROA				
Method: Panel EGLS (Cross-section weigh	fe)				Method: Panel EGLS (Cross-section wei	inhte)			
Sample (adjusted): 2007 2011	15)				Sample (adjusted): 2007 2011	igits)			
Periods included: 5					Periods included: 5				
Cross-sections included: 6					Cross-sections included: 29				
Total panel (unbalanced) observations: 27					Total panel (unbalanced) observations: 1	33			
Linear estimation after one-step weighting	matrix				Linear estimation after one-step weighting				
White cross-section standard errors & cov		correction)			White cross-section standard errors & co		orrection)		
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	0.0339
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
HGP: Diversification	0.0000	0.0000	19.5161	0.0000	HGP: 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	0.0223	0.0113	1.9716	0.0674	LOG(KSMI(-1)): Equity Market	0.1057	0.0200	5.2906	0.0000
Conditions		0.0020		0.5564	Conditions		0.0023		
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 Sta	tistics				Weighted Sta	tistics		
R-squared	0.9674	Mean depe	endent var	0.0307	R-squared	0.6738	Mean depe	endent var	0.0920
11 - 1 In 1	0.9434	an I		0.0401	45 - 18 - 1	0.6442	cn i		0.2220
Adjusted R-squared S.E. of regression	0.9434	S.D. deper Sum squar		0.0491	Adjusted R-squared S.E. of recression	0.6442	S.D. deper Sum squar		0.2326
	40.4089					22.7252			
F-statistic Prob(F-statistic)	0.0000	Durbin-W	atson stat	1.6930	F-statistic Prob(F-statistic)	0.0000	Durbin-Wa	atson stat	1.7738
Prob(F-statistic)	Un-weighted	C4.42.42			PTOD(P-statistic)	Un-weighted			
R-squared	0.9182	Mean depe	inclant year	0.0240	R-squared	0.3767	Mean depe	andent var	0.0244
Sakriquared resid	0.0037	Durbin-W		1.4151	Control quared resid	3.2963	Durbin-Wa		1.2409
	0.0037	LAH DIH-W	atson stat	1.4131	-Strin-required resid	3.2903	Dui bili- W	atson stat	1.2409
Dependent Variable: ROA					Dependent Variable: ROA				
Method: Panel EGLS (Cross-section weigh	ts)				Method: Panel EGLS (Cross-section weig	ghts)			
Method: Panel EGLS (Cross-section weigh Sample (adjusted): 2007 2011	ts)				Method: Panel EGLS (Cross-section weig Sample (adjusted): 2007 2011	ghts)			
Method: Panel EGLS (Cross-section weigh Sample (adjusted): 2007 2011 Periods included: 5	ts)				Method: Panel EGLS (Cross-section weig Sample (adjusted): 2007 2011 Periods included: 5	ghts)			
Method: Panel EGLS (Cross-section weigh Sample (adjusted): 2007 2011 Periods included: 5 Cross-sections included: 4	(s)				Method: Panel EGLS (Cross-section weig Sample (adjusted): 2007-2011 Periods included: 5 Cross-sections included: 35				
Method: Panel EGLS (Cross-section weigh Sample (adjusted): 2007 2011 Periods included: 5	ts)				Method: Panel EGLS (Cross-section weig Sample (adjusted): 2007 2011 Periods included: 5				
Method: Panel EGLS (Cross-section weigh Sample (adjusted): 2007 2011 Periods included: 5 Cross-sections included: 4					Method: Panel EGLS (Cross-section weig Sample (adjusted): 2007-2011 Periods included: 5 Cross-sections included: 35	SO			
Method: Panel EGLS (Cross-section weigh Sample (adjusted): 2007 2011 Periods included: 5 Cross-sections included: 4 Total panel (unbalanced) observations: 17	matrix	correction)			Method: Panel EGLS (Cross-section weig Sample (adjusted): 2007 2011 Periods included: 5 Cross-sections included: 35 Total panel (unbalanced) observations: 16	50 g matrix	praction)		
Method: Panel EGLS (Cross-section weigh Sample (adjusted): 2007 2011 Periods included: 5 Cross-sections included: 4 Total panel (unbalanced) observations: 17 Linear estimation after one-step weighting White cross-section standard errors & cov.	matrix	t Std		Prob.	Method: Panel EGLS (Cross-section weig Sample (adjusted): 2007-2011 Periods included: 5 Cross-sections included: 35 Total panel (unbalanced) observations: 10 Linear estimation after one-step weightin	50 g matrix variance (no d.f. co	Std.	b	Prob.
Method: Panel EGLS (Cross-section weigh Sample (adjusted): 2007 2011 Periods inctuded: 5 Cross-sections included: 4 Total panel (umbalanced) observations: 17 Linear estimation after one-step weighting White cross-section standard errors & cov. Variab	matrix ariance (no d.f. le Coefficien	t Std Erro	r Statistic		Method: Panel EGLS (Cross-section weig Sample (adjusted): 2007 2011 Periods included: 5 Cross-sections included: 35 Total panel (umbalanced) observations: 16 Linear estimation after one-step weightin White cross-section standard errors & cor Varial	g matrix variance (no d.f. co ble Coefficien	Std. Error	t- Statistic	
Methods Panel EGLS (Cross-section weigh Sample (adjusted): 2007 2011 Periods included: 5 Cross-sections included: 4 Total panel (unbalanced) observations: 17 Linear estimation after one-step weighting White cross-section standard errors & cov Variab C: Constant	matrix ariance (no d.f. le Coefficien 0.035	t Std Erro 9 0.279	r Statistic 5 0.1284	0.9028	Method: Panel EGLS (Cross-section weig Sample (adjusted): 2007 2011 Periods included: 35 Cross-sections included: 35 Total panel (unbalanced) observations: 1e Linear estimation after one-step weightin White cross-section standard errors & cor Variat C: Constant	g matrix wariance (no d.f. co ble Coefficien t +0.7824	Std. Error 0.1242	-6.2991	0.0000
Method: Panel EGLS (Cross-section weigh Sample indipasted): 2007 2011 Periods included: 5 Cross-sections included: 4 Total panel (unbalanced) observations: 17 Linear estimation after one-step weighting White cross-section standard errors & cor- William (Cross-Section Standard errors & Cross- Crosstant Cross-Section Standard errors & Cross-Section &	matrix ariance (no d.f. Coefficien 0.035 -0.156	t Std Erro 9 0.279 8 0.013	Statistic 5 0.1284 4 -11.7416	0.9028 0.0001	Method: Panel EGLS (Cross-section weig Samplie (adjusted); 2007 2001; Periods included: 5 Cross-sections included: 35 Total panel (unbalanced) observations: 16 Linear estimation after one-step weighting White cross-section standard errors & cor Varial ROA(-1): Past Porfinibility	g matrix variance (no d.f. cr ble Coefficien t -0.7824	Std. Error 0.1242 0.0747	-6.2991 2.5338	0.0000
Method: Panel EGLS (Cross-section weigh Sample tadjusted): 2007 2011 Periods included: 5 Cross-sections included: 4 Total panel (unblasced) observations: 17 Linear estimation after one-step weighting White cross-section standard errors & cro- Variab C: Constant ROA(4): Past Profitability RPS: Relative Firm Size	matrix ariance (no d.f. le Coefficien 0.035 -0.156	t Std Erro 9 0.2796 8 0.013- 2 0.009:	Statistic 0.1284 4 -11.7416 5 -1.4881	0.9028 0.0001 0.1969	Method: Panel EGLS (Cross-section weig Sample (adjusted): 2007 2011 Periods included: 5 Cross-sections included: 35 Cross-sections included: 35 Cross-section standard errors & cross-section	g matrix variance (no d.f. co ble Coefficien t -0.7824 0.1892 0.0000	Std. Error 0.1242 0.0747 0.0001	-6.2991 2.5338 -0.5369	0.0000 0.0123 0.5922
Method: Pauli EGLS (Cross-section wigh Sample singhastic 2007 2011 Periods included: 5 Cross-sections included: 4 Total panel (unbalanced) observations: 17 Linar estimation after one-step weighting White cross-section standard errors & con- Wariah C: Constant ROA(4): Paul Profitability RFS: Behtive Firm Size DER: Financial Leverage	matrix ariance (no d.f. le Coefficien 0.035 -0.156 -0.014	t Std Erro 9 0.279 8 0.013 2 0.009 7 0.015	r Statistic 5 0.1284 4 -11.7416 5 -1.4881 5 1.1403	0.9028 0.0001 0.1969 0.3058	Method: Paed EGL S (Cross-oction weig Sample (adjusted): 2007 2011 Periods included: 25 Cross-octions included: 35 Cross-octions included: 35 Total panel (unbalance) observations: 1e Linear estimation after one-step weighting White cross-section stundard errors. & con- White cross-section stundard errors. & con- White cross-section stundard errors. & con- Varialt C: Constant ROA(-1): Past Profinability RFS: Relative Firm Size DER: Financial Leverage	50 g matrix variance (no d.f. co ble Coefficien t -0.7824 0.1892 0.0000 -0.0586	Std. Error 0.1242 0.0747 0.0001 0.0163	-6.2991 2.5338 -0.5369 -3.5888	0.0000 0.0123 0.5922 0.0005
Method: Panal EGLS (Cross-section wigh Sample adjusted; 2007 2011 Perioda included; 5 Cross-sections included; 4 Total panel (unbalanced) observations: 17 Librar celiminate errors & cro Variab Ca. Constant ROA(4): Relative Foodisability BER: Financial Leverage DER: Financial Soundress	matrix ariance (no d.f. le Coefficien 0.035 -0.156 -0.014 0.017 -0.030	t Std Erro 9 0.279 8 0.013 2 0.009 7 0.015 6 0.007	r Statistic 5 0.1284 4 -11.7416 5 -1.4881 5 1.1403 2 -4.2377	0.9028 0.0001 0.1969 0.3058 0.0082	Method: Panel IGLS (Cross-section weig Sample ediginate); 2007 2011 Periodi nechade; 5 Total panel (umbalanced) observations: 1t Lience estimation after one super neighbility. White crass-section standard errors & cor Varial C: Constant ROA(-1): Past Porfiability RTS: Relative Firm Size DER: Financial Leverage DER; Financial Essenages	50 g matrix variance (no d.f. co ble Coefficien t -0.7824 0.1892 0.0000 -0.0586 0.1228	Std. Error 0.1242 0.0747 0.0001 0.0163 0.0368	-6.2991 2.5338 -0.5369 -3.5888 3.3350	0.0000 0.0123 0.5922 0.0005 0.0011
Method: Paul EGLS (Cross-section wigh Sample displanted; 2007 2011 Periods included; 5 Cross-section included; 4 Total panel (unbialenced) observations: 17 Linear estimation after one-step weighting White cross-section standard errors & con- Wariah CC Constant ROA(4): Paul Puditability RFN: Behavior Firm Size DER: Financial Leverage DUSy: Financial Soundness DLOGCTA; Growth Opportunities	matrix ariance (no d.f. le Coefficien 0.035 -0.156 -0.014 0.017 -0.030	t Std Erro 9 0.279 8 0.013 2 0.009 7 0.015 6 0.007	r Statistic 5 0.1284 4 -11.7416 5 -1.4881 5 1.1403 2 -4.2377 0 -3.3341	0.9028 0.0001 0.1969 0.3058 0.0082 0.0207	Method: Paed IGLS (Cross-oction weig Sample (adjusted): 2007 2011 Periods included: 5 Cross-sections netroded: 35 Cross-sections netroded: 35 Total panel (unbalanced) observations: 16 Linear estimation after one-step weighting White cross-section standard errors. & co. White cross-section standard errors. & co. ROA(-1): Past Parlimbility RFS: Relative Firm Size DIRF: Financial Leverage DIFS: Plannical Leverage DIFS: Plannical Soundbess DIGGTA'S Cross Opportunities	500 g matrix variance (no d.f. co ble Coefficien t -0.7824 0.1892 0.0000 -0.0586 0.1228	Std. Error 0.1242 0.0747 0.0001 0.0163 0.0368 0.0210	-6.2991 2.5338 -0.5369 -3.5888 3.3350 5.2790	0.0000 0.0123 0.5922 0.0005 0.0011
Method: Paul EGLS (Cross-section wigh Sample adjusted; 2007 2011 Periods included; 5 Cross-sections included; 4 Total paud (unbalanced) observations: 17 Linear cellumiant error as, now Variab Ca. Constant Ca. Constant Ca. Constant DER: Financial Leverage DER: Financial Samuelss BLOGTA's Growth Opportunities BLOGTA's Growth Opportunities	matrix ariance (no d.f. le Coefficien 0.035 -0.156 -0.014 0.017 -0.030 -0.006	t Std Erro 9 0.279(8 0.013- 2 0.009; 7 0.015: 6 0.007: 6 0.002i 0 0.0000	Statistic 0.1284 4 -11.7416 5 -1.4881 5 1.1403 2 -4.2377 0 -3.3341 0 23.4238	0.9028 0.0001 0.1969 0.3058 0.0082 0.0207 0.0000	Method: Panel IGLS (Cross-section weig Sample (ediptosts), 2007 2011 Periods necluded: 5 Total panel (umblanced) observations: 1c Lience estimation after one seps weighing. White crass-section standard errors & cor Varial C: Censtant ROAG-1): Pant Porfinability RTS: Relative Firm Size DER: Financial Leverage DES; Financial Soundness DLOGTA's Growth Opportunities IICQ Descriptions	50 g matrix variance (no d.f. cc ble Coefficien t -0.7824 0.1892 0.0000 -0.0586 0.1228 0.1107	Std. Error 0.1242 0.0747 0.0001 0.0163 0.0210 0.0000	-6.2991 2.5338 -0.5369 -3.5888 3.3350 5.2790 6.7353	0.0000 0.0123 0.5922 0.0005 0.0011 0.0000
Method: Paul EGLS (Cross-section wigh Sample delighents) 2007 2011 Periods included: 5 Cross sections included: 4 Total pand (umbalanced) observations: 17 Linear estimation after one-step weighting White cross-section standard errors & con- Wartab C: Constant ROA(4): Paul Poulfability ROA(4): Paul Poulfability DER: Financial Lewrage DER: Financial Lewrage DER: Financial Lewrage DER: Financial Coundries DER: Georgia Conference of the Confere	matrix ariance (no d.f.	t Std Erre 9 0.279 8 0.013 2 0.009 7 0.015 6 0.007 6 0.000 4 0.003	r Statistic 5 0.1284 4 -11.7416 5 -1.4881 5 1.1403 2 -4.2377 0 -3.3341 0 23.4238 6 -9.0669	0.9028 0.0001 0.1969 0.3058 0.0082 0.0207 0.0000 0.0003	Method: Paed IGLS (Cross-oction weig Sample ediginest); 2070 2011 Periods included: 5 Cross-sections actuded: 35 Total panel (unbalanced) observations: 16 Linear estimation after one-step weighting White cross-section standard errors. &c. Warial White cross-section standard errors. &c. Warial ROA(1): Past Photfashility RFN: Relative Firm Sine DER: Financial Lewerge DES; Financial Lewerge DES; Financial Lewerge DES; Tennacial Lewerge	500 g matrix variance (no d.f. coefficient t -0.7824 0.1892 0.0000 -0.0586 0.1228 0.1107 0.0000 -0.0000	Std. Error 0.1242 0.0747 0.0001 0.0163 0.0368 0.0210 0.0000 0.0001	6.2991 2.5338 40.5369 -3.5888 3.3350 5.2790 6.7353 4.5390	0.0000 0.0123 0.5922 0.0005 0.0011 0.0000 0.0000
Method: Panal EGLS (Cross-section wigh Sample adjusted; 2007 2011 Periods included; 5 Cross-sections included; 4 Total panel (unbalanced) observations: 17 Linear celiminate from east psy weights; White cross-section standard errors & core Variab Cc Constant ROA(4): Pant Proditability ROA(4): Pant Proditability ROS; Branted Leverage DER: Financial Lewerage DES; Financial Samuelos BLOG(TA): Growth Opportunities IICP, Diversification GCGP: Underwiffing Risk L. Warking Capilla Management	matrix ariance (no d.f. le Coefficien 0.035 -0.156 -0.014 -0.030 -0.006 -0.000 -0.000	t Std Erre 9 0.279 8 0.013 2 0.009 7 0.015 6 0.007 6 0.002 0 0.000 4 0.003 0 0.011	r Statistic 5 0.1284 4 -11.7416 5 -1.4881 5 1.1403 2 -4.2377 0 -3.3341 0 23.4238 -9.0669 2 2.6938	0.9028 0.0001 0.1969 0.3058 0.0082 0.0207 0.0000 0.0003	Method: Panel IGLI & Cross-section weig Sample (ediptosts), 2007 2011 Periods included: 5 Total panel (umblanced) observations: 1t Lience estimation after one seps weighing. White crass-section standard errors & cor Varial C: Censtant ROAG-1) Pant Porfubility RTS: Relative Firm Size DER: Financial Leverage DES; Financial Everage DEG/TA: Growth Opportunities IICP Descriptions (ICP) Descriptions (ICP) Descriptions (ICP) Descriptions	50 g matrix variance (no d.E. ce ble Coefficien -0.7824 -0.1892 -0.0000 -0.0586 -0.1228 -0.1107 -0.0000 -0.0003 -0.0003	Std. Error 0.1242 0.0747 0.0001 0.0163 0.0368 0.0210 0.0000 0.0001 0.0123	-6.2991 2.5338 -0.5369 -3.5888 3.3350 5.2790 6.7353 -4.5390 -0.5468	0.0000 0.0123 0.5922 0.0005 0.0011 0.0000 0.0000 0.5854
Method: Paul EGLS (Cross-section wigh Sample indiginate), 2007 2011 Periods included: 5 Cross-section included: 4 Total panel (unbialenced) observations: 17 Linear estimation after one-step weighting White cross-section standard errors & con- Wariah CC Constant ROA(4): Paul Profitability RFS: Relative Firm Size DER: Financial Semulties DER: Financial Semulties DEGCTA: Growth Opportunities IGCP: Desertination IGCP: General Constitution Lawring Capital Management LOGCSMI(G): 1921; Management	matrix ariance (no d.f.	t Std Erre 9 0.279 8 0.013 2 0.009 7 0.015 6 0.007 6 0.002 0 0.000 4 0.003 0 0.011	r Statistic 5 0.1284 4 -11.7416 5 -1.4881 5 1.1403 2 -4.2377 0 -3.3341 0 23.4238 -9.0669 2 2.6938	0.9028 0.0001 0.1969 0.3058 0.0082 0.0207 0.0000 0.0003	Method: Paed EGLS (Cross-section weig Sample (adjusted): 2007 2011 Periods included: 3 Cross-sections included: 3 Cross-sections included: 3 Cross-section stemantics of the control of th	500 g matrix variance (no d.f. coefficient t -0.7824 0.1892 0.0000 -0.0586 0.1228 0.1107 0.0000 -0.0000	Std. Error 0.1242 0.0747 0.0001 0.0163 0.0368 0.0210 0.0000 0.0001	-6.2991 2.5338 -0.5369 -3.5888 3.3350 5.2790 6.7353 -4.5390 -0.5468	0.0000 0.0123 0.5922 0.0005 0.0011 0.0000 0.0000 0.5854
Method: Panal EGLS (Cross-section wigh Sample adjusted; 2007 2011 Periods included; 5 Cross-sections included; 4 Total panel (unbalanced) observations: 17 Linear celiminate from east psy weights; White cross-section standard errors & core Variab Cc Constant ROA(4): Pant Proditability ROA(4): Pant Proditability ROS; Branted Leverage DER: Financial Lewerage DES; Financial Samuelos BLOG(TA): Growth Opportunities IICP, Diversification GCGP: Underwiffing Risk L. Warking Capilla Management	matrix ariance (no d.f. le Coefficien 0.035 -0.156 -0.014 -0.030 -0.006 -0.000 -0.000	t Std Erro 9 0.279 0.279 0.279 0.279 0.015: 0.000: 0.0	r Statistic 0.1284 4 -11.7416 5 -1.4881 5 1.1403 2 -4.2377 0 -3.3341 0 23.4238 6 -9.0669 2 2.6938 2 0.1925	0.9028 0.0001 0.1969 0.3058 0.0082 0.0207 0.0000 0.0003	Method: Panel IGLI & Cross-section weig Sample (ediptosts), 2007 2011 Periods included: 5 Total panel (umblanced) observations: 1t Lience estimation after one seps weighing. White crass-section standard errors & cor Varial C: Censtant ROAG-1) Pant Porfubility RTS: Relative Firm Size DER: Financial Leverage DES; Financial Everage DEG/TA: Growth Opportunities IICP Descriptions (ICP) Descriptions (ICP) Descriptions (ICP) Descriptions	50 g matrix variance (no d.E. ce ble Coefficien -0.7824 -0.1892 -0.0000 -0.0586 -0.1228 -0.1107 -0.0000 -0.0003 -0.0003	Std. Error 0.1242 0.0747 0.0001 0.0163 0.0368 0.0210 0.0000 0.0001 0.0123	-6.2991 2.5338 -0.5369 -3.5888 3.3350 5.2790 6.7353 -4.5390 -0.5468	0.0000 0.0123 0.5922 0.0005 0.0011 0.0000 0.0000 0.5854 0.0000
Method: Paul EGLS (Cross-section wigh Sample ediginets) 2007 2011 Periods included: 5 Cross-sections included: 4 Total panel (unbalanced) observations: 17 Linux estimation after one step weighting While cross-section shanded errors 8 corn Warland (Cross Sample ediginet) 2007 2007 2007 2007 2007 2007 2007 200	matrix ariance (no d.f.) le Coefficient 0.035 -0.156 -0.014 -0.017 -0.030 -0.006 -0.000 -0.000 -0.000 -0.000	t Std Erro 9 0.279	r Statistie 0.1284 4 -11.7416 5 -1.4881 5 -1.4881 5 -1.42377 0 -3.3341 0 23.4238 6 -9.0669 2 2.6938 2 0.1925 8 -0.3949	0.9028 0.0001 0.1969 0.3058 0.0082 0.0207 0.0000 0.0003 0.0431 0.8550	Method: Panel IGLS (Cross-section weig Sample edipisted); 2007 2011 Periods included: 5 Total panel (unbalanced) observations: Ic Linear estimation after one step weightin White cross-sections included: 5 White cross-section was weightin White cross-section was weightin White cross-section was weightin ROAG-1); Past Profitability RROAG-1); Past Profitability RRO	50 g matrix variance (no d.f. c. of the condition of the coefficient to detect to dete	Std. Error 0.1242 0.0747 0.0001 0.0163 0.0368 0.0210 0.0000 0.0001 0.0123 0.0143	-6.2991 2.5338 -0.5369 -3.5888 3.3350 5.2790 6.7353 -4.5390 -0.5468 6.1967 9.6580	0.0000 0.0123 0.5922 0.0005 0.0011 0.0000 0.0000 0.5854 0.0000
Method: Paul EGLS (Cross-section wigh Sample singhested; 2007 2011 Periods included; 5 Cross-sections included; 4 Total panel (unbalanced) observations: 17 Linear estimation after one-step weighting White cross-section standard errors. & con- White cross-section standard errors & con- White cross-section standard errors & con- Res (Constant ROA4); Fast Profitability RFS: Behavior Firm Nize DER; Financial Secundars DER; Financial Secundars DER; Financial Secundars DEGCTA: Growth Opportunities IGC-D: tendirections IGC-D: tendirect	matrix ariance (no d.f. conditions) de Coefficient 0.035 -0.156 -0.014 -0.030 -0.006 -0.000 -0.000 -0.000 -0.000 -0.000 -0.000 -0.000 -0.000 -0.000	t Std Erro 9 0.2799 88 0.013. 22 0.009: 77 0.015: 66 0.000: 44 0.003: 00 0.011: 44 0.028: 55 0.003: 66 0.000: 66 0.000: 66 0.000: 66 0.000: 66 0.000: 66 0.000: 66 0.000: 66 0.000: 66 0.000: 66 0.000: 67 0.0	r Statistie 0.1284 4 -11.7416 5 -1.4881 5 -1.4881 5 -1.42377 0 -3.3341 0 23.4238 6 -9.0669 2 2.6938 2 0.1925 8 -0.3949	0.9028 0.0001 0.1969 0.3058 0.0082 0.0207 0.0000 0.0003 0.0431 0.8550	Method: Parel EGL S (Cross-section weig Sample (adjusted): 20011 Periods included: 25 Cross-sections included: 35 Cross-sections included: 35 Total parel (unbalence) observations: 16 Linear estimation after one-step weighting White Cross-section stundard errors, & comparel Com	50 g matrix variance (no d.f. cc cle Coefficien - 0.1824 - 0.1825 - 0.0000 - 0.0586 - 0.1225 - 0.1007 - 0.0000 - 0.0003 - 0.0003 - 0.0003 - 0.0003 - 0.0003 - 0.0003 - 0.0003 - 0.0003	Std. Error 0.1242 0.0747 0.0001 0.0163 0.0368 0.0210 0.0000 0.0001 0.0123 0.0143 0.0018	-6.2991 2.5338 -0.5369 -3.5888 3.3350 5.2790 6.7353 -4.5390 -0.5468 6.1967 9.6580	0.0000 0.0123 0.5922 0.0005 0.0011 0.0000 0.0000 0.5854 0.0000
Method: Paul EGLS (Cross-section wigh Sample folighteds; 2007 2011 Periods included: 5 Cross-section included: 4 Total panel (unbalanced) observations: 17 Linear estimation after one-step weighting White cross-section standard errors & corn. Variab C: Constant ROA(-1): Past Profitability RFN: Relative Firm Size DER: Financial teverage DUNy: Financial Soundness DLOG(TA): Growth Opportunities RGP, Directification RGP, Directification LCOG(TA): Growthing Rok L: Working Capital Management LOG(DSMIG): Fairing Market Confiffice Reversessmite Environment INY: Inflation	matrix ariance (no d.f. d. f. f. f. d. f.	t Std Error 9 0.279/8 8 0.013. 3 2 2 0.009/7 7 0.015/6 0.0000/6 0.0000/6 4 0.0003/6 4 0.0011/4 4 0.028/5 5 0.003/6 6 0.0000 Statistics	r Statistic 0.1284 4 -11.7416 5 -1.4881 5 1.1403 2 -4.2377 0 -3.3341 0 23.4238 0 29.6699 2 2.6938 2 0.1925 8 -0.3949 4 1.2496	0.9028 0.0001 0.1969 0.3058 0.0082 0.0207 0.0000 0.0003 0.0431 0.8550 0.7092	Method: Paed ICLS (Cross-oction weig Sample (adjusted): 2007 2011 Periods included: 3 Cross-sections included: 3 Cross-sections included: 3 Tord panel (unbalanced) observations: 1c Linear estimation after one step weighting White cross-section standard errors. & com- Warfalt ROA(-1): Past Profinibility RFS: Relative Firm Size DER: Financial Leverage DIFS; Financial Soundhess DIGGTA (Cross-Growth) LEGG CROSS-GROWTH) LEGG (Cross-Growth) LEGG (Cross	50 g matrix matriance (nod.f. ec. d.f.	Std. Error 0.1342 0.0747 0.0001 0.0163 0.0368 0.0210 0.0001 0.0001 0.0123 0.0143 0.0018 0.0007 % Colored Color	-6.2991 2.5338 -0.5369 -3.5888 3.3350 5.2790 6.7353 -4.5390 -0.5468 6.1967 9.6580 2.1456	0.0000 0.0123 0.5922 0.0005 0.0011 0.0000 0.0000 0.5854 0.0000
Method: Paul EGLS (Cross-section wigh Sample adjusted; 2007 2011 Periods included: 5 Tom sections included: 4 Total panel (tunbalanced) observations: 17 Linear estimation after one step weighting While cross-section standard errors R cor- Variab CS Constant ROA(4): Paul Positiability ROA(4): Paul Positiability DER: Financial Leverage DEO(TA): Growth Opportunities IRCO(TA): Growth Opportunities IRCO(TA): Growth Opportunities IRCO(TA): Working Capital Management LOG(SNMI(1)): Equity Market LOG(SNMI(1)): Equity Market LOG(SNMI(1)): Family Market LOG(SNMI(1)): Family Market Respared	matrix ariance (no d.f. conditions) de Coefficien 0.035 -0.156 -0.014 0.017 -0.030 -0.006 -0.000 -0.005 -0.001 0.000 Weighted 0.988	t Stdt Erro Francisco Grant Stdt Stdt Stdt Stdt Stdt Stdt Stdt St	r Statistic 0.1284 4 -11.7416 5 -1.1403 2 -4.2377 0 -3.3341 0 23.4238 5 -9.0669 2 -0.1925 2 0.1925 8 -0.3949 4 1.2496	0.9028 0.0001 0.1969 0.3058 0.0082 0.0207 0.0000 0.0003 0.0431 0.8550 0.7092 0.2668	Method: Panel IGLI & Cross-section weig Sample (ediptorist) 2007 2011 Periods included: 5 Total panel (umbalanced) observations: Ic Lineae estimation sher one-step weightin White cross-sections studiede area. 8 cm with cross-section studied errors. 9 cm with cross-section studied error	90 g matrix variance (no d.f. e. d. f. f. e. d. f. f. e. d. f. f. e. d. f. f.	Std. Error 0.1342 0.0747 0.0001 0.0163 0.0368 0.0221 0.0000 0.0001 0.0123 0.0143 0.0008 0.0007 % Constitution of the constitut	6.2991 2.5338 0.5369 3.5888 3.3350 5.2790 6.7353 4.5390 0.5468 6.1967 9.6580 2.1456	0.0000 0.0123 0.5922 0.0005 0.0011 0.0000 0.0000 0.5854 0.0000 0.0335
Method: Paul EGLS (Cross-section wigh Sample indiginate) 2007 2011 Periodia included: 5 Cross sections included: 4 Total pand (unbalanced) observations: 17 Linear estimation after one-step weighting White cross-section standard errors & con- Warlah CC Constant ROA(-1): Paul Puditability RFR Part Puditability RFR Financial Semulates DER; Financial Semulates DER; Financial Semulates LOCOCTA; Growth Opportunities HGP: Diversification GGGF: Underwriting Rok L: Working Cupital Management LOGISMI(-1): pairy Market Conditions NST: Infation Required Required	matrix ariance (no d.f.	tt Std Erro Std Std	r Statistic 0.1284 4 -11.7416 5 -1.4881 5 1.1403 2 -4.2377 10 23.4238 6 -9.0669 2 2.6938 2 0.1925 8 -0.3949 4 1.2496 ependent var	0.9028 0.0001 0.1969 0.3058 0.0082 0.0207 0.0000 0.0003 0.0431 0.8550 0.7092 0.2668	Method: Paed ICLS (Cross-oction weig Sample (aginates); 2007 2011 Periods included: 5 207 2011 Periods included: 5 3 Cross-sections sterioded: 3 5 Tord panel (unbehalmed) observations: 1 ft. Linear estimation after one step weighting White cross-section studed errors, & combined of the Company of the Comp	50 g matrix variance (no d.f. cc Coefficien	Sid. Error 0.1342 0.0747 0.0001 0.0163 0.0368 0.0210 0.0000 0.0001 0.0123 0.0143 0.0018 0.0007 Statistics Mean deg S.D. dep S.D. dep	6.2991 2.5338 0.5369 3.5888 3.3330 5.2790 6.7353 4.5390 0.5468 6.1967 9.6580 2.1456	0.0000 0.0123 0.5922 0.0005 0.0000 0.0000 0.5854 0.0000 0.0335 0.0851
Method: Paul EGLS (Cross-section wigh Sample adjusted; 2007 2011 Periods included: 5 Tom sections included: 4 Total panel (tunbalanced) observations: 17 Linear estimation after one step weighting While cross-section standard errors R cor- Variab CS Constant ROA(4): Paul Positiability ROA(4): Paul Positiability DER: Financial Leverage DEO(TA): Growth Opportunities IRCO(TA): Growth Opportunities IRCO(TA): Growth Opportunities IRCO(TA): Working Capital Management LOG(SNMI(1)): Equity Market LOG(SNMI(1)): Equity Market LOG(SNMI(1)): Family Market LOG(SNMI(1)): Family Market Respared	matrix ariance (no d.f. conditions) de Coefficien 0.035 -0.156 -0.014 0.017 -0.030 -0.006 -0.000 -0.005 -0.001 0.000 Weighted 0.988	tt Std Erro Std Std	r Statistic 0.1284 4 -11.7416 5 -1.1403 2 -4.2377 0 -3.3341 0 23.4238 5 -9.0669 2 -0.1925 2 0.1925 8 -0.3949 4 1.2496	0.9028 0.0001 0.1969 0.3058 0.0082 0.0207 0.0000 0.0003 0.0431 0.8550 0.7092 0.2668	Method: Panel IGLI & Cross-section weig Sample (ediptorist) 2007 2011 Periods included: 5 Total panel (umbalanced) observations: Ic Lineae estimation sher one-step weightin White cross-sections studiede area. 8 cm with cross-section studied errors. 9 cm with cross-section studied error	90 g matrix variance (no d.f. e. d. f. f. e. d. f. f. e. d. f. f. e. d. f. f.	Sid. Error 0.1342 0.0747 0.0001 0.0163 0.0368 0.0210 0.0000 0.0001 0.0123 0.0143 0.0018 0.0007 Statistics Mean deg S.D. dep S.D. dep	6.2991 2.5338 0.5369 3.5888 3.3350 5.2790 6.7353 4.5390 0.5468 6.1967 9.6580 2.1456	0.0000 0.0123 0.5922 0.0005 0.0000 0.0000 0.5854 0.0000 0.0335 0.0851
Method: Paul EGLS (Cross-section wigh Sample folighents) 2007 2011 Periods included: 5 Toal pand (umbales) 4 Toal pand (umbales) 4 Toal pand (umbales) 4 Toal pand (umbales) 4 White cross-section included: 4 Toal pand (umbales) 4 White cross-section included revers & con- Wariah C. Constant ROA(4): Paul Ponfinability BER: Financial Security	matrix ariance (no d.f. ariance (no d.f. conditions) 0.035 0.0156 0.0161 0.0017 0.0030 0.00000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000	tt Std Erro 0.279 9 0.279 9 0.279 10 0.279 17 0.01515 16 0.000 17 0.0000 18 0.0000 18 0.0000 18 0.0000 19 0.0000 19 0.0000 19 0.0000 19 0.0000 10 0.00000 10 0.0000 1	r Statistic statistic 1.17416 1.17416 1.17416 1.14881 1.1403 1.14030 1.33341 1.324238	0.9028 0.0001 0.1969 0.3058 0.0082 0.0207 0.0000 0.0003 0.0431 0.8550 0.7092 0.2668	Method: Panel IGLS (Cross-occion weig Sample (adjusted); 2077 2011 Periods included: 5 Cross-sections included: 35 Truit panel tunbelanced) observations: 1c Linear estimation after one steps weighting white cross-section studed errors. &co. Wearland (C. C. Constant ROAG-1): Past Profrability ROAG-1): Past Profrability ROAG-1): Past Profrability ROAG-1): Past Profrability ROAG-10: Past Profrabilit	50 g matrix. variance (no. f. c.	Std. Error 0.1342 (-6.2991 2.5338 -0.5369 3.5888 3.3350 5.2790 6.7353 4.5390 -0.5468 6.1967 9.6580 2.1456 pendent var endent var	0.0000 0.0123 0.5922 0.0005 0.0011 0.0000 0.0000 0.5854 0.0000 0.0335 0.0851 0.2108 2.0160
Method: Paul EGLS (Cross-section wigh Sample adjusted 2007 2011 Perioda included: 5 Toda section included: 4 Total paud (unbalanced) observations: IT Linear estimation included: 4 Total paud (unbalanced) observations: IT Linear estimation included: 4 Total paud (unbalanced) observations: IV Linear estimation included: 1 RoA(4): Entry the construction of the Constant RoA(4): Relative From Size DER: Financial Leverage DER: Financial Soundness DE.OGTAN: Growth Opportunities DE.OGTAN: Growth Opportunities GGGP: Underwriting Risk L. Warking (Capita) Management LOGGNSMI(1)): Faquity Market Conditions DeGDP: Indication Requared Adjusted Requared Adjusted Requared S.E. of regression F-statistic	matrix ariance (no d.f. coefficient -0.156 -0.014 -0.007 -0.006 -0.000 -0.003 -0.000	tt Std Erro	r Statistic 0.1284 4 -11.7416 5 -1.4881 5 1.1403 2 -4.2377 10 23.4238 6 -9.0669 2 2.6938 2 0.1925 8 -0.3949 4 1.2496 ependent var	0.9028 0.0001 0.1969 0.3058 0.0082 0.0207 0.0000 0.0003 0.0431 0.8550 0.7092 0.2668	Method: Panel IGLI & Cross-section weig Sample (ediposts), 2007 2011 Periodis necluded: 5 Total panel (umbalanced) observations: 16 Liones estimation stendanced) observations: 16 Liones estimation after one super periginal. White cross-section standard errors: & cro Varial C.: Constant ROAG-15: Past Profitability RFS: Relative Firm Size DER: Financial Leverage DFS; Financial Soundness DLOGGTA; Gowth Opportunities IIGCD: Underweiting Erisk Leverage DLOGGTA; Gowth Opportunities IIGCD: Descriptioning Erisk Leverage DLOGGTA; Gowth Opportunities IIGCD: Descriptioning Erisk Leverage DLOGGTA; Macroeconomic Environment NP: Inflation R-squared Adjusted R-squared S.E. del regression F-statistic	50 g matrix. variance (no d.f. c. c. f. c.	Std. Error 0.1342 (1.00 to 1.00 to 1.0	6.2991 2.5338 0.5369 3.5888 3.3330 5.2790 6.7353 4.5390 0.5468 6.1967 9.6580 2.1456	0.0000 0.0123 0.5922 0.0005 0.0011 0.0000 0.0000 0.5854 0.0000 0.0335 0.0851
Method: Paul EGLS (Cross-section wigh Sample folighents) 2007 2011 Periods included: 5 Toal pand (umbales) 4 Toal pand (umbales) 4 Toal pand (umbales) 4 Toal pand (umbales) 4 White cross-section included: 4 Toal pand (umbales) 4 White cross-section included revers & con- Wariah C. Constant ROA(4): Paul Ponfinability BER: Financial Security	matrix ariance (no d.f. de Coefficien 0.0335 -0.156 -0.0141 -0.030 -0.000	tt Erro 9 0.279 9 0.279 8 0.0134 8 0.0134 6 0.0092 7 0.0155 6 0.0072 0 0.0020 0 0.00004 4 0.0036 5 0.003 5 0.0030 5 0.0000 5 0.0000 5 0.0000 5 0.0000 5 0.0000 5 0.0000 5 0.0000 5 0.0000 5 0.0000 5 0.0000 5 0.0000 5 0.0000	r Statistic statistic 1.17416 1.17416 1.17416 1.14881 1.1403 1.14030 1.33341 1.324238	0.9028 0.0001 0.1969 0.3058 0.0082 0.0207 0.0000 0.0003 0.0431 0.8550 0.7092 0.2668	Method: Panel IGLS (Cross-occion weig Sample (adjusted); 2077 2011 Periods included: 5 Cross-sections included: 35 Truit panel tunbelanced) observations: 1c Linear estimation after one steps weighting white cross-section studed errors. &co. Wearland (C. C. Constant ROAG-1): Past Profrability ROAG-1): Past Profrability ROAG-1): Past Profrability ROAG-1): Past Profrability ROAG-10: Past Profrabilit	g matrix variance (so d.f. c. or. o.f. c. or. o.f. c. or. o.f. c. or. or. o.f. c. or. or. o.f. c. or. or. o.f. or. or. or. or. or. or. or. or. or. or	Std. Error 0.1242 0.0747 0.0001 0.0163 0.0368 0.0210 0.0000 0.0000 0.0011 0.0123 0.0143 0.0001 0.0000 Statistics Mean deg S.D. dep Sum squ	-6.2991 2.5338 -0.5369 3.5888 3.3350 5.2790 6.7353 4.5390 -0.5468 6.1967 9.6580 2.1456 pendent var endent var	0.0000 0.0123 0.5922 0.0001 0.0001 0.0000 0.0000 0.5854 0.0000 0.0335 0.0851 0.2108 2.0160
Method: Paul EGLS (Cross-section wigh Sample adjusted 2007 2011 Periods included: 5 Total paud (unbalanced) observations: IT Literature and Commentation of Literature and Commentation of C	matrix ariance (wo d.f. coefficient 0.0135 0.0135 0.0156 -0.014 0.007 -0.000 0.0000 0.0000 Weighted 0.986 0.0956 0.012 33.036 0.0000 Un-weight	tt Stet Error Grove 9 0.2794 8 0.013-8 8 0.013-8 8 0.013-8 0.0077 7 0.0155 6 0.0077 6 0.0000 0 0.0000 4 0.0030 4 0.0034 4 0.028-5 5 0.0035 5 0.0000 Statistics 4 Mean d 6 S.D. dej 9 Sum sqr 2 Darbin- 6 Darbin- 6 Statistics	r Satistic 5 0.1284 4 -11.7416 5 -1.4881 5 -1.4881 2 -4.237 0 -3.3341 0 -2.3.4238 5 -9.669 2 -2.6938 2 0.1925 8 -0.3949 4 1.2496 eependent var peendent var peendent var waared resid Watson stat	0.9028 0.0001 0.1969 0.3058 0.0082 0.0207 0.0000 0.0003 0.0431 0.8550 0.7092 0.2668 -0.0240 0.0605 0.0008	Method: Panel IGLI & Cross-section weig Sample (ediposts), 2007 2011 Periodis necluded: 5 Total panel (umbalanced) observations: 16 Liones estimation stendanced) observations: 16 Liones estimation after one super periginal. White cross-section standard errors: & cro Varial C.: Constant ROAG-15: Past Profitability RFS: Relative Firm Size DER: Financial Leverage DFS; Financial Soundness DLOGGTA; Gowth Opportunities IIGCD: Descriptioning Ifsis. L. Working Capital Management LOGGTSMG(1): Equity Market Conditions DCDPC; Macroeconomic Environment NP: Inflation R. squared Adjusted R. squared S.E. of regression F-statistic Probf:-statistic)	50 g matrix. variance (no d.f. c. c. f. c. c. f. c. c. f. c.	Std. Error 0.1342 0.0747 0.0001 0.0163 0.0368 0.02210 0.0000 0.0001 0.0123 0.0143 0.0018 0.0007 Statistics Mean deg S.D. dep Sum segu Durbin-V d Statistics	6.2991 2.5338 4.5399 3.5888 3.3350 5.2790 6.7353 4.5390 0.5468 6.167 9.6580 2.1456 Watson stat	0.0006 0.0011 0.0000 0.0000 0.5854 0.0000 0.0335 0.0851 0.2108 2.0160
Method: Paul EGLS (Cross-section wigh Sample adjusted 2007 2011 Perioda included: 5 Toda section included: 4 Total paud (unbalanced) observations: IT Linear estimation included: 4 Total paud (unbalanced) observations: IT Linear estimation included: 4 Total paud (unbalanced) observations: IV Linear estimation included: 1 RoA(4): Entry the construction of the Constant RoA(4): Relative From Size DER: Financial Leverage DER: Financial Soundness DE.OGTAN: Growth Opportunities DE.OGTAN: Growth Opportunities GGGP: Underwriting Risk L. Warking (Capita) Management LOGGNSMI(1)): Faquity Market Conditions DeGDP: Indication Requared Adjusted Requared Adjusted Requared S.E. of regression F-statistic	matrix ariance (no d.f. de Coefficien 0.0335 -0.156 -0.0141 -0.030 -0.000	tt Stet Error 9 0.279 9 0.279 9 0.279 1	r Statistic statistic 1.17416 1.17416 1.17416 1.14881 1.1403 1.14030 1.33341 1.324238	0.9028 0.0001 0.1969 0.3058 0.0082 0.0207 0.0000 0.0003 0.0431 0.8550 0.7092 0.2668	Method: Panel IGLI & Cross-section weig Sample (ediposts), 2007 2011 Periodis necluded: 5 Total panel (umbalanced) observations: 16 Liones estimation stendanced) observations: 16 Liones estimation after one super periginal. White cross-section standard errors: & cro Varial C.: Constant ROAG-15: Past Profitability RFS: Relative Firm Size DER: Financial Leverage DFS; Financial Soundness DLOGGTA; Gowth Opportunities IIGCD: Underweiting Erisk Leverage DLOGGTA; Gowth Opportunities IIGCD: Descriptioning Erisk Leverage DLOGGTA; Gowth Opportunities IIGCD: Descriptioning Erisk Leverage DLOGGTA; Macroeconomic Environment NP: Inflation R-squared Adjusted R-squared S.E. del regression F-statistic	g matrix variance (so d.f. c. or. o.f. c. or. o.f. c. or. o.f. c. or. or. o.f. c. or. or. o.f. c. or. or. o.f. or. or. or. or. or. or. or. or. or. or	Std. Error 0.1342 0.0747 0.0001 0.0163 0.0368 0.0210 0.0000 0.0001 0.0123 0.0018 0.0018 0.0007 Statistics Mean deg Durbin-V des Statistics Mean deg	-6.2991 2.5338 -0.5369 3.5888 3.3350 5.2790 6.7353 4.5390 -0.5468 6.1967 9.6580 2.1456 pendent var endent var	0.0000 0.0123 0.5922 0.0005 0.0011 0.0000 0.0000 0.5854 0.0000 0.0335 0.0851 0.2108 2.0160

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 Inst*itute of Technology, Alfred P. Sloan School of Management.
- Whittington, G (1980). The profitability and size of United Kingdom 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)