

A study on factors influencing performance of General Insurance Companies in Mauritius- An empirical evidence

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Abstract— This study intends to understand the factors influencing the performance of general insurance companies in Mauritius.. Though the present study may not claim to provide all the answers on performance of general insurance companies in Mauritius, it is an attempt to understand how and what are the determinants influence the performance under the statutory preview of Financial Service Commission Mauritius (FSC Mauritius) and Integrated Regulatory Framework. Though the literature shows many determinants influencing the performance, this study has identified important determinants and investigated their respective correlation and predictive capacity to develop a model that could be used to monitor their performance to achieve growth and success (2011-15).

Keywords- *Performance Determinants; General Insurance; Firm specific factors; Relationship;*

I. INTRODUCTION

The general insurance industry is relatively well developed and makes extensive use of reinsurance facilities and is free from the pervasive premium, product, investment, and reinsurance controls that have bedeviled the insurance markets of so many developing countries around the world. Large industrial and commercial risks are reinsured and favored by tax incentives, housing finance and pension premiums which represents 61% (FSC Mauritius 2015 Annual Report) of total premiums.

The Mauritius insurance industry appears to be competitive, operating with high efficiency and reasonable profitability. Large and medium-size companies have strong reserves, appropriate reinsurance arrangements, and good profitability. However, several of the smaller companies have weak financial ratios and suffer from long delays in settling claims. Insurance regulation and supervision is entrusted to the Financial Services Commission, Mauritius (FSC Mauritius). The current regulatory framework has many strong elements, including reliance on solvency monitoring, prudent asset diversification, international accounting standards, and actuarial methods.

Insurance firms are important financial intermediaries in

the advanced economies and in global financial markets (Arena, 2008). The insurance sector contributes to economic growth, reduction of transaction costs, creation of liquidity, facilitation of economies of scale in investment, spread of financial loss and efficient resources allocation (Haiss and Sumegi, 2008). The role of macroeconomic development in the profitability of insurance companies in Mauritius over economic cycles and claim that profitability in the non-life segment is evidently linked to macroeconomic environment (FSC, 2014¹). However, for the life segment, the link between profitability and macroeconomic indicators is less clear as seen, though the insurance industry is an important component of a financial services sector, the insurance sector differs from other financial services as its principal objective is to spread financial losses; insurance provides indemnification against risks, strengthens the linkage between other sectors of the economy in encouraging growth and stability and by creating a substantial impact on the national income of a country by improving the efficiency of the financial system by lowering transaction costs, generating liquidity and allowing economies of scales in investment (Das et al, 2003).

In 2005, the government embarked on an economic reform program aimed at opening the economy, facilitating business, improving the investment climate, and mobilizing foreign direct investment and expertise. These reforms accelerated the rate of growth, reduced unemployment, and sped up the pace of diversification of the economy through the development of new sectors. All these factors contributed to absorb the shock of the global economic recession as well as the Eurozone crisis and set the stage for Mauritius to resume accelerated growth in 2010. GDP growth is forecast at 3.9% in 2017, as compared with 3.8% in 2016.

The organizational performance as three specific areas of firm outcomes (Richard et al., 2009):

- a) Financial performance (profits, return on assets, return on investment, etc.);

¹ <https://openknowledge.worldbank.org/handle/10986/18272>

- b) Product market performance (sales, market share, etc.); and
- c) Shareholder return (total shareholder return, economic value added, etc.).

What determines the financial performance of an insurer? - is for many practitioners and academics in the field of insurance, the search for the Holy Grail.

A. Objectives and Statement of the problem

The prime objective of this study is to understand what are the main determinants influencing the performance of general insurance companies in Mauritius. The study aims at identifying the gaps if there exist and their tangible contribution for the economic growth. Mauritius has one of the most successful and competitive economies in Africa; 2015 GDP at market prices was estimated at \$11,169 billion and per capita income at \$8,844, one of the highest in Africa. The economy is based on tourism, textiles, sugar, and financial services. Given the economic climate of Mauritius, the drive and efficiency of the economy is crucially dependent on the effectiveness of its companies including those in the insurance industry.

There are many measuring instruments that are used by practitioners to determine and monitor the financial performance of an insurance company. This study,

- (a) Identifies the determinants of performance and
- (b) Investigates whether the said determinants are useful predictors of financial performance of the non-life insurance industry of Mauritius with the objective of developing an empirical model (regression, 2011-15) that can be used by insurers to monitor their financial performance and for future research and assess the impact of firm level (company size, investment performance, premium growth amongst others) and market characteristics over the past five years.

II. LITERATURE REVIEW

The possible relationship between general insurance company performance and the determinants influencing is reviewed. For the purpose of this study, company size, investment performance, liquidity ratio, leverage, underwriting, reinsurance, sales profitability ratio, net operating expenses, premium growth, concentration ratio and company age are considered (Richard, Devinney, Yip and Johnson, 2009).

Company Size

Literature supports there is a positive relation between operational performance and insurance company size (Hardwick, 1997). Generally, the variables used to measure firm size include total premium, total admitted assets and capital and surplus and suggests that large insurers are likely to perform better than small insurers as they can achieve operating cost efficiencies through increasing output and saving on the unit cost of innovations in products and process

development. Large corporate size also enables insurers to effectively diversify their assumed risks and respond more quickly to changes in market conditions. It has been suggested that company size is positively related to financial performance. The main reason is that large insurance companies normally have greater capacity for dealing with adverse market fluctuations than small insurance companies. In addition, large insurance companies usually can relatively easily recruit competent employees with professional knowledge as compared to small insurance companies. Furthermore, large insurance companies have economies of scale in terms of the labour cost, which is the most significant production factor for delivering insurance services.

Browne, Carson and Hoyt (2001) evidenced empirically, that company size is positively related to financial performance. Financial health is influenced by size of the organization as an important determinant comparatively (Chen and Wong, 2004). However, company size is not found to be an important determinant of operational performance in the Bermudan insurance market (Adams and Buckle, 2000) and Shiu (2004). Malik (2011) found a significantly positive relation between size and profitability. Large insurers have comparative advantage over small insurers in being more profitable and having more return on assets and statistically significant (Charumathi, 2012, Mehari and Aermiro, 2013, Kaya, 2015).

A. Underwriting Income

Underwriting is understood as the profit or loss on a portfolio of general insurance policies before investment income is taken into account or else as the pre-tax profit or loss experienced by an insurance company/re-insurance company after deducting incurred claims and claims expenses and operating expenses from premiums earned. This profit and loss calculation includes re-insurance assumed and ceded but excludes investment income. Huge fluctuations in net premiums written indicate a lack of stability in underwriting operation of an insurance company. An unusual increase in net premiums written might indicate that the company is engaging in the so-called "cash-flow underwriting" to attempt to survive its financial difficulty. However, this is not necessarily the case; indeed, an unusual increase in net premiums written could also indicate favourable business expansion if it is accompanied by adequate reserving, profitable operations, and stable products mix (NAIC, 2001a).

Shiu (2004) used the difference of net premiums written between the current year and the prior year divided by net premiums written prior year. The lower the value, the more stable the underwriting operation the investment and underwriting results were positively correlated. Chen and Wong (2004) used the combined ratio to measure the underwriting results and positively correlated to insolvency rate (Browne and Hoyt, 1995), a high combined ratio may indicate un-favorable underwriting results and thus, lower profitability (Doherty and Garven, 1995). Chen and Wong (2004) found that the combined ratio was negatively related to general insurers' financial health.

B. Leverage

Insurance companies collect premiums which are kept in reserve accounts for future claim settlements as outstanding claims and unearned premiums reserves which is considered riskier than ordinary long-term corporate debt since neither the magnitude nor the timing of the cash flows is known. Unearned premium reserve is similar to ordinary short-term loans because most general insurance policies are short-term and expire in one year (Briys and de Varenne, 2001). Policyholders receive a discount in their premiums to compensate for the opportunity cost of the funds held by insurance companies. Likewise, the discount is similar to the interest payments on corporate debt to policyholders by insurance companies (Berger, Cummins and Weiss, 1997).

The degree of financial leverage reflects insurance and reinsurance companies' ability to manage their economic exposure to unexpected losses. Therefore, low leverage provides a measure of corporate financial strength and presumably, reduces the need for managers to increase investment earnings, such as building-up reserves. The investment yield is positively related to leverage, implying that the higher the leverage the higher the investment (Shiu, 2004). Modigliani and Miller (1958), identified, the relationship between expected return on equity and debt-equity ratio is positive. The more financial leverage or gearing, the higher expected return on equity with the increase in risk, the two propositions do not contradict each other because of the trade-off between risk and return.

Adams and Buckle (2000) provide evidence that insurance companies with high leverage have better operational performance than insurance companies with low leverage. However, empirical evidence also supports the view that leverage risk reduces company performance. Carson and Hoyt (1995) find that leverage is significantly positively related to the probability of insolvency. Moreover, a negative relationship between leverage and performance has also been found in Browne, Carson and Hoyt (2001). Malik (2011) found that leverage was negatively but significantly correlated to insurers' performance in terms of return on assets. Moro and Anderloni (2014)'s study revealed that leverage has a negative relation with return on equity, thus showing that high levels of capitalisation are detrimental to return on equity. According to the Insurance Act 2005, an insurance company cannot take secured loans unless approved by the FSC for policyholder protection.

C. Liquidity Ratio

Liquidity ratio measures the ability of insurance and reinsurance companies to fulfill their immediate commitments to policyholders and other creditors without having to increase profits on underwriting and investment activities and/or liquidate financial assets. This reasoning therefore implies that high liquidity impedes the need for management to improve annual operational performance (Chen and Wong, 2004, Hampton 1993, Browne, Carson and Hoyt, 2001). Lee and Urrutia (1996) also conquered and found that the current liquidity ratio is a significant indicator of solvency.

Shiu (2004) avert that companies with more liquid assets are less likely to fail because they can realise cash even in very difficult situations, thus expected that insurance companies with more liquid assets will outperform those with less liquid assets. Shiu (2004) found that investment and return of shareholders' funds were positively correlated to liquidity as well as for the percentage change in shareholders' funds and those insurance companies with more liquid assets indeed outperformed those with less liquid assets.

An alternative hypothesis could be formulated as follows. Maintaining high liquidity can reduce management's discipline as regards both underwriting and investment operations. Moreover, according to the theory of agency costs, high liquidity of assets could increase agency costs for owners because managers might take advantage of the benefits of liquid assets (Adams and Buckle, 2000). In addition, liquid assets imply high reinvestment risk since the proceeds from liquid assets would have to be reinvested after a relatively short period of time. Undoubtedly, reinvestment risk would put a strain on the performance of a company. In this case, it is, therefore, likely that insurance companies with less liquid assets outperform those with more liquid assets.

D. Investment performance

Investment performance reveals the effectiveness and efficiency of investment decisions. Indeed, investment performance is critical to maintain the financial solidity of an insurer. Heyman and Rowland (2006) asserted that investment officers of publicly held property- casualty companies struggle as to how best to contribute to shareholder value. The approach is to manage the investments independent of the insurance operations, as if they were a closed-end investment company that is funded by insurance underwriting and/or is to invest funds with the objective to decrease the insurer's liabilities and hence support the insurance operations of the insurer, whose principal value derives from its insurance activities. According to second approach, the investment policy of most insurance companies should achieve two primary objectives, namely to safeguard insurance reserves with a fixed-income portfolio and, to realise "abnormal returns" on surplus in "a responsible and disciplined" way. According to Pottier (2007), larger insurers, insurers with higher financial quality, mutual insurers, publicly traded insurers, insurers facing stringent regulation, and insurers with greater cash holdings are more prevalent lenders in the private debt market.

E. Premium Growth

Premium growth measures the rate of market penetration. Empirical results show that rapid growth of premium volume is one the causal factor in insurers' insolvency (Kim et al., 1995). Chen and Wong (2004) identified, premium growth was insignificant and thus is contrary to the argument used by Kim et al. (1995). The value of gross premiums collected by the company, in other words the scale of its operation, significantly positively influences profitability and efficiency of the company (Poland, Kojak (2011). Kojak (2011) suggested that it could indicate that the growth of medium

sized companies, improves profitability of core insurance activities, as well as the total net profitability of the company. Hrechaniuk *et al.* (2007) found a strong correlation between insurers' financial performance and the growth of written premium (Charumathi, 2012).

Hardwick and Adams (2002) used annual total net assets as a measure of firm size over 1987-1996 and found that life insurers' size varied over time. This could be explained by the state of the business cycle which implies that on one hand, small firms may tend to grow faster than larger firms during an economic boom as a result of greater consumer confidence and higher spending; on the other hand, larger firms may be better equipped than smaller firms to survive and maintain their asset size during an economic recession.

F. Growth rate of surplus

A profitable insurer would most likely report increases in surplus over the years. However, increases in surplus should not lead to increase in the risk level of operation. Operating growth at higher risk level could negatively impact on an insurer's financial health. (Lee and Urrutia, 1996). Chen and Wong (2004) established that surplus growth is negatively related to general insurers' health.

G. Financial ratio analysis

Financial ratios are crucial tools in examining financial health of firms and aims at quantifying many aspects of business, which are essential for financial statement analysis. Financial ratios are categorized according to the financial aspect of the business, which the ratio measures to depict the performance of insurers. Fitch (2010) reviewed the financial results of the 25 largest market participants the US property/casualty insurance industry and a statutory basis over the last 10 years, which includes underwriting performance, net profit margin, cash flow, returns on capital, and internal capital formation. The analysis also looked at changes in overall size and market share over the last decade. Cheng (2006) identified 19 financial ratios to establish a performance prediction model for insurance companies using the Grey relational analysis; these were broken down into capital structure, profitability, solvency, management efficiency and capital operational capability ratios.

H. Risk Management practices

Zhara and Mazreku (2014) explored the extent of the application of risk management in insurance companies in Kosovo and its impact on performance. Empirical evidence show that insurance companies with good risk management have better return on equity and better performance in other key business areas. Zhara and Mazreku (2014) found that demands from regulatory and supervisory authorities may have a significant effect on insurance companies in Kosovo to help improve their risk management practices. Mwangi and Angima (2016) claim that a structured actuarial risk management approach by non-life insurers ensures realization of better organizational results at a reduced cost, through having a robust underwriting process, ensuring that pricing of products are adequate or that the claims process is fair and

correctly evaluated.

I. Company Age

Ahmed *et al.* (2009) defined age as the difference between observation year and establishment year. They found that the negative coefficient of variable age specifies the negative relationship between age of the life insurance companies and debt ratio. This inverse relationship predicts that in Pakistan older or mature life insurance companies are preferred to utilize small portion of debt in formation of capital. One key reason to employ less debt ratio is that when firm survives in business for a long time then it can accumulate more funds for running the operations of the business and subsequently keeps away the firm to go for debt financing (Nivorozhkin, 2005).

According to Malik (2011), there was no correlation between company age and profitability of 34 life and non-life insurance companies in Pakistan over 2005-2009. Pervan *et al.* (2012), however, found that company age and significantly impacted on insurers' financial performance in Bosnia and Herzegovina. Kaya (2015) observed that a negative relationship between company age and profitability, thereby indicating that profitability decreases as the company ages.

J. Reinsurance

Reinsurance is defined '*as the shifting of part or all of the insurance originally written by one insurer to another insurer*'. Reinsurance enables insurers to increase underwriting results, to stabilise profits, to decrease the level of unearned premium reserve required and temporarily increase policyholders' surplus; enabling insurers to write more business; or to provide catastrophe protection. Reinsurance can however be costly; as a result, it is important for insurers to determine an appropriate retention level in order to strike a balance between decreasing insolvency risk and reducing potential profitability. Although it increases operational stability, increasing reinsurance dependence, i.e. lowering the retention level, reduces the potential profitability. Moro and Anderloni (2014) found that reinsurance was weakly correlated to profitability, showing that reinsurance activity has negative effects on profitability. Datu (2016), in his panel data analysis of factors affecting the profitability of insurance business, observed a positive relation between reinsurance and profitability. Datu (2016) explains that as insurer cede more business to reinsurers, and thus have a lower retention ratio, they operate similarly to reinsurance brokers by transferring underwriting risk.

K. Operating margin

The operating margin is a profitability ratio. Being profitable implies that insurers are earning more revenues than expenses are being disbursed. Kramer (1996) found a positive relationship between operating margin and financial stability; in other words, operating margin is negatively correlated to the rate of insolvency. Chen and Wong (2004) found that operating margin is positively significant for Singapore, Taiwan and Malaysia, thus consistent with Kramer's findings.

III. DATA AND METHODOLOGY

Performance of insurers will be determined by using Return on Assets (ROA) as dependent variable. ROA shows how profitable a company's assets are in generating revenue, which gives an indication of the capital intensity of the company and is comparable for companies in similar industry. ROA is measured as the ratio of Net Profit over Total Assets.

The choice of independent variables is based on their theoretical relationship with the dependent variable. For the purpose of this study 12 company-specific variables were considered to be explanatory variables in the model. These explanatory variables and their measurement are as follows:

The regression model is specified as follows:

$$\text{Perf} = \beta_0 + \beta_1 (\text{CoSize}) + \beta_2 (\text{UWRisk}) + \beta_3 (\text{Lev}) + \beta_4 (\text{Liq}) + \beta_5 (\text{InvPerf}) + \beta_6 (\text{Reins}) + \beta_7 (\text{SalesProf}) + \beta_8 (\text{NEO}) + \beta_9 (\text{PGrowth}) + \beta_{10} (\text{Conc}) + \beta_{11} (\text{GRate}) + \beta_{12} (\text{CoAge}) + \varepsilon \quad (1)$$

Where:

Perf=	Performance
CoSize =	Company Size
UWRisk=	Underwriting Profit
Lev=	Leverage
Liq=	Liquidity
InvPerf=	Investment Performance
Reins=	Reinsurance
SalesProf=	Sales Profitability Ratio
NEO =	Net Operating Expenses
PGrowth=	Premium Growth
Conc=	Concentration Ratio
GRate=	Growth Rate
CoAge=	Company Age
ε =	Error term

IV. RESULTS

TABLE I. SUMMARY STATISTICS

	Min	Max	Mean	Std. Dev
Conc	0	0.3	0.1	0.1
ROA	0	0.0	0.1	0.0
Reins	0	1.0	0.3	0.2
SalesProf	0	10.0	0.3	1.2
OpMargin	0	11.0	0.4	1.4
NetOpExp	0	9.9	0.5	1.3
GrowthRate	0	108.9	1.9	13.0
PremGrowth	0	13.2	1.9	4.1
Liquidity	0	39.6	2.5	5.0
CoAge	0	4.0	3.2	1.1
InvPerf	0	13.2	8.9	2.7
UWRisk	5	12.0	9.8	1.8
Leverage	0	14.4	11.8	2.8
CoSize	0	15.2	12.7	2.9

It must be noted that Return of Equity was also sued as dependant variable to determine the performance of insurers. However, the model could only predict performance at almost 48% accurately. Thus it was discarded.

TABLE II. MODEL SUMMARY

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.948 ^a	.899	.866	.014
a. Predictors: (Constant), CoAge, PGrowth, Reins, Liq, NEO, OpMargin, Conc, GRate, UWRisk, InvPerf, Lev, SalesProf, CoSize				

The coefficient of multiple determinations is 0.948; about 94.8% of the variation in performance is explained by Company Size, Underwriting Profit, Leverage, Sales Profitability Ratio, Net Operating Expenses, Investment income, Investment performance, Premium Growth, Concentration Ratio and Company Age. The regression equation appears to be very useful for making predictions since the predictive capacity of the model is at 86.6%.

TABLE III. MODEL COEFFICIENTS

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.15	0.05		3.05	0.00
CoSize	(0.05)	0.01	(1.38)	(4.11)	0.00
UWRisk	0.01	0.00	0.44	4.57	0.00
Lev	0.03	0.01	0.74	3.16	0.00
Liq	(0.00)	0.00	(0.00)	(0.04)	0.97
Reins	(0.02)	0.02	(0.12)	(1.14)	0.26
SalesProf	0.06	0.08	0.19	0.78	0.44
NEO	0.00	0.00	(0.01)	(0.16)	0.87
InvPerf	0.01	0.01	0.40	2.08	0.04
OpMargin	0.10	0.07	0.39	1.57	0.13
PGrowth	0.00	0.00	0.08	1.45	0.15
Conc	0.10	0.03	0.23	3.69	0.00
GRate	(0.00)	0.00	(0.02)	(0.26)	0.80
CoAge	0.00	0.01	0.07	0.76	0.45
a Dependent Variable: ROA					

Liquidity, Net Operating Expenses and Growth Rate are the most significant predictors of an insurer's return on assets. Reinsurance, Sales Profitability, Operating Margin, Premium Growth and Company Age also contribute to explain growth in return on assets.

V. CONCLUSION AND POLICY IMPLICATIONS

Valuing the performance of a non-life insurance company is difficult for a number of reasons. The unique format of insurance company financials does not lend itself to traditional financial accounting analysis.

The industry's pre-eminent performance measure, the Underwriting Ratio, captures underwriting and claims activity but is silent about the equally critical task of investment. Another reason is timing; insurance claims are not always presented or resolved until years after the end of the policy term or when the claim is actually settled.

The insurance sector is an important sector of the financial services sector. This paper examined the effects of Company Size, Underwriting Profit, Leverage, Sales Profitability Ratio, Net Operating Expenses, Investment income, Investment performance, Premium Growth, Concentration Ratio and Company Age has on an insurer's performance.

The regression model provides a complete picture of insurance company profitability to reflect its major value driver liquidity, net operating expenses and growth rate. Omundu and Muturi (2013) also found that liquidity was an important determinant of insurers' performance.

This study was limited to a number of factors. Further research can be done to determine other factors that may have an impact on the performance of general insurers in Mauritius.

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