

**AN ASSESSMENT OF THE BUSINESS VALUE OF
REINSURANCE AS A CAPITAL MANAGEMENT TOOL
BY ZIMBABWEAN SHORT-TERM INSURANCE
COMPANIES**

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DECLARATION

I, Ushe Mungaraza, do hereby declare that this dissertation is a result of my own investigations and research, except to the extent indicated in the acknowledgements, references and by comments included in the body of the report, and that it has not been submitted in part or in full for any other degree, to any other university.

Signature:

Student

Date:

Signature:

Supervisor

Date:

DEDICATION

This research paper is dedicated to my family; my wife Swederai and my two daughters Tatenda and Tanatswa who had to forego quality family time with daddy. This was not in vain as it should provide inspiration to the whole family for their future academic endeavors.

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ABSTRACT

The research sought to assess the business value of reinsurance as a capital management tool by Zimbabwean Short-Term Insurance Companies. The world over, reinsurance has evolved from being a mere risk management tool, to an integrated capital management tool allowing insurance companies to literally underwrite insurance business on the strength of the balance sheets of their reinsurers.

The period following dollarization saw the insurance industry regulator, IPEC raising capital levels three times, forcing many companies to close down as they could not meet the minimum capital requirements and were trading below regulatory solvency ratios. Hence the research sought to assess the critical role of reinsurance in the capital structure of insurance companies. The impact of reinsurance on shareholder return profile was also assessed together with the reinsurance demand variables.

The research found out that reinsurance was a key capital management tool that enhanced business value through stabilizing earnings, reducing transaction costs, reducing potential financial distress costs and easing cash flows. While the results demonstrated reinsurance formed an integral part of insurer capital structure, primary data the results were not conclusive as to the optimal capital structure. This was further supported by secondary data regression results where reinsurance, the main research independent variable was shown to be negatively correlated with shareholder value. This opens up an area for further study regarding the optima mix of reinsurance and other forms of capital.

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LIST OF ABBREVIATIONS

IPEC	Insurance and Pensions Commission
UPR	Unearned Premium Reserve
IBNR	Incurred But Not Reported Losses
ROE	Return on Equity
PML	Probable (Possible) Maximum Loss
XOL	Excess of Loss
GWP	Gross Premium Written
PBT	Profit Before Tax
GM	General Manager
MD	Managing Director
CEO	Chief Executive Officer

CHAPTER ONE

INTRODUCTION

1.1 Introduction

Reinsurance is an old age financial practice in which insurance companies buy insurance protection from other insurance companies; who are called reinsurers in the insurance value chain. Reinsurance enables the spread of risk between companies and ultimately countries as it is international in nature. Insurance companies manage their risk by ceding to reinsurers, at a price, a portion of their liabilities related to their primary policies. The primary purpose of which is to ensure that no single company is overburdened by loss eventualities that may spell financial ruin and also ensuring that insurance cover exists for pursuits of otherwise great risky (Mclsaac & Babbel, 1995). As indicated in the value chain below, reinsurance companies also buy reinsurance on any excess risk, from their peers, who became known as retrocessionaires.

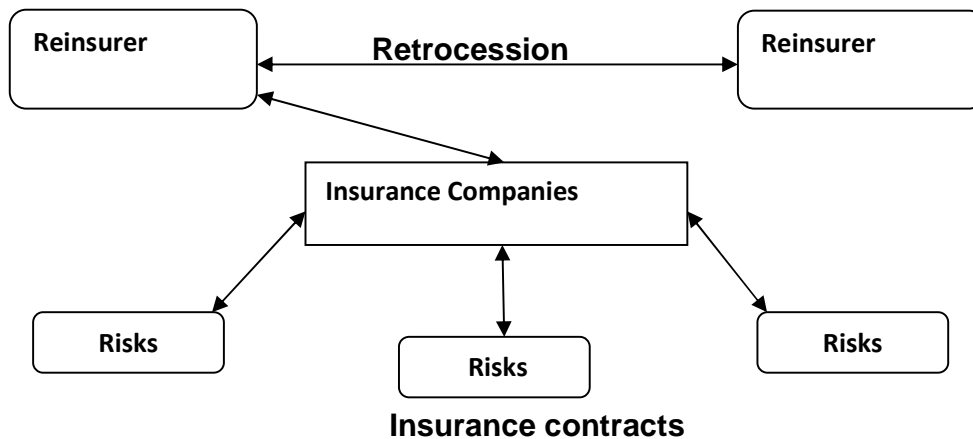


Fig1.1: The insurance Value Chain; Source: Mclsaac & Babbel (1995), pg 1.

There exist various forms of reinsurance and the two broad classifications relate to cession method (proportional and non proportional) and transaction method (Treaty and Facultative). Under proportional reinsurance, the ceding company makes cessions of sums insured, premiums and any losses to the reinsurer in the same proportion, based on the terms of the primary policy. However, under non-proportional reinsurance, the reinsurer only pays those claims suffered by the insurance company exceeding a certain predetermined limit (deductible). A reinsurance treaty is a pre-agreed arrangement where an insurance company cedes to the reinsurance company, a portion or all of the policies falling within the terms of the treaty agreement. On the other hand, facultative reinsurance is not pre arranged but individual risks are offered to the reinsurer who has the right to accept or decline based on their assessment.

Reinsurance is an effective capital management tool that gives insurance companies underwriting capacity, protection of financial result and capital base and the access to the expertise of the reinsurers (Baur & Breutel-O'Donoghue, 2004). In the era of Risk Based Capital and Solvency II, reinsurance allows insurance companies to improve their capital position by reducing the capital that is required for solvency ratios and increases available capital.

Financial capacity arises from the ability of the insurance company to literally underwrite insurance business on the strength of the reinsurer's balance sheet. The various forms of reinsurance protect financial result and capital base by reducing the ruin probability of both huge individual (catastrophe risk) losses and small but high frequent losses (accumulation risk), (Bellerose & Paine, 2003). As financial theory would say, stable financial results help the insurers to attain and maintain high market values.

1.2 Background to the study

The Zimbabwean short-term insurance industry was made up of nine reinsurers and twenty-six insurance companies as at December 2012. The multi-currency regime introduced in 2009, like with many other sectors of the economy brought challenges to the short term insurance industry. Balance sheets were virtually eroded in the period prior to dollarization. The prescribed asset requirements, mandating insurance companies to invest 35% of investable funds in government securities, saw those investment balances reducing to nothing with the coming of the multi currency regime. Capital and other technical reserves of insurance companies were wiped out and balance sheets were eroded by the inflationary environment. In this context, reinsurance will be shown in this study as a capital management tool that allows insurance companies to build and preserve own capital bases over time.

In spite of these legacy issues, the insurance industry regulator, IPEC, as expected, has been constantly increasing minimum capital requirements for insurance players as they seek to create a safe and secure insurance industry. This, together with the volatile business environment in Zimbabwe, poor investment income and the impending implementation of Solvency 2 as a regulatory tool puts reinsurance afore as an alternative capital management tool. Senior management of insurance companies will have to find capital management solutions that meet the new risk landscape, whilst also achieving corporate goals and enhancing shareholder value.

Reinsurance comes at a cost to ceding companies who have to carry a cost and benefit analysis in the context of other risk hedging mechanisms. Zimbabwean short term insurers spend on reinsurance, US\$67 million in 2011 and US\$94 million in 2012, being almost 50% of their gross premium written in both years (IPEC reports, FY 2011 & FY 2012). The significance of such spending compels a strategic look at the optimality of reinsurance in enhancing shareholder value, in the context of a depressed economy facing severe liquidity challenges.

The design of a reinsurance programme involves complex issues and is material to meet insurers' strategic and financial objectives. Besides the relative lack of adequate knowledge of reinsurance by some insurance company executives, reinsurance decisions are becoming more challenging mainly because benefits have always been difficult to evaluate in relation to costs for instance, on the analysis of how reduction in underwriting result volatility affect capital, solvency and return. Furthermore, in most cases, reinsurance decisions are made by management at tactical levels, divorcing the all important aspect from the strategic eye of senior management. Invariably, the degree to which these decisions are guided by the need to bring about business value is highly questionable and hence the need to place these decisions in the overall enterprise value creation context to avoid inefficient reinsurance activity.

What makes reinsurance a strategic aspect in the Zimbabwean insurance industry is that in the context of heightened risk, insurance clientele now demand more accountability. Most corporate clients, under pressure of their risk committees or their boards now often require knowing not only the reinsurance arrangements backing their insurer, but the reinsurers' retrocession arrangements. This makes reinsurance not just a practice of tradition but puts it on the company's strategic radar.

1.3 Statement of the Problem

The research sought to assess the effectiveness of reinsurance as a capital management tool by the Zimbabwean short-term insurance companies. This will be done in the context of widespread company closures since dollarization, as the industry regulator, IPEC has increased minimum capital requirements three times within four years, coupled with the challenging business environment. With only one, of twenty six short term insurers listed on the Zimbabwe Stock Exchange, public raising capital has been difficult for many insurers. This has left them with the private equity root, a root not without its difficulties due to the biting liquidity challenges in the Zimbabwean economy. The reinsurance expenditure, which since dollarization has been around 50% of

insurance companies' revenue (IPEC Annual reports, 2009 to 2012), is evaluated against the presumed benefits. The role of reinsurance on improving solvency ratios, aversion of company failures and improving overall financial performance in the context of persistently poor underwriting and investment results will be assessed.

1.4 Research Objectives

- 1.4.1 To evaluate the role of reinsurance in the capital structure of Zimbabwean short term insurance companies.
- 1.4.2 To evaluate the role of reinsurance against other forms of capital management tools available to Zimbabwean short term insurance companies.
- 1.4.3 To evaluate the functions of reinsurance
- 1.4.4 To determine the reinsurance demand variables
- 1.4.5 To determine the relationships between business value (dependent variable) and reinsurance, claims, commissions, market share, investment income and underwriting profit.
- 1.4.6 To assess the impact of reinsurance on the shareholder return profile of Zimbabwean short term insurance companies.

1.5 Research Questions

- 1.5.1 What is the business value of reinsurance as a capital management tool for Zimbabwean short term insurers?
- 1.5.2 How does reinsurance compare with the other form of capital for Short term insurance companies?
- 1.5.3 What are the critical functions of reinsurance in the context of the Zimbabwean

short term insurance industry?

1.5.4 What are the factors that determine the demand for reinsurance?

1.5.5 What is the relationship between business value (dependent variable), regressed

against reinsurance, claims, commissions, market share, investment income and underwriting profit?

1.5.6 How does reinsurance affect shareholder value?

1.6 Research Proposition

Reinsurance is an effective capital management tool and over time, insurance companies that rely on reinsurance, as shown by higher reinsurance ratios, tend to show superior financial performance over those who use less reinsurance.

1.7 Justification of Research

Reinsurance cost has been about 50% of revenues of short term insurance companies since 2009 (IPEC annual reports). The research hence sought to ascertain the business value of the cost as a capital management tool. Widespread company closures since dollarization, as companies failed to meet adequate and requisite capital and solvency margins brings to the fore the significance of reinsurance in capital management. These confidence shaking industry mishaps have been experienced at the time when the insurance industry badly needs to rebuild consumer confidence following successive periods of erosion of insurance value during the hyperinflationary period leading to dollarization.

A sound and solid insurance market plays a key role in the economic development of a country as players are afforded the mechanisms of risk transfer. Hence the government,

regulators and insurance clientele are akin to see value in a study that seeks to explore ways of improving the use of reinsurance as a capital management tool.

1.8 Scope of Research

The research sought to assess the business value of reinsurance as a capital management tool by Zimbabwean short-term insurance companies, based on the post dollarization data. As of the 31st of December 2012, there were twenty-six registered and operating short term insurance companies. While the term short-term insurance company may be loosely used to refer to non-life insurance companies, the research is focused at direct underwriting companies, excluding other companies in the value chain; reinsurers and brokers. The research examined data from a minimum of ten direct underwriting companies to be selected at random, as it will be practically difficult to gather data from all the companies.

1.9 Research Outline

The research will be set out in five chapters set out as follows:

1.9.1 Chapter one – Introduction

Chapter one introduces the research, giving a background to the study, and laying out the research objectives, questions and justifying the research.

1.9.2 Chapter two – Literature Review

The chapter looked at the existing body of knowledge on the topic, identifying any existing gaps and unresolved areas that require further study. Ideas will be supported organized by sub topic, supported by literature; referenced using the APA style.

1.9.3 Chapter three – Methodology

Chapter 3 laid out the general methodology of the study. It covers data collection tools and methods, sample definition and data analysis and presentation formats. Justification for the methodology is also given.

1.9.4 Chapter four - Analysis and Discussion

Chapter four gave an analysis of the data and presents the actual results of the study.

1.9.5 Chapter five – Conclusions and recommendations

Chapter five laid out the Conclusions drawn from the study and recommendations coming out. This will proffer solutions to the problems identified earlier on in the research.

1.9.6 References

References were presented in the APA style.

1.10 Chapter Summary

Chapter one gave the background to the topic on the business value of the use of reinsurance as a capital management tool by short term Zimbabwean insurance companies. The chapter gives the context of the research; company closures and persistent increase in capital levels and poor solvency ratios by many companies and proffers reinsurance as a capital management tool. It is hypothesized that, all things equal, reinsurance improves technical performance over time.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The insurance industry the world over, suffers from a myriad of challenges; including low interest rates, volatile equity markets, debt crisis, pressure on underwriting margins, large losses and catastrophic claims; all coming in the face of increased demand for stable returns by shareholders (Kreutzer, 2012). AonBenfield (2012) estimates that the world's short term insurance's capital stock fell by between 25% to 30% due to the recent global financial crisis; leaving many companies facing many capital management challenges. Aon Benfield (2012) further estimate the decline in equity capital saw debt leverage increasing from a 20% to 25% range to 25% to 35, creating financial distress for many insurance markets.

The significance of reinsurance in today's increasingly risky (natural and manmade hazards) environment can never be over emphasised. Reinsurers have been picking the tab on major global losses, ensuring that primary consumers are compensated for losses suffered. Cummins and Song (2008) estimate that with global premium income of US\$ 220 billion in 2007 (17% of direct premium written), the global reinsurance market picked 60% of September 11 attack losses and 40% of the 2005 hurricane season. Hence reinsurance, with its international nature helped spread the losses in

one economic region to the rest of the world, reducing the impact on a single insurance market.

In the context of all these challenges, reinsurance is seen as having a continuously increasing role as a capital management tool, as insurance companies make use of the capital leveraging role in most reinsurance arrangements (Woodring, 2010). Insurance companies are able to leverage on reinsurance in cases of adverse claims developments. Reinsurance protect own funds as cedants are able to claim from their reinsurers, recovery sums determined by their reinsurances in force (Kreutzer, 2012). Reinsurance has also moved away from the traditional view of risk avoidance use by risk averse insurers, assuming a more strategic role in the value creation initiative of insurance firms, where it forms an integral part of a firm's balance sheet capital options (Shah & Hole, 2004).

With the global economic slowdown that saw insurance premium rates falling below economic levels, many insurers have been reluctant to inject fresh capital until such a time when insurance markets show definitive signs of recovery, choosing instead to rely on reinsurance (Martin, Kelly, & Will, 2009). Froot, Venter, and Major (2002) see capital (equity and debt) and reinsurance as perfect substitutes, where reinsurance plays the all important role of reducing insurer's ruin probability, securing their promise to their clientele. Falling margins due to increased competition now require insurance companies to seek value drivers through new avenues divorced from the old bases of market share, which cannot withstand changing market conditions (Hancock, Huber, & Koch, 2001), and reinsurance allows management to create value for shareholders.

2.2 Reinsurance defined

Reinsurance is defined by Grossmann (1990) as "the transfer of the parts of the hazards or risks that a direct insurer assumes by way of insurance contract or legal provision on behalf of an insured, to a second insurance carrier, the reinsurer, who has

no direct contractual relationship with the insured”. Similarly, reinsurance is defined by Elliott, Webb, Anderson, and Kensicki (2003) as “the transaction whereby the reinsurer, for a consideration (premium), agrees to indemnify the ceding company against all or part of the loss that the latter may sustain under the policy or policies which it has issued”. Many other insurance literatures simply define reinsurance as the insurance of an insurance company; in the same way as primary insurance clients seek to manage their risks (Swiss Re, 2004; Bellerose & Paine, 2003; Mclsaac & Babbel, 1995; Credit Suisse Group, 2000). Hence reinsurance is a mechanism that further allows the spreading of risk within the insurance market place, allowing insurance companies to cede that portion of liability that exceeds their financial capacity (Swiss Re, 1996).

2.2.1 Forms of reinsurance

The basic forms of reinsurance are Facultative and Treaty. Facultative reinsurance involves the reinsurance of individual risks, allowing the insurer to decide on what amount of risk to transfer to the particular reinsurer, who also has the right to accept or decline the offer after assessing the material information of the risk being offered (Swiss Re, 1996 and Bellerose & Paine, 2003). On the other hand, Treaty reinsurance involves the protection of the insurer’s entire portfolio of risks falling within the pre-agreed terms and conditions. Once the insurer decides to make risk transfer under the treaty agreement, the reinsurer is agreed to accept all cessions falling within the scope of the treaty.

2.2.2 Types of reinsurance.

Both facultative and treaty reinsurance can be arranged on either proportional or non proportional basis. Under proportional reinsurance, the insurer and their reinsurer(s) share the premiums and any losses that may occur in a pre agreed ratio. The sharing ratio may vary per risk (surplus treaty) or fixed for all cessions (quota share). Under non

proportional reinsurance, the reinsurer commits to pay all losses exceeding the insurer's deductible (retention or priority), but up to the cover limit. Unlike under proportional reinsurance where the insurer and their reinsurers proportionally share the premium that the primary client would have paid, the reinsurer independently prices the non proportional treaty agreement. Factors considered on such pricing include past lots experience, expected losses and the composition of the portfolio of risks.

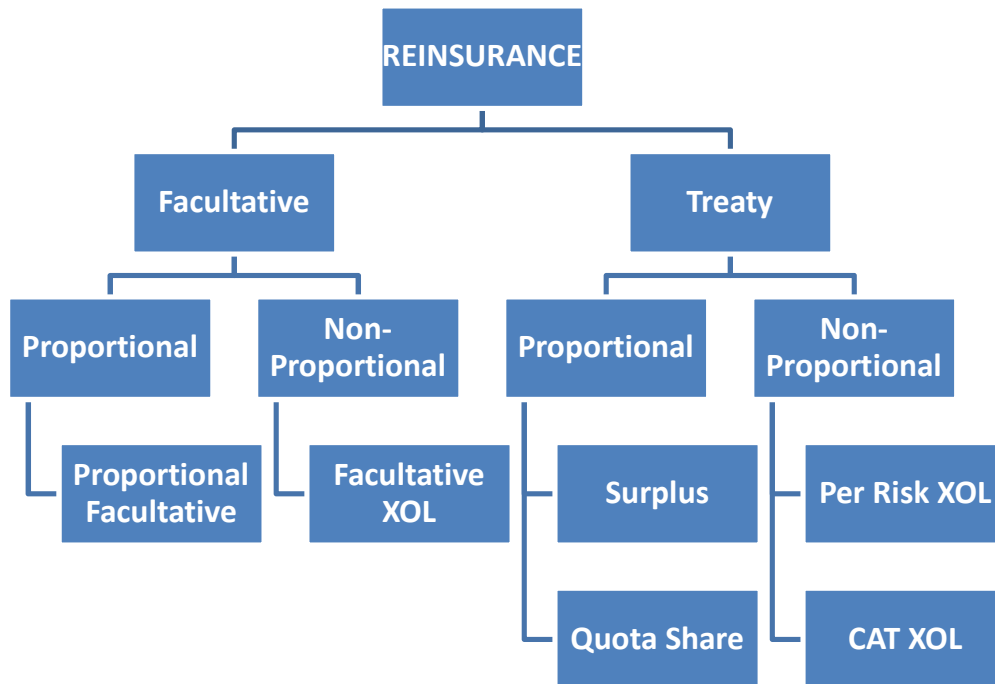


Fig 2.1: Forms and Types of reinsurance. Source: Elliott, Webb, Anderson, & Kensicki (2003); Principles of Reinsurance.

Reinsurance offers diversification which mitigates credit risk against a single reinsurer. A single insurance risk, depending with its complexity may be reinsured by several reinsurers domiciled in different parts of the world, further spreading risks. (Credit Suisse Group, 2000)

2.3 The strategic role of reinsurance in the capital mix

2.3.1 Reinsurance as a financing tool

Insurer capital faces two major threats; investment risks (asset value volatility) and underwriting result volatility, and for the latter, Cummins and Song (2008) say despite the emergency of modern innovative risk management techniques like Catastrophe Bonds and Side Cars in the insurance market, reinsurance by far remains the main tool for managing insurer risks. Insurance is a contingent liability type of intermediation (Staking & Babbel, 1995), whose success hinges not only on the ability to charge economic fees for the services provided but more importantly on the ability to provide adequate assurances that future claims obligations will be met. Such assurances can be provided through commitment of adequate equity capital, or surplus, and the purchase of reinsurance (Garven & Tenannt, 2003).

The strategic capital management position of reinsurance derives from the ability to improve the capital position of an insurance company and protecting its capital base. Kreutzer (2012) says the capital position is improved by reducing required capital (through premium cessions) and increasing available capital, through managing the technical reserves of an insurance company, which would otherwise reduce retained profits added to capital base.

2.3.2 The functions of Reinsurance

The three major capital management related functions of reinsurance are the provision of capacity, creating financial stability and provision of surplus relief (Swiss Re, 2004; Elliott, Webb, Anderson, & Kensicki, 2003; Bellerose & Paine, 2003; Clayton, Gambill, & Harned, 1999; Mclsaac & Babbel, 1995). Capacity is often viewed as the primary reason for which insurance companies buy reinsurance. Capacity is provided per individual risk or aggregate risks underwritten, and these levels of capacity are

constrained by factors like the capital base of the company (shareholders' equity) and the nature of the risk being underwritten. Reinsurance would allow a small sized company to underwrite mega million dollar risks as it will be able to transfer a portion of the risks to its reinsurers, earning reinsurance commission (Elliott, Webb, Anderson, & Kensicki, 2003). At the level of aggregate risk, as defined by the amount of premium that an insurer underwrites, regulators often place minimum solvency limits defining the net amount of aggregate risk that an insurer can underwrite. A 25% solvency margin for example would mean that an insurer's shareholders' funds cannot be less than 25% of its net premium written. Hence buying reinsurance (which earns the insurer reinsurance commission) reduces the required minimum capital as it reduces net premium written, increasing aggregate underwriting capacity (McIsaac & Babbel, 1995).

Reinsurance ensures financial stability of the insurer's earnings, reducing its cost of capital. Insurer financial results are prone to variations due to demographic, social, economic, natural forces and even probabilistic factors, hence smoothening the random variations in loss experience helps stabilises the earnings. An Excess of Loss reinsurance program for example ensures that the insurer's ultimate liability on any reinsured loss will not exceed a certain limit (Bellerose & Paine, 2003).

Surplus relief occurs when the insurer is able to increase its reported equity through reinsurance, enhancing its capital position. Many regulatory jurisdictions requires that insurer business acquisition costs like commissions, taxes and administrative expenses be expensed as they are incurred (start of a contract) while a portion of the premium is transferred to a reserve account called Unearned Premium Reserve (UPR), reducing retained earnings. On ceding risks to the reinsurer, a ceding company gets reinsurance commission which is earned and adds to their profit, increasing shareholders' equity (Elliott, Webb, Anderson, & Kensicki, 2003).

2.3.3 Reinsurance compared to other financing tools

The fact that reinsurance involves paying upfront (reinsurance premium) for a promise of future loss contingent funding, against debt and equity where funding is given upfront does not in any way make reinsurance a lesser important tool for an insurance company's capital options (Karim, 2012). In many lines of short term insurance business however, reinsurance remains the only available form of capital, and with the recent global financial crisis, debt and equity remains in very limited supply and comes at a cost far greater than historical averages and that of reinsurance alternatives (Martin, Kelly, & Will, 2009).

Lee et al. (1996) illustrated that external capital for US firms have always come at a cost higher than internal capital; new shares for a public company would cost 7% to float while bonds would cost 2 – 4% of the proceeds in both cases; added to the return on capital cost. Further, they found out that insurers who try to raise external capital post catastrophe losses would be penalised through higher risk premium. Cummins and Song (2008) explain the cost variations between internal and external sources of capital through information asymmetries existing between firm management and financiers and the pecking order theory, which says that given that a firm is profitable, managers would not want to finance their operations through debt as it dilutes earnings of the firm.

The value of reinsurance, against the other forms of capital have to be assessed in the context of “cost of capital, or Ceded Return on Equity (RoE) of the reinsurance compared to the company's internal cost of equity” (Martin, Kelly, & Will, 2009). The trio also see it imperative to evaluate reinsurance on the basis of volatility reduced by buying reinsurance, as neither debt nor equity affect volatility, a variable that affect cost of equity. Hence, while all the three forms of capital do add to the company's assets, only reinsurance modifies the company's asset and liability profile (Atkinson, 2009). Similarly, Swiss Re (1997) says the value of a reinsurance program in force has to be assessed on its ability to reduce the fluctuations on an insurer's results, combined with the cost benefit analysis.

Reinsurance assists property and casualty companies to manage solvency and catastrophe PML or the risk of ruin. “In general, catastrophe excess of loss provides a significant capital benefit at typically a low cost of capital, and effectively reduces PML, which is likely to be material for a property writer” (Martin, Kelly, & Will, 2009). Other reinsurance products like quota share are seen as beneficial in reducing premiums and future reserves, reducing overall capital requirements whereas an aggregate stop loss is favourable for property companies as the credit rating agencies’ required capital is pegged lower.

The table below from a seminal paper by Kreutzer (2012) further gives comparison of reinsurance against the other traditional forms of capital.

Table 2.1: Reinsurance vs. Other forms of financing

	Common Equity	Subordinated Debt	Reinsurance
Advantages	<ul style="list-style-type: none"> - Provide new cash & highest quality of capital - Flexible dividends - Positive impact on financial leverage. 	<ul style="list-style-type: none"> - Provides new cash - Less expensive than common equity - Tax deductible 	<ul style="list-style-type: none"> - Provides capital relief and earnings stabilization - High flexibility of structures and terms - Neutral effect on financial leverage - Tax deductible
Disadvantages	<ul style="list-style-type: none"> - Normally costly - Dilution of EPS & ownership 	<ul style="list-style-type: none"> - Highly regulated - Limited regulatory admissibility - Lacks permanence - Increases financial leverage 	<ul style="list-style-type: none"> - Premium outflow - Counterparty risk from reinsurers
Current Availability	<ul style="list-style-type: none"> - Unfavourable due to currently low valuation 	<ul style="list-style-type: none"> - Depending on market conditions 	<ul style="list-style-type: none"> - Various providers

	levels	and issuers' credit rating.	
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Source: Christian Kreutzer, Forum of Russian Insurance CFOs, 19th September 2012.

2.4 Does Reinsurance matter in value maximisation matrix for insurance companies?

Contrary to Merton & Miller's (M&M) widely publicized "Irrelevance theory", premised on the assertion that firm value is determined by neither how the firm distributes its income, nor more importantly, how it is financed. Karim (2012) upholds M&M's irrelevance theory, which upholds that under certain conditions, the value of a firm is not influenced by capital structure. He says "for a given set of investment decisions, which for our company will be underwriting insurance contracts – changing capital structure is merely redefining the division of the spoils. The value is generated by the selection of the insurance contracts written, rather than how the resulting profits are divided among the parties who put up the finance. The division of these profits is a zero sum game". Karim however concedes that MM's irrelevance theory may be less applicable in the reinsurance context, where there is cash flow reversals; where the investment (recoveries) are contingent and receivable on the occurrence of a loss event and the return (reinsurance premium) payable in advance.

Doherty and Tinic (1981) as quoted by Garven and Tennant (2002) posit that under strict efficient risk markets where the primary goal of the insurer is to maximise shareholder value, the insurer's reinsurance policy does not necessarily matter. They argue, as is the case with MM's capital structure irrelevant theory, that in the same way that an insurer can modify their risk profile by buying reinsurance, investors in the same insurance company can also alter their risk profile by trading in stocks of insurance companies that suit their risk preference, otherwise making reinsurance superfluous. This analysis assumes that there are no transaction costs in either of the strategy, a

position that would be changed under relaxed assumptions, where the option with less transaction costs is deemed more valuable.

While the pioneering works of MM on capital structure and dividend policies are applauded for financial theory advancement, modern financial theory holds that firm value, to a very large extent, is influenced by these two pertinent policies (CFA Institute, 2012; Brealy & Myers, 1996 and Ehrhardt & Brigham, 2008). More specifically on short-term insurance companies, Woodring (2010) says the value of a firm will invariably be affected by its financing decisions if the different financing options attract different taxes, borrowing rates and cost of capital, all of which are known to be true in the real world.

Similarly, Doherty and Tinic as quoted by Garven and Tennant (2003) say that reinsurance is only irrelevant to an insurance company if the pricing of its products is inelastic to its probabilistic insurance. They conclude that if insurance prices are sensitive to the default risk of the insurer (reduced by reinsurance), as is confirmed by Phillips, Cummins, and Allen (1998), Froot, Venter, and Major (2002) and Leland (1998), the premiums that the policy holders are willing to pay are positively correlated with the particular insurer's ruin probability.

Critiquing MM's simplifying theories, Karim (2012) sees the real world not as simplified as portrayed in the theory, a world where financing decisions affect firm cash flows and value. Both interest on debt and reinsurance ceded premiums are tax deductible, making these financing options more tax effective than equity financing. In most jurisdictions, providers of equity finance to insurance companies, as is the case with other ventures, are subjected to tax twice on their risk capital; first through insurer's taxable earnings and second on dividend tax (Hancock, Huber, & Koch, 2001), making reinsurance a more plausible option.

Blazonke (1986) as quoted by Carneiro and Sherris (2005) allows for the relaxation (imperfection) of the MM assumptions, the result of which is the conclusion that, if

insurance risks are not completely diversifiable in the primary insurance market, reinsurance is a tool that can provide additional capacity in a way that allows further spread of risk. In the real world, frictional costs and other imperfections do create the demand for reinsurance (Carneiro & Sherris, 2005). In this setting where market conditions are relaxed, financing policy (in this case reinsurance) is relevant in as far as it affects taxes, contracting (agency), financial distress and bankruptcy costs (Froot, Venter, & Major, 2002).

2.4.1 What if frictional costs exist?

Frictional costs like tax and costs of financial distress are important drivers for insurance companies buying reinsurance (Mayers & Smith, 1990; Krvavych, 2007 and Cummins, Phillips, & Smith, 1998). Korteweg (2006) as quoted by Cummins and Song (2008) estimate the generic cost of financial distress at between 0 to 11% of firm value, further noting value destroying business disturbances that occur from credit rating downgrades and interventions of regulators. Because such frictional costs exist, ownership and financing structures matter in the firm value creation process (Garven & Tennant, 2002).

Tax codes in many jurisdictions allow ceded premiums to be tax deductible, enhancing firm cash flows and value. The use of reinsurance and other hedging techniques by insurance companies in reducing financial distress, preventing customer flight is stressed by Cummins, Phillips and Smith (1998). Insurance is nothing more than a future promise and the security of that promise lies in the financial stability of the insurer.

In their assessment of the agency costs for insurers, Garven and Tennant (2002) bring ownership issues, separating stock and mutual insurers. In the case of stock insurers, there exist inherent conflict of interest between shareholders and policyholders (creditors). Garven and Tennant see a potential for what they term “risk shifting” where shareholders, with residual claims on the profits of the firm may take highly risky

investments in the hope of leveraging their returns. Market mechanisms however do protect the policyholder (creditor) for example through the price that they pay for insurance cover and demand that the insurer reduces their risk profile by buying reinsurance.

2.4.2 Reinsurance and rate making

Insurer financial strength, as a derivative of optimal use of reinsurance has been found to encompass positive pricing effect on insurers, removing pricing inefficiencies. Phillips, Cummins, and Allen (1998) in their study of financial pricing of insurance products concluded that the price that an insurer is able to charge (and that the consumer is willing to pay) is inversely related to their default probability. More specifically, they estimate that the price discount is ten times the economic value of default probability for long tail business, increasing to twenty times for short tail business.

Earlier works by Doherty and Tinic as quoted by Scordis and Barrese (2007) and Mayers and Smith (1990) had also found positive correlation between high reinsurance ratios (and negative correlations between earnings volatility) and the price policy holders are willing to pay as reinsurance effectively reduces the insurer's default risk. Reducing default risk, from the effective use of reinsurance has incremental value as the insurer is able to further lever their capital structure with debt, resulting in tax shield (Leland, 1998).

Similarly, Sommer (1996) sees the profit factor that the buyers of insurance are willing to pay on their premiums as inversely related to the ratio of capital to liabilities; the inverse relationship is even higher with more volatility. Supporting findings were that all things equal, a 1% increase in capital led to a more than 1% increase in pricing while a 1% decrease in the portfolio standard deviation produces more than a third of a percent increase in pricing. Reinsurance is seen in these two parallel works as having a great

effect in reducing the pricing inefficiencies, through efficient use of capital and increased earnings stability.

2.5 Reinsurance and capital structure

Reinsurance is a financial arrangement that involves the insurer (ceding company) transferring some of its contingent liabilities to the reinsurer at a fee (reinsurance premium). Such reinsurance cessions simultaneously reduces the cash flow variability and financial leverage of the insurance company, in such a way that reinsurance hence forth becomes not only a risk management tool but also a matter capital structure decision (Garven & Tennant, 2003). In a separate earlier work, Garven and Tennant (2002) had departed from the traditional view of reinsurance (pioneered by Borch, 1962) as tool of preventing the insurer ruin probability, rather viewing reinsurance in the context of enterprise risk management and a capital management tool.

Similarly, in their study for factors that affect insurer demand of reinsurance using Australian data, Carneiro and Sherris (2005) found out positive correlation between reinsurance and leverage, leading them to conclude that there is reinsurance is very significant in capital management. Cummins, Dionne, Gagne, and Nourira (2008) quoted many literature (Mayers and Smith, 1990; Jean-Baptise and Santomero, 2000; Cole and McCullough, 2006; Powell and Sommer, 2007) summarizing the reasons for insurance companies buying reinsurance as: reducing chances of bankruptcy and it's a associated costs, accessing tax benefits through the convex structure of tax codes and tax deductibility of reinsurance costs.

Staking and Babbel (1995) highlight a unique dimension of the capital structure of Property-Liability insurance companies. Their discussion views insurance companies as contingent liability financial intermediaries, literally borrowing from policyholders they issue with insurance policies, noting however inherent differences with other capital

instruments. Notable being that, unlike as is the case with debt holders, policyholders' claims are contingent upon the occurrence of an insured event. In this setting, Staking and Babbel say the insurer effectively issues a stochastic debt instrument where neither the amount nor the timing of future payment is known in advance. The return to the policy holder, as is interest to debt holder, comes in the form of price discounts on pure prices, accounted for by investment income earned (in aggregate) by the insurer between the time the policyholder pays their premium contribution and the time they are paid for their claims.

Similar to Staking and Babbel's posit on insurers as contingent liability financial intermediaries, Garven and Tennant (2002) view reinsurance as a contingent financing mechanism, reducing adverse selection costs that insurers would incur should it they go to the market seeking post loss financing. Pre-loss financing is seen here as more guaranteed than post-loss financing and available at favourable terms.

The modern form of enterprise, separating firm ownership and management brings about agency costs, wherein management's pursuits may not be in the best interest of the shareholders (Brealy & Myers, 1996). Garven and Tennant (2003) posit reinsurance as a leverage management and a risk management tool. In this context, high leverage is associated with high agency costs borne by shareholders. They argue since buying reinsurances reduces leverage, it also reduces agency costs.

2.5.1 Reinsurance reduces required capital

In the context of widespread interest in the implementation of Solvency II in Europe (and its variance elsewhere), Tautphoeus (2009) and Zanjani (2002) see a great role to be played by reinsurance as companies compute their Solvency Capital Requirements (SCR). Underwriting result volatility is seen here as driving up the capital required under Solvency II, and reinsurance is said to be an important capital management tool kit smoothening underwriting results. Similarly, Shah and Hole (2004) say reinsurance

reduces loss frequency and severity, reducing the amount of capital prescribed by policy holders, debt holders, rating agencies and regulators. Hence, as shown in earlier literature, reinsurance reduces cash flow variability, increasing firm revenue, with the potential of earning the firm more value.

Insurance companies, however, have to carefully choose among the different reinsurance options to achieving optimality in reducing cost of equity through stable earnings. In this regard, Karim (2012) says that reinsurance being a risk transfer mechanism, if not used optimally may actually result in higher cost of equity. Where the insurer transfers the less risky portion of the insurance book, leaving the riskier portion in the portfolio, then per unit risk of the remaining investment actually increases, increasing cost of equity.

2.5.2 The hazards of hoarding capital

In their article titled “The curse of too much Capital”; Clayton, Gambill and Harned (1999) say that while it is common knowledge that adequate resourcing is necessary for successful start ups, there are inherent risks at throwing too much money at new and even established ventures. They give failure examples of Apple’s Newton Personal Digital Assistant (PDA) and General Electric’s “Factory of the future” as chilling examples that serve to remind entrepreneurs of the hazards of too much capital. Capital is said to undermine the discipline that firms need to grow, often leading to agency costs.

This is analogous to what Froot, Venter, and Major (2002) refer to as the dead costs of hoarding capital, where investors would rather tax efficiently invest in mutual funds (tax free) and reduce the discretionary powers of management holding too much capital. In this setting of inverse relationship between overcapitalization and RoE, there is a trade off between the purchase of reinsurance and the risk capital required to maximise shareholders’ value (Krvavych, 2007). Reinsurance reduces equity capital in a way that magnifies returns with less frictional costs (Cummins & Song, 2008). Reinsurance

reduces the amount of capital required, reducing the costs of holding capital; agency costs, information asymmetries and double taxation (Harrington, 1997).

2.6 How does reinsurance create firm value?

Financial literature puts firm value as a derivative of its future earnings, discounted at the firm's cost of capital (Brealy & Myers, 1996; CFA Institute, 2012; Ehrhardt & Brigham, 2008). One valuation matrix commonly used in financial literature is Price/Book ratio, whose key elements are return on equity (RoE), cost of capital (C_E) and growth rate (g).

$$\text{Price/Book Ratio} = \frac{\text{RoE} - g}{C_E - g}$$

Reinsurance, if used optimally positively affects the valuation variables in the above valuation formulae (Kreutzer, 2012). Kreutzer says reinsurance increases RoE by reducing the amount of equity needed to support a given premium income level. Further, reinsurance is said to reduce the cost of equity (C_E) by increasing stability of earnings and enables future growth (g) initiatives by providing funding for business opportunities. By reducing the amount of own funds (equity) used to finance a firm levers the returns to the owners of equity. Similarly, Scordis and Barrese (2007) view earnings and cash flow volatility (risk) as one key aspect of frictional costs of imperfect markets, positing that reducing this risk will also reduce frictional costs, and that if the benefits of less frictional costs accrue to shareholders, share holder value is maximised.

Kreutzer (2012) also sees reinsurance playing a very critical role in firm valuation for Initial Public Offering (IPO) situations, summarizing the benefits in the table below:

2.6.1 Reinsurance and company valuation

Table 2.2 Company valuation

Value Driver	RoE	Cost of Equity (C _E)	Long Term Growth (G)
Goal	Minimise amount of (new) shareholders' equity needed	Increase future earnings stability	Enables future growth plans
Benefits of reinsurance	<ul style="list-style-type: none"> - Provides capital relief - Protects future earnings & shareholders' equity - Generate additional available capital 	Protects against: <ul style="list-style-type: none"> - Increased claims frequency & severity - adverse reserve developments - Adverse demographic trends e.g. increase in longevity 	<ul style="list-style-type: none"> - Finance organic growth - Finance external growth (M&A) - Up-sell on in-force book.

Source: Christian Kreutzer, Forum of Russian Insurance CFOs, 19th September 2012.

2.6.2 Earnings volatility, reinsurance and firm value

Reinsurance reduces earning volatility as it pays for insurer losses exceeding an agreed amount (deductible), isolating the bad year loss experiences. Using AM Best's US property and casualty commercial lines data, Martin, Kelly and Will (2009) found out that the accident year gross loss ratio over a ten year period was 74.05%, with a standard deviation of 12.47, while the accident year net loss ratio is 74.11% with a 9.87 standard deviation. Hence reinsurance reduced standard deviation by 2.60 loss ratio points, or 20%. Hence the benefits of reinsurance can never be over emphasised as insurance is characterised by highly volatile returns in the short term but having reasonable long term returns. In tax jurisdictions with convex tax codes, where tax rates increase with increasing earnings, volatile earnings expose companies to high tax rates during good years, compromising cash flows, earnings and ultimately firm value (Vaughn, 1998)

Shah and Hole (2004) note that by reducing the insurer's earnings volatility through reinsurance, shareholder risk is effectively reduced, reducing the required return (cost of capital) on shareholder funds. Highly volatile cash flows, though not necessarily resulting in bankruptcy may result in an insurance firm not able to meet its obligations (particularly claims) as they fall due, increasing its probability of default and reducing the prices that the firm can charge.

Scordis and Barrese (2007) and Venter and Major (2002) however note a gap in literature regarding the question on whether reinsurance increases shareholder value as much of the literature is on the reasons why reinsurance is bought. The former quote Adiel (1996) and Garven & Tennant (2003) who conclude from their respective studies that there is no compelling evidence to suggest that insurance company' reinsurance purchase decisions are modified by their tax rates, in seeking higher value. They, though not very convincing, conclude that while much literature agrees that less solvent insurance companies buy reinsurance, preventing insolvency is not synonymous with shareholder value. In a latter work which sought to explore the potential value of reinsurance, in a world where much literature examined the demand for insurance, Scordis and Steinorth (2012) saw reinsurance as a way of reducing bankruptcy and its

associated costs. The firm would be able to borrow (underwriting more policies), whose contingent liabilities are tax deductible, creating tax shield (value) for the firm.

2.7 Reinsurance and the signalling theory

Financial markets heavily rely on information and openness for the integrity of markets. In the absence of such information, financial markets tend to undervalue the firm (Scordis & Barrese, 2007). The real world is however sprouting with market informational inefficiencies that lead to sub-optimal transactions in the market of risk transfer (Akelof, 1970 and Rothschild & Stiglitz, 1976). The purchase of reinsurance, which reduces frictional costs (tax, agency costs and cash flow variability), requires much disclosure by the buyer, exposing them to the rigorous scrutiny of their reinsurers, is seen by Plantin (2006) as a positive signal to the financial markets, of the insurance company's credit worthiness and allows better inference of firm value.

A reinsurance contract through certain clauses like the Inspection or Records Clause, enforces a high level of transparency and disclosure on the part of the reinsured (Bellerose & Paine, 2003), giving other financial market players confidence on the reinsured's financial position. Hence reinsurance, in the context of financial market informational inefficiencies, is seen as an integral enabler, assisting the insurer's ability to raise capital by way of positive signals to other less informed sources of capital. Scordis and Barrese (2007) quote Jean-Baptiste & Santomero (2000) and Doherty & Smetters (2005) explaining that lower information asymmetries increases the purchase of reinsurance as prices are lower and that reinsurers have mechanisms (contract conditions) of monitoring moral hazard, increasing information symmetries.

While Scordis and Barrese (2007) principally agree with the posit that buying reinsurance has a positive signalling effect on the value and credit worthiness of a firm to outsiders, they say it may be that managers purchase reinsurance for self interest. Examples given are the need to improve solvency ratios reported to regulators, protect

own job and to get expertise services of reinsurers. Analogous to this line of thought, Blazenko (1986) is quoted by Scordis and Barrese (2007), concluding that there is a significant relationship between manager risk aversion and reinsurance ratios. More telling, Keynes (1936) and Scharfstein and Stein (1990) are further quoted indicating that reinsurance may be purchased because many other managers are buying it. Swiss Re (1996) also sees companies buying reinsurance as a way of following market practice.

Another descending voice on the signalling role of the purchase of reinsurance comes from Scharfstein and Stein (1990). The duo notes that the purchase of reinsurance may not have any signalling content but may simply be done out of tradition, as an accepted business practice or a reflection of management's risk aversion and their self preservation mechanism.

2.8 The draw backs of reinsurance

Reinsurance exposes insurance companies to counterparty risks. Cole and McCullough (2006), says while reinsurance is a very important aspect of an insurer's capital, should the reinsurer fails to pay their portion of the loss for any reason; the insurance company ultimately meets the shortfall. This may have negative consequence on many other stakeholders; the insurance company (reduced capacity or insolvency at worst), insured clients (failure to make insurance recoveries and increased prices due to market inefficiencies). Similarly, Swiss Re (1996) says reinsurance does not necessarily provide full security against bankruptcy, but is important in managing the ruin probability.

Further, from the point of view of the insured, reinsurance is a third party transaction and should the insurance company get insolvent while they have suffered a loss, the insured has no claim against the reinsurer who was providing capacity to the insurer. In this case, the insurer maintains their full obligation to their clients (International

Association of Insurance Supervisors, 2012 and Credit Suisse Group, 2000). This is however possible in few cases where both the insurance and reinsurance policies incorporate a specialized clause like the “Cut Through Clause”, enabling the insured to directly claim from the reinsurer in the case of insurer failure (Bellerose & Paine, 2003)

In his evaluation of the financing options for insurance companies, Karim (2012) says reinsurance does not square feet in the equity/debt framework given that its location in the capital structure is hard to pin point. With the exception of whole account aggregate stop loss, which is rarely bought or available, reinsurance is seen in this analysis as permeating the capital structure. It is further noted that unlike the other forms of financing available to insurance companies, reinsurance has no secondary market and may be available only from a few sellers, bringing in inherent market imperfections.

Some catastrophic risks show signs of price inefficiencies. In a work that examined the catastrophic reinsurance market, Froot (2009), as quoted by Cummins et al. (2008) found out that the price paid by insurance companies for catastrophic risks is far above the actuarially fair prices compared to the expected recoveries from such reinsurances. This is said to be a result of imperfections in the reinsurance market, chief of which is the shortage of capital in the market, mostly following catastrophic risks.

Similarly, Aon Benfield’s (2013) report on the reinsurance market outlook demonstrated with a forty year data that the reinsurance market is prone to capacity fluctuations, bringing about pricing cycles. The effects of increased prevalence of weather related catastrophes on reinsurers’ credit ratings is also demonstrated by Cole and McCullough (2006), quoting Standard and Poor (2001). The catastrophe events have seen major credit downgrades of major global reinsurers; in 1997, 30% of the world’s top 125 reinsurers were rated AAA or AA⁺ rated, declining to 20% in 2000, a period coinciding with major losses.

While the role of reinsurance in the capital structure of the insurance industry can never be over emphasized, there has been an emergent of other alternative forms that seek to

address the inherent weaknesses of reinsurance. Cummins and Trainar (2009) say that while reinsurance works very well in managing small and uncorrelated risks, the reinsurance model breaks down with high severity losses and highly correlated loss events. They say reinsurance has not been able to adequately respond to major world catastrophic events like September 11, hurricanes Katrina, Rita and in 2005; leaving the international capital stock of insurers and reinsurers severely depleted. This observation is also in sync with Aon Benfield's (2012) outlook on the reinsurance market, noting that capital stock deeps have been positively correlated with catastrophic events, often requiring the help of non traditional mechanisms to return market capacities to those levels obtaining before the catastrophic events.

In this setting, where world financial markets are seeking more economic ways of managing risk, Cummins and Trainar (2009) see risk securitization as a viable option to reinsurance from two dimensions. Firstly, the problem of correlation, prevalent in insurance and reinsurance can be effectively managed through securitization. Catastrophe losses like hurricanes for example are largely not correlated to economic factors in the securities markets; hence parcelling insurance risks to the securities market further diversify catastrophic risks. Secondly, the potential catastrophic losses (factoring occurrence probabilities) faced by individual companies and aggregate market are far bigger than the capital stock of individual and aggregate insurance markets. Hence transferring such risks to the wider capital market ensures adequate coverage to the market.

2.9 Determinants of Reinsurance Demand

2.9.1 Reinsurance in the long run and short run.

The demand for reinsurance varies with capitalization and across time. In their model which analysis the tax efficient use of reinsurance, Garven and Louberge (1996) distinguishes between the role of reinsurance in the long run and the short run. In the short run, reinsurance is seen as a better tool of managing insurer solvency and tax positions, as compared to other forms of capital. This is primarily because it is easy to arrange at a short notice, making it a valuable short run capital adjustment mechanisms. However, reinsurance involves premium cessions, reducing expected profits; hence in the long run, undercapitalised insurers will seek to increase their capital levels and increase their risk retention levels, and increase their expected earnings.

2.9.2 Company Size (Balance sheet)

Scordis and Steinorth (2012) bring a company size dimension on the variability on the reliance on reinsurance. They quote eight authors; (Mayers & Smith, 1990; Adams, 1996; Garven and Lamm-Tennant, 2003; Shortridge and Avila, 2004; Cole and McCullough, 2006; Powell and Sommer, 2007 Adams et al., 2008; Lei and Smith, 2010) whose works found out that larger insurance bought less reinsurance as their balance sheet could sustain higher net liabilities. Their further findings were also that companies facing a higher possibility of bankruptcy relied heavily on reinsurance.

2.9.3 Company ownership

Cummins and Song (2008) bring an ownership dimension on the choice of financing policies, saying most insurance companies in the short term industry are privately held (in most cases tightly held), reducing their ability to raise funding through new equity issues. They conclude that in a post loss capital shock scenario, neither debt (high risk premium) nor new equity issues will be an optimal option for short term insurers to raise

capital. Further, internal capital is also shown to take time to accumulate post loss, leaving an insurance company with reinsurance as the most viable funding option.

2.10 Study variables

Informed by the fifth objective of the research, business value (shareholders' equity) was set as the dependent variable, regressed against the various independent factors that have a bearing on it.

2.10.1 Reinsurance

All things equal, reinsurance should reduce the net claims that an insurer has to pay after effecting reinsurance claim recoveries, positively affecting the shareholders' equity. Reinsurance however as at a cost, reinsurance premium and the overall impact is not obvious (Grossmann, 1990).

2.10.2 Claims

Claims form the most apparent expenses an insurer, reducing their profit. Claims severity and frequency both determine the aggregate outgo of an insurer, and a bad financial year may spell ruin on a company's finances (Bellerose & Paine, 2003).

2.10.3 Commissions

Commissions are part of the business acquisition expenses that an insurer has to pay in the course of their business. These are payable to agents or insurance brokers who

provide the distribution network and as such represent an outgo. Similarly, when insurers buy reinsurance, they intern are compensated for their original acquisition costs of the particular business being reinsured, plus an overriding commission. Given the insurer will always not have to cede their total book, the overall position is an outgo, and reduces shareholders' funds.

2.10.4 Market share (revenue)

Revenue represents the lifeblood of profit making organizations. The expectation is that organizations that consistently attain higher revenues, all things equal should have higher shareholders' equity.

2.10.5 Underwriting Profit

Underwriting profit, equivalent of gross profit in ordinary accounting terms was set as the dependant variable, regressed against the independent variables above.

2.11 Conclusions

Various sources of literature relating to the business value of reinsurance as a capital management tool, and more particularly the addressing the research objectives and questions were covered. Literature was arranged by concept in a way that allowed the discussion to make a balanced discussion. Reinsurance was defined, giving the various forms and types of reinsurance. Reinsurance was pitted against other capital management tool, were it was shown to have distinguishing factors like being a being able to positively affect the asset and liability profile of the insurer. While literature was conclusive on the role of reinsurance on the capital structure, questions still remained on the optimal capital structure that included reinsurance for superior shareholder value.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter covers the research methodology applied to carry out the research. It outlines the research design and process. The chapter also defines the subject of discussion, chosen through outlined sampling techniques. Data collection methods, instruments and disadvantages thereof were also covered. Details of how the research covered the research design, how data was collected and analysed, how samples were drawn were outlined in this chapter.

3.2 Research Design

A research design was defined by Cooper and Schindler (2008) as the plan and structure of the investigation, conceived in a way that answers the research questions. A research design is based on the research questions, gives a guide to selecting sources and type of information, specifies the relationships between study variables and gives a procedural guide for every research activity.

The research objective was to determine the business value of reinsurance as a capital management tool for Zimbabwean short term insurance companies. Hence the research used both primary and secondary data. Secondary data was obtained from the insurance industry's regulator; IPEC's quarterly reports drawn from the submissions on insurance companies. Primary data was mostly non-numerical, capturing the views of the participants on the study subject. On the other hand, secondary data was

numerical, dwelling on the financial performances of the various companies selected for the study.

The key research question sought to evaluate the role of reinsurance in the capital structure of Zimbabwean short term insurance companies in the context of the profit making motive. The independent research variables (market share, reinsurance, claims and commissions) were regressed against the dependent variable, with a key interest on reinsurance.

3.3 Research Philosophy

Research is categorized into either positivism or phenomenology, with the former using quantitative approach while the latter takes qualitative approach (Cooper & Schindler, 2008). Further, the selection of the philosophy is largely influenced by the subject of research and personal factors like norms, beliefs, values and assumptions (Saunders, Lewis, & Thornhill, 2008).

3.3.1 Phenomenological Approach

Phenomenology approach seeks to comprehend the subjective view of those under study in order to be able to make sense of, and understand their motives, intentions and actions. This is motivated by the understanding that business situations are unique and require in depth analysis of the explanatory motivations. This approach is qualitative in nature and addresses abstract areas like management, business and occurrence of events. It is however open to manipulation by the researcher given its subjective nature.

3.3.2 Positivism approach

The positivism approach is premised on the assumption that reality is stable and can be observed and described from an objective viewpoint (Cooper & Schindler, 2008). This entails the researcher having to make objective viewpoints and assessments without materially interfering with the phenomenon under study. It uses quantifiable observations that are capable to be statistically analysed.

The research used the positivism approach, allowing quantitative data analysis where research variables were regressed so as to make statistical conclusions that addressed the research objectives and questions. The availability of numerical financial performance data enabled the use of the positivism approach, allowing objectivity of the research.

3.4 Research Strategy

Research strategy is defined by Saunders, Lewis, and Thornhill (2008) as “the general plan of how the researcher will go about answering the research question(s)”. The research then gleaned through various literature articles that addressed the objectives and arranged literature by various authors using concept.

3.5 Population and Sampling techniques

3.5.1 Population

A study population is defined by Saunders, Lewis, and Thornhill (2008) as whole collection of the subject of study that the researcher is to make inferences upon. The Zimbabwean short term insurance industry is made up of direct underwriters (insurance companies), reinsurers, intermediaries (brokers and agents) and ancillary service

providers (eg. panel beaters). The study is however focussed on the short term (non-life) direct underwriters, numbering twenty six.

3.5.2 Study Sample

Given that all the middle and senior level employees in the short term insurance industry formed the sampling frame for the study, it was practically impossible to get information from all these employees. This would have taken far too long and be expensive, hence a deemed representative sample of forty questionnaire respondents were chosen. Hence the research used the sampling approach, defined by Walliman (2011) as “the process of selecting just a small group of cases from out of a large group”.

Purposive sampling method, which is non probabilistic was used where companies were grouped by the research variables (market share, reinsurance, claims and commissions) Quota samples were then chosen from the subpopulations. A sample of fifteen companies from which forty respondents were chosen used and this sample (forty) was big enough to be representative in the context of time limitations and more units may not have statistically improved the results (Saunders, Lewis, & Thornhill, 2008).

3.6 Data collection Methods

3.6.1 Data collection instrument

Given the positivism approach of the research, surveys were used to collect primary data using a questionnaire. This was done with full appreciation of the disadvantages posed by questionnaires and the advantages foregone with the other methods like interviews with for example allows further probing of issues to get a clearer picture of the subject of study. This method was found to be flexible, with a structured format,

easy and convenient, cheap and easy to administer while at the same time removing the personal influence of the researcher (Walliman, 2011). The convenience allowed the mostly senior personal of the targeted organisations to fill the questionnaire at their own convenient time.

3.6.2 Questionnaire design

Questionnaires can be structured and unstructured, with the structured questions making it easy for data coding and analysis. This allowed the respondents to quickly complete and return the questionnaires. Notwithstanding this, the researcher was fully aware that design restricted freedom of expression and restricted respondents to qualify their responses (Walliman, 2011). The questionnaire used the liket scale approach were respondents would indicate their level of agreement on a certain topic of the subject.

3.7 Research Procedure

3.7.1 Pilot study

A pilot study is defined by Saunders, Lewis, and Thornhill (2008) as “a trial collection of data to detect weaknesses of design and instrumentation and provide proxy data for selection of a probability sample”. As such, the questionnaire was first send to a selected five targets who gave helpful feedback used to detect inherent weaknesses of the questionnaire and the validation of the questions.

3.7.2 Questionnaire Administration

Given that all the research targets had ready easy access to internet connection, the questionnaire was exclusively districted through emails. This simplified the process of

sending questionnaires to the subjects. Follow ups were also easily done, making the while process inexpensive.

3.7.3 Data Analysis

The research used the SPSS statistical package for both primary and secondary data analysis. The statistical tests carried out were of descriptive and of inferential nature. The former revealed distribution while the latter allowed inferences to be made about the population of study. The multivariate approach was used where business value (dependent variable) was regressed against five independent variables including reinsurance, market share and claims. Results were presented by way of tables, graphs and pie charts for easy of comprehension.

Regression Model specification:

$$\text{Shareholders' Equity (Y)} = b_0 + b_1\text{Market share} - b_2\text{Reinsurance} - b_3\text{Claims} + b_4\text{Investment Income} - b_5\text{Commissions} + b_5\text{PBT} - b_6\text{Tax} + e$$

3.8 Research Limitations

Some elements of the secondary data (quarterly financial performance) which formed the basis of regression analysis were not complete with respect to some companies under study. Some companies for example did not provide for tax even where they had made a profit and liable for corporate income tax. The researcher had to apply the standard income tax rate of 27.5% to standardise the performance data.

Further, secondary data was not available for some companies whose primary data had been collect, breaking the continuity between primary and secondary data. That continuity was mainly a result of company closures and new company formations during the period of study, April 2009 to March 2013. The researcher had to replace those few

companies with other companies whose research variables (market size, reinsurance, claims and commissions) were comparable.

3.9 Ethical Considerations

In carrying out the research, the researcher is fully aware of the ethical considerations that may put both the researcher and the university in a compromised position should there be failure to abide by certain ethical standards (Roberst, Wallace, & O'Farrell, 2009). For instance, while there could be access to assistance from junior company staff on the retrieval and analysis of industry data, a commitment is meant to make minimal use of such assistance so as to ensure the overall research work remains own work.

Informed consent will be sought from Managing Directors of sample companies. Confidentiality on individual and company data will be greatly adhered to. Proper debriefing of the participants and post study sharing of the results will be contacted.

3.10 Chapter Summary

The research was quantitative and positivism in approach and employed a survey approach where a questionnaire was used to collect primary data from a selected sample of respondents. Both primary and secondary sources of data were used invariably in a way that sought to answer the research objectives and questions.

CHAPTER FOUR

RESULTS PRESENTATION, ANALYSIS AND DISCUSSION

4.1 Introduction

This chapter presented the research findings and ensuing analysis of the results. The results were presented in the format of graphs, pie charts and tables. The findings and analysis were based on both secondary and primary data and regression analysis was carried out using secondary data. The analysis used the concept based framework were questions relating to a given concept were grouped together for easy of analysis.

4.2 Response rate

A total of forty questionnaires were send to fifteen selected short term insurance companies, mainly targeting Managing Directors (CEOs), General Managers (Operations) and General Managers (Finance) or their equivalents. A total of thirty questionnaires were returned giving a satisfactory response rate of 75%. Thirteen companies had at least two questionnaires returned giving a reasonable return rate per company and some assurance on the representativeness of the sample.

4.3 Demographics

The distribution of the respondents by gender was 75% and 25% males and females respectively. The bias towards male respondents was inevitable given the industry bias were only 20% females filled up the three top ranking jobs (Managing Director, General

Manager Finance and General Manager Operations) of the companies under study. Given that the study targeted those in senior positions, majority of the respondents were aged between 35 – 44 years (35%) and 45 – 54 years (40%) and the balance fairly distributed below 35 years and above 54 years. Most (60%) had served their current organizations for more than ten years while 45% had been in the short term insurance industry for more than fifteen years.

4.3.1 Capital management and reinsurance decision making roles

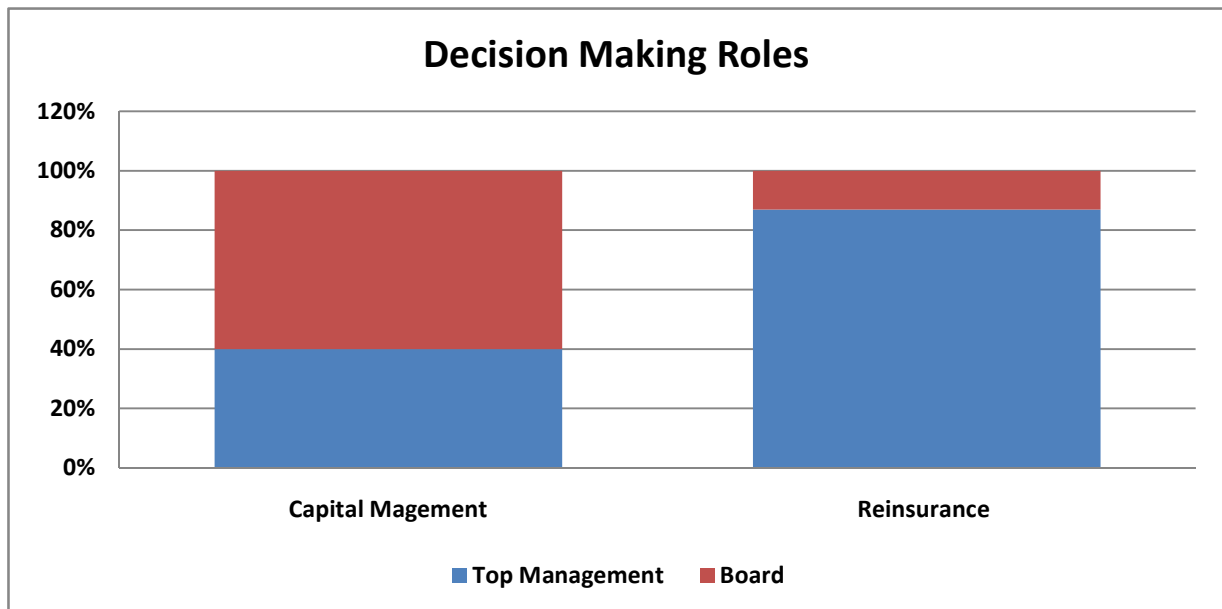


Figure 4.1: Decision making roles

The Board of Directors were shown to be more involved on capital management decisions (60%) than they were involved on reinsurance decisions (16%) of insurance companies. This was despite the fact that 65% of the respondents viewed reinsurance as a very important aspect of an insurer’s capital structure and risk management tool. Relegating such an important risk management function of an insurer to senior management without close supervision of the board (Risk and Audit Committee) may spell financial ruin to insurers. This also falls short of the provisions of the King 3

Report's guidelines on corporate governance, requiring that risk management (in this case reinsurance) be a major role of the company's board of directors (Institute of Directors in South Africa, 2009). Further, all the respondents showed reinsurance would have helped reduce the case of company closures since dollarization, with 60% saying the closures were due to lack of proper reinsurance advice and purchase of inadequate reinsurance covers. The technical nature of insurance and reinsurance may have seen company boards members relegating reinsurance functions to the management who ought to have technical knowhow of their business functions.

4.4 Functions of reinsurance

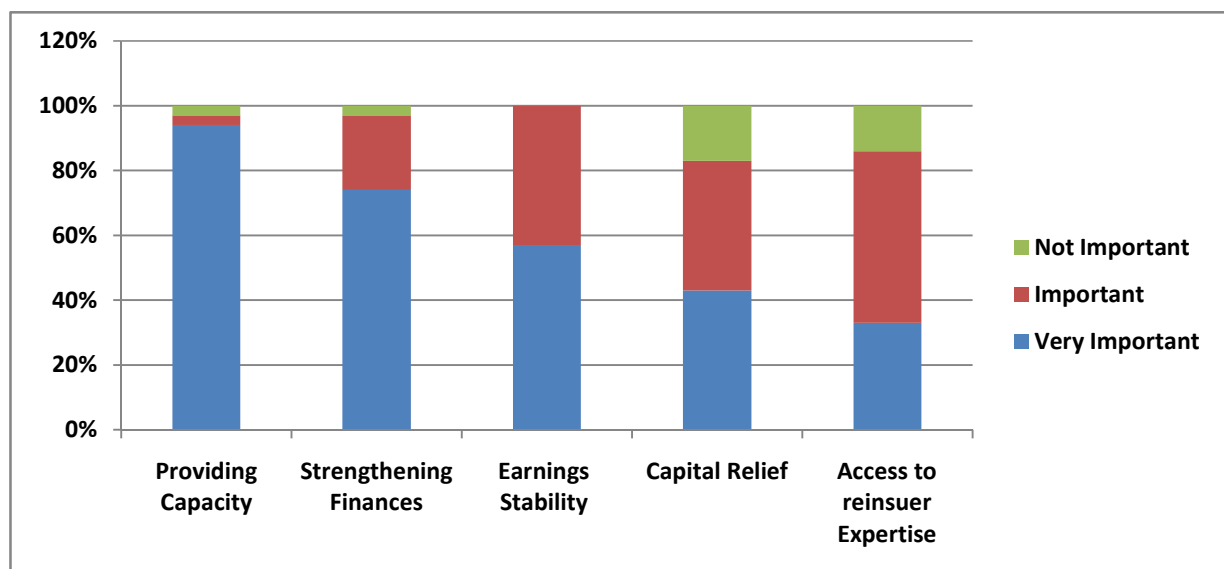


Figure 4.2: Reinsurance Functions

Of the four functions of reinsurance (Bellerose & Paine, 2003) in figure 4.2, the capital related functions; providing underwriting capacity and strengthening of finances ranked the highest as they were viewed to be very important by 94% and 74% of the respondents respectively. The importance of reinsurance as providing capacity and strengthening of finances has to be put in the context of the period preceding dollarization in 2009 which saw the erosion of insurance companies' balance sheets in

the hyperinflationary environment. This was exacerbated by the fact that the regulations requires that short term insurance companies to invest a minimum 35% of their investable funds in prescribed asserts (then mostly government securities) and not more than 20% in immovable property. Hence post dollarization (period of study), companies are still building their balance sheets and heavily rely on reinsurance to provide the much needed financial capacity to underwrite business.

4.5 The business value of reinsurance in relation to shareholder value

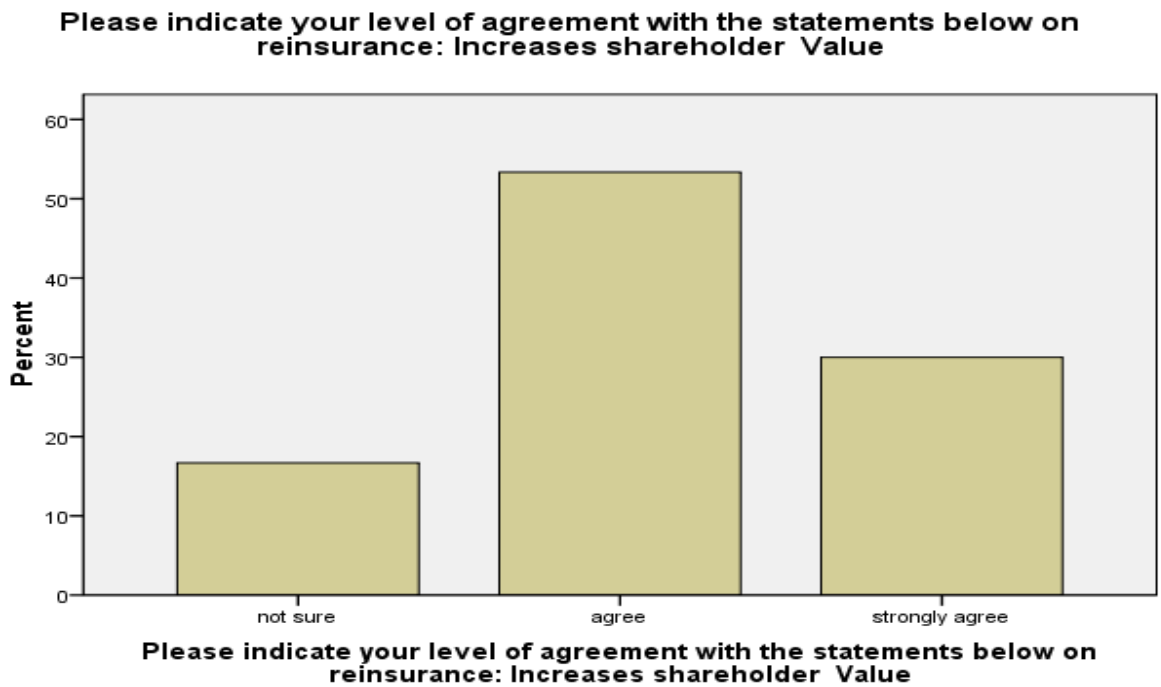


Figure 4.3: Reinsurance and shareholder value

While there are some dissenting voices on the explicit role of reinsurance on increasing shareholder value, of the respondents, 30% strongly agreed that reinsurance has business value to insurance company shareholders while 53% agreed and 30% were

not sure. The various ways, through which reinsurance was mainly seen as adding value were through earnings stabilisation, balancing of results, providing tax shield and reducing risk exposure.

4.5.1 Earnings stability and business value

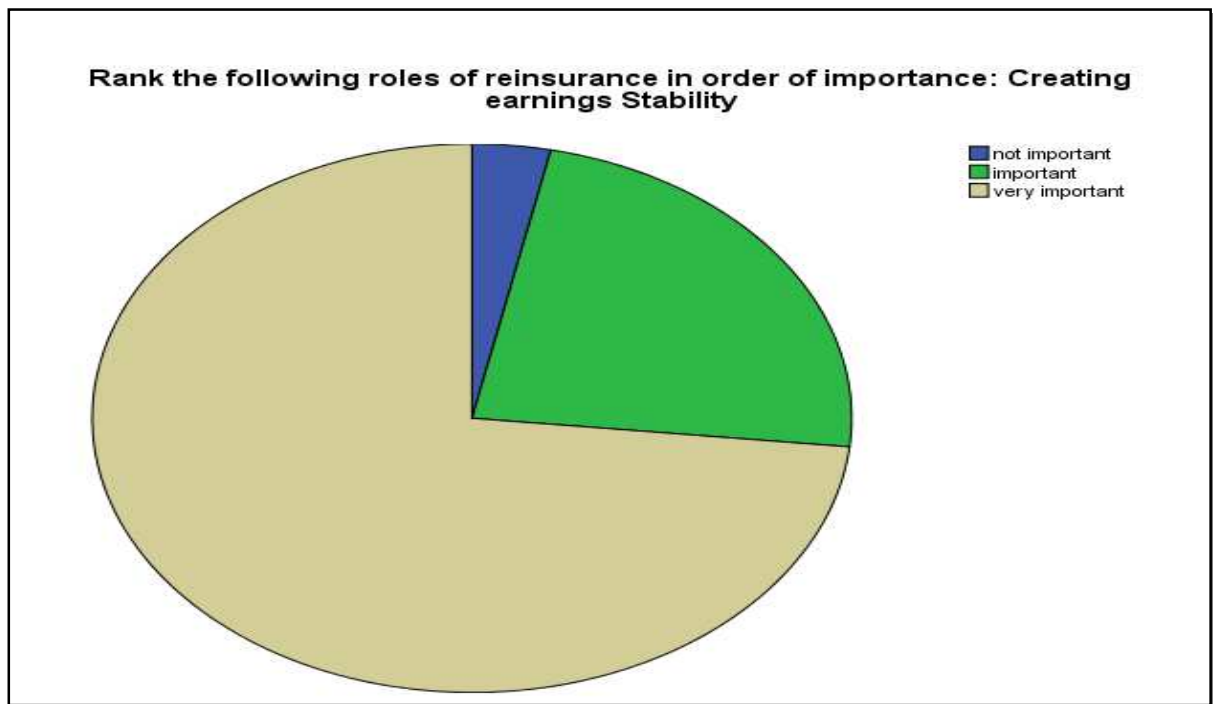


Figure 4.4: Earnings Stability

Reinsurance was viewed by 74%, 23% and 3% as very important, important and not important in enhancing stability of insurer financial results. This finding agreed with literature on functions of reinsurance which said reinsurance reduces insurers' earnings volatility as the net loss that the insurer pays per a single loss event is limited to a predetermined limit (deductible) through their reinsurance agreements (Bellerose and Paine, 2003; Martin, Kelly and Will, 2009; Scordis and Barrese, 2007). The link between earnings stability is further upheld in the much publicised Gordon's Dividend Discount

Model on firm valuation, were firms with growing and much stable expected future dividend income streams assume high valuations.

4.5.2 Reinsurance and transactional costs

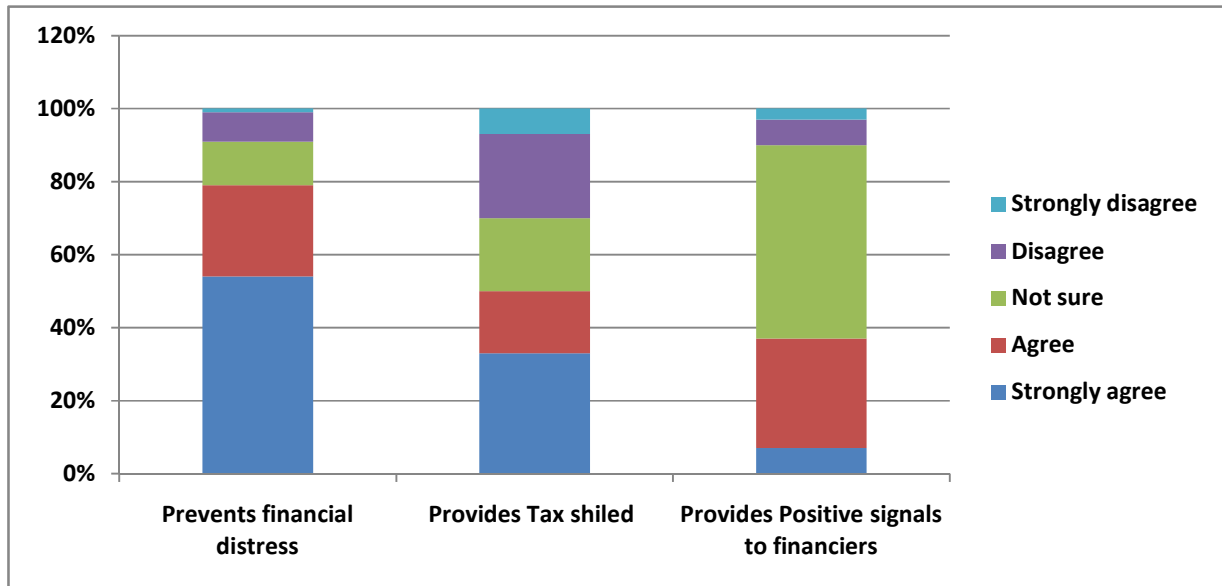


Figure 4.5: Transactional costs

Reinsurance allows an insurer to recover a portion of paid losses from their reinsurers based on the reinsurance programs in force. This eases financial distress to an insurer as they would share the financial burden with their reinsurers (Froot, 2007; Woodring, 2010). This was strongly supported by the findings as 54% of the respondents saw reinsurance as an effective way of reducing potential financial distress associated with failure to meet technical liabilities. The insurance market has seen a number of eventful company closures, some of which may have been prevented by proper reinsurance arrangements.

Reinsurance is a tax deductible expense under Schedule 8 of the Zimbabwean Incomes Act. This may effectively reduce the reinsurance expenditure for insurers whose premiums are tax exempt while at the same time reinsurance recoveries are also

exempted from tax. This was however mildly supported by the findings as 17% agreed and 23% strongly agreed to reinsurance providing tax shield while 36% were not sure and 24% actually disagreed. The complexities of insurance technical reserves taxation like IBNR claims and UPR provisions may in a way be obscuring inherent tax advantages arising from the use of reinsurance as a capital management tool.

4.6 Reinsurance and Capital Structure

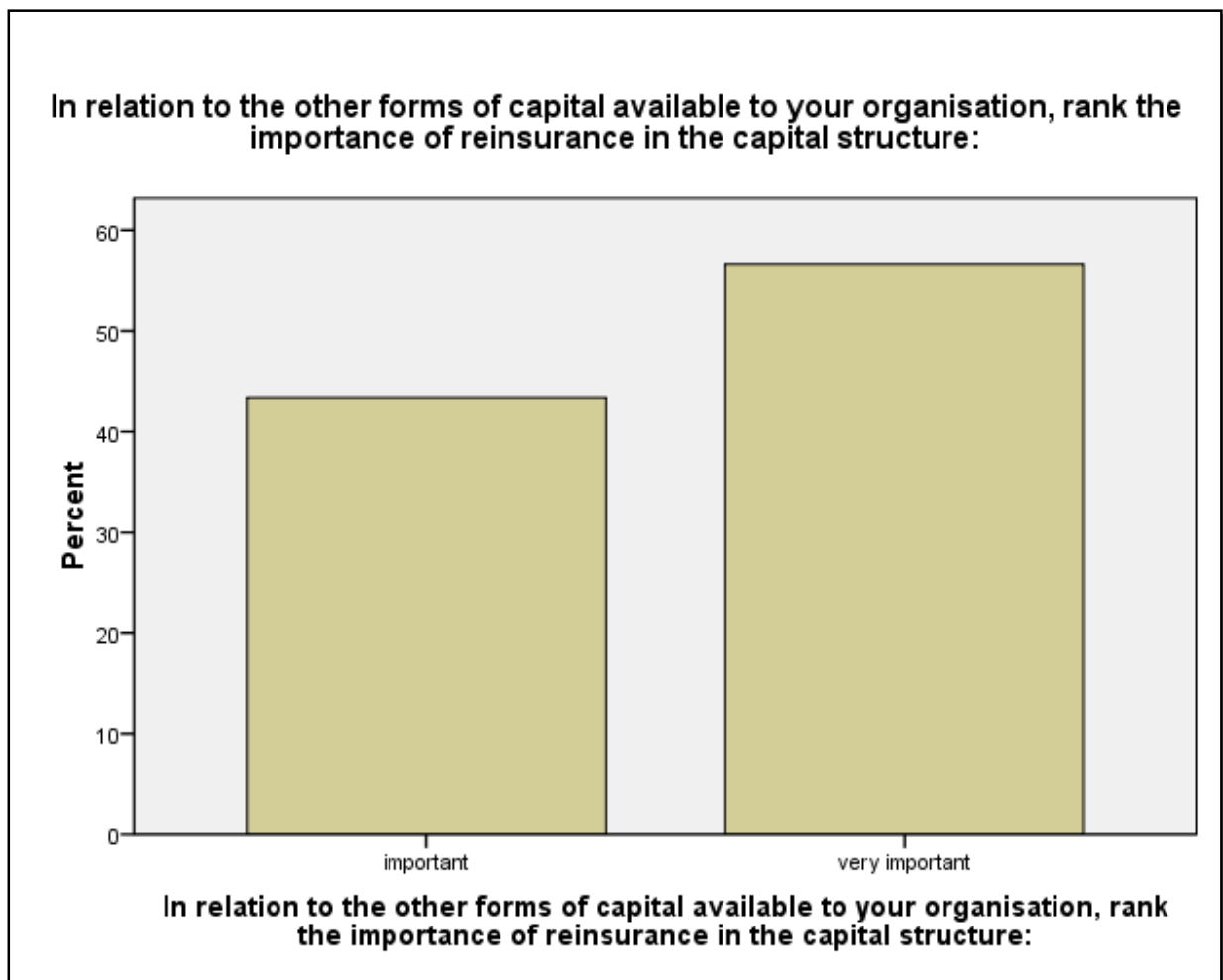
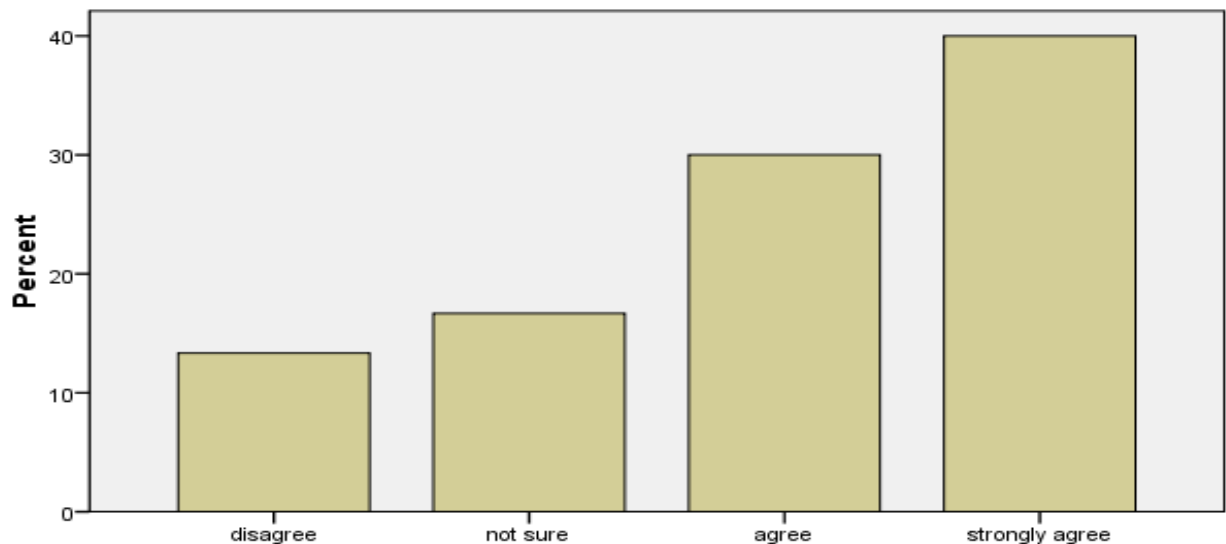


Figure 4.6 Capital structure

The role of reinsurance in the capital structure of insurance companies was widely supported with the results with 57% and 43% saying reinsurance is a very important and important aspect of an insurer’s capital structure respectively, while nil said reinsurance is not important. This was informed from the obtaining business environment fraught with liquidity challenges were the only other permissible form of insurer capital in Zimbabwe, equity, is limited. Many shareholders, who in the case of a number of insurance companies are individuals, are facing liquidity challenges when called to recapitalize their companies, leaving the organizations with reinsurance as the next best available alternative. This has however seen many insurance companies becoming mere frontiers of risk to reinsurers, distorting the insurance risk spreading chain.

4.6.1 Capital mix

Regional and international insurance industry regulations are moving towards Solvency II and its variations. Indicate your level of agreement on how reinsurance will assist your company to comply with provisions of such? Reduced required capital



Regional and international insurance industry regulations are moving towards Solvency II and its variations. Indicate your level of agreement on how reinsurance will assist your company to comply with provisions of such? Reduced required capital

Figure 4.7: Capital Mix

While the results were not conclusive as to the right capital mix, given the varied circumstances of insurance companies under study, the results supported the notion that reinsurance reduces required capital. It was noted that 30% and 40% agreed and strongly agreed that reinsurance reduces required capital while 13% and 17% disagreed and were not sure respectively. Similarly, 50% and 43% of the respondents recon that improving regulatory solvency margins is an important and very important consideration in buying reinsurance while 7% say it is not important. Reinsurance improves solvency ratios by creating earnings stability and reducing the net premium retained for the insurer's net account (aggregate risk) as the insurer buys protection from reinsurers (Zanjani, 2002; Shah and Hole, 2004; Tautphoeus, 2009).

4.7 Reinsurance demand variables

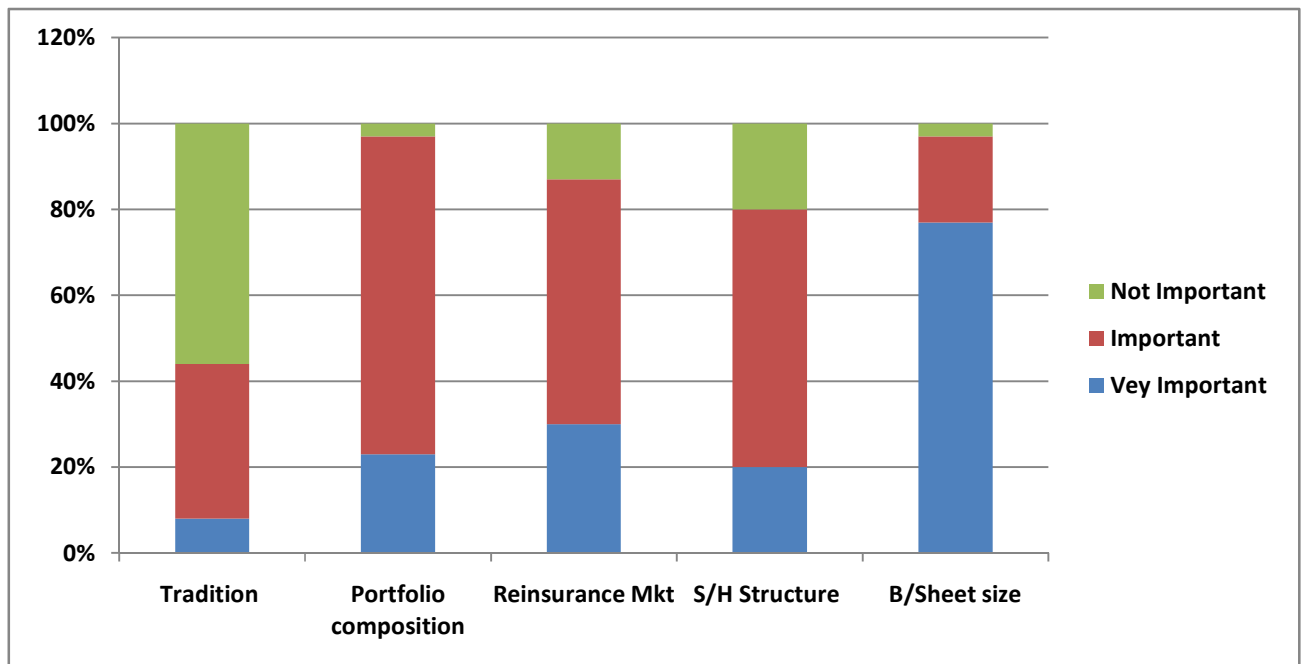


Figure 4.8: Demand Variables

The findings showed the balance sheet size (assets and retained profits) is the most important demand variable with 77% and 20% saying it is very important and important

respectively in the their demand for reinsurance. Solvency ratio requirements placing a limit on the net premiums that an insurer can retain for their net account means that low capitalized insurers will demand more reinsurance while the reverse is true (Scordis & Barrese, 2007).

Portfolio composition by class was the second ranked demand variable with 23% and 74% saying it is very important and important respectively. High asset value classes of insurance like fire and engineering (often with complex risks) tend to require more reinsurances as the sums insured of such classes tend to be above the underwriting capacity of insurers. This is also supported by secondary data from the IPEC's quarterly reports were property classes of insurance; Fire and Engineering had total reinsurance ratios of more than 65% and 50% respectively for 2011 and 2012 reporting periods, compared to low reinsurance ratios of less than 30% for motor business in the same period.

The findings from the Zimbabwean short term insurance market did not support the notion in some literature that insurers buy reinsurance as a long standing tradition, just because other managers buy it, without viewing it as a strategic risk management tool that adds to business value (Scordis and Barrese, 2007; Swiss Re, 1996 and Scharfstein & Stein, 1990). Tradition had the highest rate (56%) of respondents saying it was not an important variable for them demanding reinsurance, seeing balance sheet size, the prevailing reinsurance market (hard or soft) and portfolio size as the more important factors shaping their demand for reinsurance.

4.8 Setbacks of reinsurance

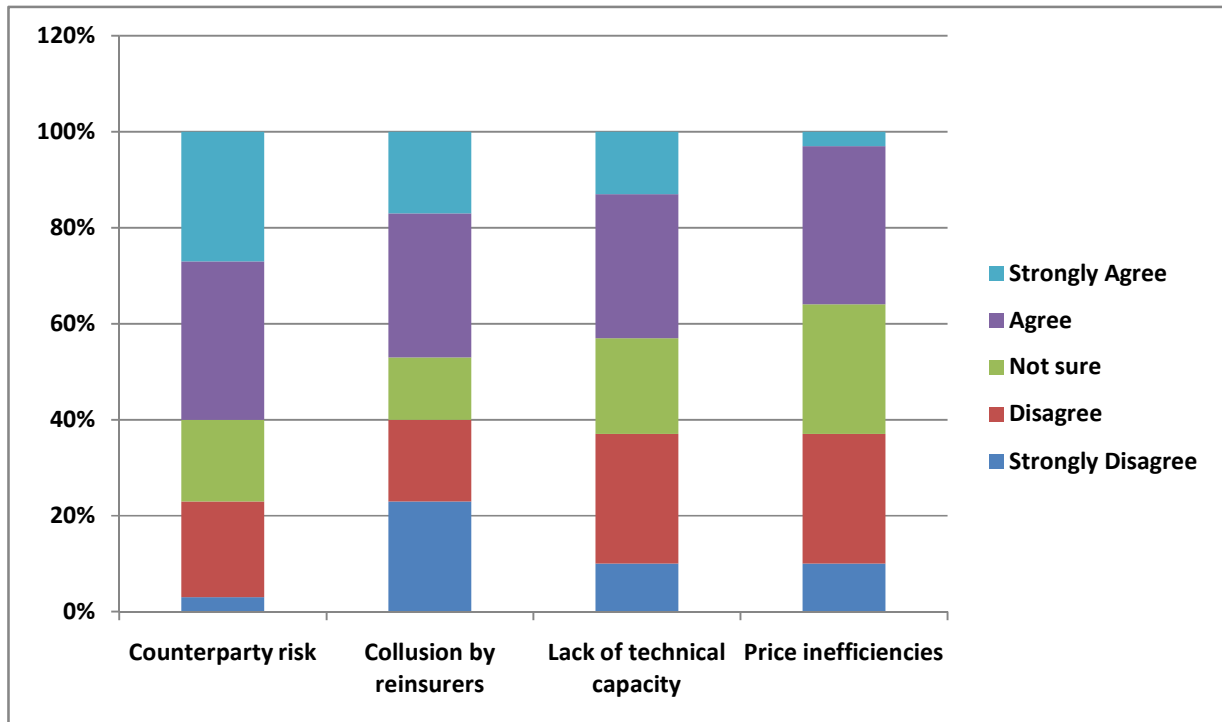


Figure 4.9: Setbacks of reinsurance

While reinsurance has its fair position in the capital structure of local insurance companies, a number of setbacks of reinsurance are inherent. Counter party (credit risk) was seen as the biggest drawback of reinsurance with 33% and 27% agreeing and strongly agreeing respectively that buyers of reinsurance face counter party risks. Insurers carry the insolvency risk of their reinsurers and failure of the reinsurer to meet their portion of a reinsured liability does not exonerate the insurer's liability to their clients, as reinsurance is a third party transaction to the direct insured (Cole & McCullough, 2006; Swiss Re, 1996).

Collusion by reinsurers was also seen as the second major drawback of the local reinsurance market. This finding is supported by the general market practice where reinsurers often set minimum premium rates and standard treaty renewal terms at every renewal period. Minimum premium rates and maximum commission rates have also been set by reinsurers, with the support of the regulator, IPEC. The collusive behavior has been justified on the basis of wanting to guarantee the viability of the industry.

4.9 Regression Analysis

Further, the study looked at short term insurers' business value by using shareholders' funds as the dependent variable and various factors as the independent variables. Regression analysis was done on secondary data to dissect parallels with the primary findings.

Table 4.1: Analysis of Variable regression results

ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	9.333E7	7	1.333E7	13.251	.000 ^a
	Residual	9.558E7	95	1006105.967		
	Total	1.889E8	102			

a. Predictors: (Constant), Tax, Net Incurred Comm., Reinsurance, Investment income, PBT, Market share, Net Inc. Claims

b. Dependent Variable: Share Holders' Equity

The significance of the regression model was 0.000 which is less than 0.05 thus the model explained the deviations in the dependant variable; R squared was significantly different from zero at 5% significance level. This inference concurs with the goodness of fit parameter R squared of 69.4% in table 4.2 below. It implies that 69.4% of the dependent variable (shareholders funds) was explained by the various independent variables.

Table 4.2: Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.703 ^a	.694	.657	1003.04834

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.703 ^a	.694	.657	1003.04834

a. Predictors: (Constant), Tax, Net Incurred Comm., Reinsurance, Investment income, PBT, Market share, Net Inc. Claims.

Table 4.3: Results of multiple regression analysis for business value for short term insurance companies.

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	54.756	152.540		.359	.720		
	Market share	.381	.107	1.722	3.552	.001	.023	44.117
	Reinsurance	-.316	.132	-.738	-2.382	.019	.055	18.030
	Net Inc. Commissions	-.374	.196	-.476	-1.911	.059	.086	11.631
	Investment Income	.646	.431	.215	1.500	.137	.258	3.874
	Net Inc. Claims	-.568	.204	-.533	-2.782	.007	.145	6.905
	Profit Before Tax	.969	.580	.423	1.670	.098	.083	12.062
	Tax	-.653	1.808	-.082	-.361	.719	.102	9.772

a. Dependent Variable: Shareholders' Equity (S/E)

$$\text{Shareholders' Equity (Y)} = 54.756 + 0.381(\text{Market share}) - 0.316(\text{Reinsurance}) - 0.374(\text{Claims}) + 0.646(\text{Investment Income}) - 0.568(\text{Commissions}) + 0.969(\text{PBT}) - 0.653(\text{Tax}) + e$$

The results portrayed in table 4.3 Profit before tax had the most positive relationship effect on shareholder value followed by investment income. Unexpectedly, market share

(revenue) had the list influence on shareholders' funds, coming behind investment income. More revealing was the fact that reinsurance expenses were negatively correlated with shareholder value, a finding which seems to go against various literature on reinsurance saying reinsurance adds to business value (Kreutzer, 2012; Swiss Re, 2004; Shah & Hole, 2004; Scordis & Barrese, 2007). Expectadly, net incurred claims, followed by net commissions paid had the highest negative correlations with business value.

4.10 Chapter Summary

The chapter presented and analysed the results, on a concept basis, the primary and secondary data findings on the business value of reinsurance as a capital management tool. Comparatives were drawn between primary data and secondary data in the context of available literature. Some findings from secondary data varied from some of the literatures' posits and the researcher's expectations. The next chapter covers the conclusions and recommendations of the study.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presented the conclusions (findings) drawn from the research, which sought to find the business value of reinsurance as a capital management tool for Zimbabwean short term insurance companies. Managerial recommendations are also proffered together with areas of potential further research. The layout was concept based and sought to make conclusions on all the research objectives.

5.2 Research Conclusions

5.2.1 Decision making roles

A number of insurance company boards of directors were found to delegate the very important risk management function of reinsurance to management with no evidence of close supervision. This exposes organization to ruin probability should they incur an adverse claims experience (Froot, Venter, & Major, 2002). Companies' non executive directors were however found to be more involved on capital management decisions, implying that the role of reinsurance as a capital management tool may not be fully impressed at company board levels.

5.2.2 Drivers of insurer value

The regression of the dependant variable; business value (shareholders' equity) against independent variables including reinsurance yielded some interesting results, both expected and unexpected.

5.2.2.1 Reinsurance

First, against the researcher's expectation, reinsurance had a weak negative correlation with share holders' equity. This seemed to annul the hypothesis that companies that rely heavily on reinsurance will over time, tend to have superior performance and deliver higher shareholder value. A look at the reinsurance ratios of the Zimbabwean short term insurance companies showed that insurers ceded a greater proportion of their premiums to reinsurers, more than the international standards. Insurers ceded 60% in 2009, 45% in 2011, 48% in 2011 and 2012 and 50% in the first half of 2013. The average of the period was 49% against an international standard of 20% (SwissRe, 1997). This meant that the reinsurance expenditure may have been too high, leaving insurance companies with little income to cover their operating expenses and profit margins.

5.2.2.2 Other independent variables

Market share was also shown to have a very weak positive correlation with shareholders' equity leading the researcher to conclude that revenue does not necessarily convert into profits for insurance companies. The other intermittent factors between revenue and profits like reinsurance (as above), claims and commission expenses and investment income have to be properly managed for higher insurer business value. As expected, claims expenses had the highest negative correlation with shareholders' equity as the most apparent outflow of an insurance company.

Investment income had the highest positive correlation with shareholders' equity, carrying the day for a number of insurance companies who made losses from their core business of insurance. Hence the research findings led the conclusion that investment income is significant for attaining with business value, more so when the business model is supported by optimal reinsurance arrangements easing insurer cash flows for investments.

5.2.3 Reinsurance setbacks

While the primary data was unequivocal as to the views of respondents on the strategic role of reinsurance as a capital management tool, the results showed insurance companies are worried that reinsurance exposes them to counterparty risks given that reinsurance is a third party transaction to the primary insured. Hence reinsurers ought to give adequate assurances to their clients that they would be able to meet their obligations to their reinsurance clients in the time of need.

5.3 Research Proposition validation

The research proposition was that reinsurance is an effective capital management tool and over time, insurance companies that rely on reinsurance, as shown by higher reinsurance ratios, tend to show superior financial performance over those who use less reinsurance. On testing this proposition using secondary data (financial reports), reinsurance among other independent variables was regressed against shareholders' equity, the dependent variable. The results led to the rejection of this proposition as a negative correlation was observed between reinsurance and shareholders' funds.

5.4 Recommendations

5.4.1 Reinsurance training

Insurance companies should ensure their board of directors have proper technical training on insurance seeing that much of the concepts are technical in nature. This will ensure relevant and effective oversight of the board, particularly on the use of reinsurance as a capital management tool, avoiding the risk of balance sheet erosion from adverse claims experience. Further, the results of the study also showed that even

some senior managers of insurance companies still need some training in reinsurance, as some recent company failures may have been averted by proper use of reinsurance as a risk management tool. Hence, the Insurance Institute of Zimbabwe (IIZ), the industry body responsible for training must also tailor make some training programs for senior practitioners as much attention has been given to fresh practitioners.

5.4.2 Optimal use of reinsurance

The negative correlation between reinsurance expenditures; in the context of above international standards reinsurance expenditures need insurance companies to explore the optimal capital mix levels. While reinsurance is a vital component of the insurer's tool kit, shareholders need to adequately capitalise their companies so as to avoid burdening their companies with non value adding excessive reinsurances. The first line of defence for insurance companies should be shareholders' funds only supported by reinsurance and avoid insurance companies becoming mere risk frontiers to reinsurers.

It was also noted that despite inadequate capitalisation for most entities, some companies reported high dividend payout ratios. Hence it may be optimal for shareholders to retain more funds into the business until such a point when their balance sheets would have grown to the extent of being able to minimise sub optimal reinsurance expenditures.

5.4.3 Shareholding structures

From a regulatory point of view, many of the insurance companies were observed to be wholly owned by single (or a few) individuals. This may limit the ability of the companies to raise equity capital in times of need. Hence the regulator may consider putting shareholder limits particularly for individuals. This may increase uptake of shareholding

by corporate shareholders who should have greater financial capacity on top of supposed improved corporate governance.

5.4.4 Capital structure

Further, the local insurance industry regulations prohibit insurance players to use debt as part of their capital. In the context the obtaining economic environment in Zimbabwe characterised with liquidity constraints. While the debt market is also limited in its capacity, allowing insurance companies to use long term debt may increase their options for capital raising initiatives. Further, unlike reinsurance which is contingent upon the occurrences of reinsured events with no immediate cash flow relief to the insurance company, debt capital avails immediate liquidity to the borrower.

5.4.5 Investment regulations and guidelines

Seeing that investment income had a higher positive correlation with shareholders' equity, it is recommended that insurance industry investment regulations must be flexible enough to allow insurance players to maximum their investment income, which should ultimately benefit the consumers through discounted premium rates and financially sound insurance industry. Further, the insurance industry regulator, IPEC recently came out with investment guidelines for insurance companies. Notable was that short term insurance companies are now prohibited from investing more than 10% of their investable funds in immovable property. Given that property investments are generally associated with long term sustainable returns; this guideline is not supported by the findings and conclusions of this research. Hence the insurance industry regulator may consider revising the regulations and guidelines so as to reduce the constraints on potential investment income.

5.4.6 Business Model redefining

Given that market share (revenue) was weakly correlated with business value, while claims were highly negatively correlated with business value, insurance companies may have to redefine their business models. The current models seem to favour higher market shares, often at the expense of the quality of the business (higher claims ratio). Hence insurance companies may find value in emphasising on reducing the effect of value destroyers (claims) while at the same time strengthening value creators (investment income).

5.4.7 Perception management

The seemingly lack of confidence on reinsurance by insurers, regarding counterparty risks requires proper perception management given that reinsurance is nothing more than a promise to compensate the reinsured for future eventualities. Reinsurers may consider the use of credit rating agencies, whose ratings should help instil confidence as to the credit worthiness of reinsurers. It was noted that of the nine local reinsurance companies, only three rated by GCR of South Africa and non by the more acclaimed international rating agencies like AM Best.

5.5 Areas for further study

Given the rejection of the hypothesis that insurance companies that heavily rely on reinsurance as a risk management tool tend to have superior value (shareholders' equity), following non support from the secondary data results calls for further research. Insurance literature and primary results had agreed on the vital role of reinsurance on business value. Hence a study on the optimal capital structure for insurers, combining reinsurance and other sources of capital may help unearth the true value of reinsurance to business value.

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Appendix A – Research Introductory e-mail

Dear Sir/Madam

RE: UZ GSM STUDY RESEARCH

I am a University of Zimbabwe, Graduate School of Management student, studying towards the attainment of a Masters of Business Administration (MBA) degree. In partial fulfilment of the requirements of the degree, I am conducting a research entitled “**An assessment of the business value of reinsurance as a capital management tool by Zimbabwean short-term insurance companies**” The research requires me to collect data from Zimbabwean short term insurance companies. The collected information will be used solely on this research and will be kept in strict confidence.

Kindly spare a moment of your precious time to supply me with an honest response so that the ultimate report reflects the role of reinsurance as a capital management tool in the Zimbabwean short term insurance industry. Also note that there are no wrong answers to this exercise. You may contact me on +263 773 371 433 or ushe@tropicalre.co.zw for any clarification.

Thanking you in advance.

Yours faithfully,

Ushe Mungaraza



GRADUATE SCHOOL OF MANAGEMENT

UNIVERSITY OF ZIMBABWE

6 Langham Road
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05 July 2013

TO WHOM IT MAY CONCERN

Dear Sir/Madam

RE: ACADEMIC RESEARCH BY MR USHE MUNGARAZA (R113085H)

This letter serves to confirm that Mr Mungaraza is a bona fide Master of Business Administration (MBA) student at the Graduate School of Management, University of Zimbabwe. He is carrying out an academic research in partial fulfillment of the requirements of the MBA degree programme.

We kindly request you to provide him with the information that he requires. Please be assured that the Graduate School of Management upholds high levels of confidentiality and ethical standards in conducting research.

Thank you.

N. Kaseke

GRADUATE SCHOOL
OF MANAGEMENT
UNIVERSITY OF ZIMBABWE

**N. KASEKE (DR)
DIRECTOR, GRADUATE SCHOOL OF MANAGEMENT**

Apendix C – Questionnaire

UNIVERSITY OF ZIMBABWE

Research Questionnaire

An assessment of the business value of reinsurance as a capital management tool by Zimbabwean short-term insurance companies.

USHE MUNGARAZA

7/4/2013

1. **Who makes the capital management decisions in your organisation**

2. **Who makes the reinsurance purchasing decisions in your organisation**

3. **Rank the following roles of reinsurance in order of importance:**

	Not Important	Important	Very important
Creating earnings Stability	[]	[]	[]
Strengthening finances	[]	[]	[]
Providing capacity	[]	[]	[]
Capital Relief	[]	[]	[]
Access to reinsurer expertise	[]	[]	[]

4. **Rank the following considerations in buying reinsurance in order of importance:**

	Not Important	Important	Very important
Regulatory Solvency ratios	[]	[]	[]
Underwriting Capacity	[]	[]	[]
Financial Strength	[]	[]	[]
Catastrophe protection	[]	[]	[]
Balancing the result	[]	[]	[]
Tradition	[]	[]	[]
Portfolio composition	[]	[]	[]
The reinsurance market	[]	[]	[]
Balance sheet size	[]	[]	[]
Shareholding Structure	[]	[]	[]

5. Please indicate your level of agreement with the statements below on reinsurance:

	Strongly Disagree	Disagree	Slightly Agree	Agree	Strongly Agree
Reduces cost of capital	[]	[]	[]	[]	[]
Increases shareholder Value	[]	[]	[]	[]	[]
Provides Tax shield	[]	[]	[]	[]	[]
Allows a company to charge higher premium rates	[]	[]	[]	[]	[]
Provide positive signals to other financiers	[]	[]	[]	[]	[]

6. In relation to the other forms of capital available to your organisation, rank the importance of reinsurance in the capital structure:

Not Important [] Important [] Very important []

7. The following stakeholders of your organization have been positively affected by your company's reinsurance purchase decisions:

	Strongly Disagree	Disagree	Slightly Agree	Agree	Strongly Agree
Employees	[]	[]	[]	[]	[]
Clients	[]	[]	[]	[]	[]
Regulators	[]	[]	[]	[]	[]
Competitors	[]	[]	[]	[]	[]
Reinsurers	[]	[]	[]	[]	[]
The general public	[]	[]	[]	[]	[]

8. (a) Insurance companies spend a great proportion of their income on reinsurance. In your view, is there a relationship between reinsurance expenditure and shareholder value?

Yes [] No []

(b) If your answer is no, what do you consider to be the reasons for lack of relationship between reinsurance and shareholder value.

9. Regional and international insurance industry regulations are moving towards Solvency II and its variations. Indicate your level of agreement on how reinsurance will assist your company to comply with provisions of such?

	Strongly Disagree	Disagree	Slightly Agree	Agree	Strongly Agree
Reduces required capital	[]	[]	[]	[]	[]
Smoothens results	[]	[]	[]	[]	[]
Reduces risk exposure	[]	[]	[]	[]	[]

10. Zimbabwe has seen a number of insurance company closures since dollarization. In your view, how may reinsurance have helped in these cases?

11. The following may be considered some of the drawbacks of reinsurance. Indicate your level of agreement with the following drawbacks or reinsurance programs that your organization has purchased?

Strongly	Strongly Disagree	Disagree	Slightly Agree	Agree	Agree
Price inefficiencies	[]	[]	[]	[]	[]

Counterparty/credit risks	[]	[]	[]	[]	[]
Lack of financial capacity	[]	[]	[]	[]	[]
Lack of technical capacity	[]	[]	[]	[]	[]
Collusion by reinsurers	[]	[]	[]	[]	[]
Lack of "Know Your Customer"	[]	[]	[]	[]	[]

12. What do you think local reinsurers need to do to enable your organization to be able to fully utilise reinsurance as a capital management tool?

13. What other alternatives do you think are available to your organisation in place of reinsurance?

Thank you for your precious time.

The end

Appendix D: Regression Secondary Data

Quarterly performance data “millions”										
	Quarter	Company	GPW	Reins.	NICla.	NICom.	Tech. Res.	PBT	Tax.	Ret. Pft
2010	Q2	Alliance	6.5	2.3	2.1	0.6	1.3	0.7	0.2	0.7
	Q3		9.3	3.3	3.9	0.8	1.7	0.7	0.2	0.7
	Q4		13.3	4.6	5.2	1.1	2.1	0.7	0.2	0.7
	Q1		5.1	2.1	1.7	0.3	0.7	0.3	0.1	0.9
2011	Q2		9.1	3.5	3.5	0.6	1.3	0.4	0.1	1.0
	Q3		12.2	4.6	5.4	0.9	2.0	0.5	0.2	1.1
	Q4		20.0	8.1	7.6	1.3	3.1	1.0	0.3	1.5
	Q1		6.9	2.5	2.6	0.6	0.3	(0.3)	(0.1)	1.0
2012	Q1		13.4	5.6	4.9	1.0	1.4	0.1	0.0	1.3
	Q2		17.7	7.8	4.9	1.0	2.4	0.5	0.2	1.3
	Q3		29.2	14.6	8.5	1.5	4.1	1.3	0.3	2.2
	Q4		6.9	3.6	1.8	0.2	1.2	0.4	0.1	2.2
			-	-	-	-	-	-	-	
2010	Q1	Allied	0.5	0.1	0.0	0.0	0.4	-	-	0.0
	Q2		0.7	0.1	0.0	0.1	0.7	0.4	0.1	0.0
	Q3		1.0	0.2	0.3	0.1	0.1	(0.1)	(0.0)	(0.1)
	Q4		0.4	0.2	0.1	(0.0)	0.0	0.1	0.0	(0.0)
2011	Q1		0.7	0.4	0.2	(0.0)	0.3	0.1	-	(0.0)
	Q2		1.3	0.5	0.2	0.0	0.3	(0.0)	(0.0)	(0.2)

	Q3		1.7	0.6	0.3	0.1	0.6	0.1	0.0	(0.1)
	Q4		0.2	0.1	0.1	(0.0)	0.2	0.1	0.0	0.0
2012	Q1		0.9	0.7	0.1	(0.0)	0.2	0.1	0.0	0.2
	Q2		1.6	0.9	0.1	(0.0)	0.8	0.4	0.1	0.2
	Q3		1.7	1.0	0.4	0.0	0.9	0.5	-	0.2
	Q4		0.5	0.1	0.1	0.0	0.5	0.1	(0.0)	0.3
			-	-	-	-	-	-	-	-
2010	Q1	Altfin	3.9	1.3	0.8	0.2	0.8	(0.1)	0.0	0.1
	Q2		5.7	2.1	1.4	0.1	1.3	0.0	0.0	0.1
	Q3		8.7	3.8	2.2	0.3	1.6	0.1	0.0	0.1
	Q4		3.0	1.2	0.7	0.2	0.4	0.1	0.0	0.1
2011	Q1		5.6	2.5	1.6	0.3	0.9	0.0	0.0	0.1
	Q2		7.9	3.4	2.1	0.4	1.5	0.2	0.1	0.2
	Q3		11.1	5.0	2.9	0.3	2.4	0.2	0.1	0.2
	Q4		4.2	1.6	1.0	0.1	0.8	0.2	0.1	0.3
2012	Q1		6.1	2.3	1.5	0.2	1.9	0.5	0.2	0.6
	Q2		7.4	2.8	1.5	0.2	2.2	0.3	0.1	0.6
	Q3		9.2	3.3	3.1	0.2	2.8	0.3	0.0	0.4
	Q4		2.0	0.7	0.7	0.1	0.4	(0.1)	0.0	0.2
			-	-	-	-	-	-	-	-
2010	Q1	C.B.Z	2.0	1.0	0.1	(0.0)	0.4	0.1	0.1	(0.1)
	Q2		2.5	1.3	0.4	(0.0)	0.4	0.1	0.0	(0.1)
	Q3		4.1	2.0	0.4	0.1	1.1	0.3	0.1	0.0

	Q4		1.3	0.8	0.1	(0.0)	0.3	0.0	0.0	0.0
2011	Q1		4.2	2.8	0.3	(0.1)	0.7	0.2	0.0	0.1
	Q2		5.1	0.3	0.5	(0.1)	1.2	0.3	0.1	0.2
	Q3		5.9	3.5	0.7	(0.1)	1.7	0.4	0.1	0.3
	Q4		3.3	2.6	0.3	(0.3)	0.5	0.2	0.1	0.4
	Q1		4.7	3.3	0.6	(0.3)	1.0	0.3	0.1	0.5
2012	Q2		5.9	3.8	1.2	0.6	1.2	0.2	0.1	0.5
	Q3		7.6	4.8	1.2	(0.3)	1.8	0.4	0.1	0.6
	Q4		3.6	2.7	0.3	(0.3)	0.6	0.1	0.0	0.6
			-	-	-	-	-	-	-	-
2010	Q1	Cell	8.0	6.2	0.6	0.1	0.7	0.1	0.1	0.7
	Q2		9.7	7.0	0.6	0.2	1.2	0.4	0.1	0.7
	Q3		11.9	8.1	1.5	0.1	1.7	0.3	0.1	0.4
	Q4		9.3	7.6	0.6	(0.1)	0.5	0.1	0.0	0.3
2011	Q1		11.1	8.2	1.2	(0.2)	1.3	0.6	0.1	0.6
	Q2		13.1	8.9	2.2	(0.2)	1.7	0.7	0.2	0.2
	Q3		15.3	9.5	2.5	0.1	2.7	1.5	0.5	1.0
	Q4		11.9	9.5	0.7	(0.4)	1.1	0.6	0.2	2.6
2012	Q1		14.6	10.1	1.1	(0.3)	2.1	1.1	0.3	3.2
	Q2		17.2	11.0	1.1	(0.3)	3.0	1.8	0.5	3.2
	Q3		19.3	11.6	2.7	(0.1)	4.2	2.6	0.7	3.0
	Q4		13.7	10.0	0.8	(0.3)	1.8	1.3	0.3	3.6
			-	-	-	-	-	-	-	-

2010	Q1	Champions	0.4	0.0	0.1	0.1	0.2	0.1	-	(0.1)
	Q2		0.6	0.0	0.1	0.1	0.1	(0.1)	(0.0)	(0.1)
	Q3		1.0	0.1	0.3	0.1	0.4	0.1	0.0	(0.1)
	Q4		0.4	0.0	0.1	0.0	0.2	0.1	0.0	(0.1)
2011	Q1		1.1	0.0	0.3	0.1	0.1	0.4	0.0	0.2
	Q2		2.7	0.7	0.4	0.3	0.9	0.7	0.2	0.6
	Q3		3.2	0.7	0.5	0.4	1.3	0.8	0.2	0.6
	Q4		1.0	0.2	0.0	0.1	0.7	0.2	0.1	0.3
2012	Q1		2.2	0.7	0.0	0.1	1.3	0.3	0.1	0.3
	Q2		2.7	0.9	0.0	0.1	1.6	0.2	0.1	0.0
	Q3		5.9	2.3	0.7	0.3	2.1	0.8	0.2	0.7
	Q4		2.1	0.8	0.0	0.1	1.0	0.1	0.0	0.8
			-	-	-	-	-	-	-	
2010	Q1	Clarion	0.4	0.1	0.0	0.0	0.2	0.0	0.0	0.2
	Q2		0.7	0.1	0.1	0.0	0.5	0.2	0.1	0.2
	Q3		1.2	0.3	0.0	0.1	0.5	0.1	0.0	0.1
	Q4		0.4	0.1	0.1	0.0	0.2	0.1	0.0	0.1
2011	Q1		1.0	0.1	0.2	0.1	0.3	0.1	0.0	0.1
	Q2		1.4	0.1	0.3	0.1	0.6	(0.0)	(0.0)	0.0
	Q3		2.0	0.2	0.5	0.1	0.9	0.1	0.0	0.2
	Q4		0.6	0.1	0.2	0.1	0.2	(0.1)	(0.0)	0.0
2012	Q1		1.4	0.1	0.3	0.1	0.7	0.1	0.0	0.1
	Q2		2.0	0.1	0.3	0.1	1.0	0.3	0.1	0.1

	Q3		2.8	0.2	0.7	0.1	1.1	0.0	0.0	0.0	
	Q4		0.9	0.0	0.2	0.0	0.3	0.1	0.0	0.0	
			-	-	-	-	-	-	-	-	
2010	Q1	Global	1.0	0.8	0.1	0.0	0.1	0.0	-	0.0	
	Q2		2.6	2.3	0.1	0.0	0.2	0.0	0.0	0.0	
	Q3		3.7	3.1	0.2	(0.0)	0.3	0.0	0.0	0.1	
	Q4		1.1	0.8	0.1	0.0	0.1	0.0	0.0	0.1	
2011	Q1		1.4	0.9	0.2	0.0	0.2	0.0	-	0.1	
	Q2		3.2	2.5	-	0.0	0.4	0.0	0.0	0.1	
	Q3		4.2	3.4	0.4	0.0	0.5	0.1	0.0	0.1	
	Q4		1.3	1.0	0.1	0.0	0.1	0.0	0.0	0.0	
2012	Q1		2.5	1.8	0.3	0.0	0.3	0.0	0.0	0.0	
	Q2		3.7	2.3	0.3	0.0	0.5	0.2	0.1	0.0	
	Q3		5.2	3.8	0.5	0.0	0.6	0.1	0.0	0.0	
	Q4		0.6	0.1	0.1	0.0	0.2	0.0	-	0.0	
				-	-	-	-	-	-	-	
2010	Q1		Heritage	2.1	1.2	0.2	(0.0)	0.6	0.0	-	0.1
	Q2			3.0	1.5	0.5	0.0	0.9	0.0	0.0	0.1
	Q3			4.2	2.1	0.8	0.0	1.1	(0.1)	(0.0)	(0.1)
	Q4	1.5		0.4	0.0	0.1	0.7	0.5	0.2	0.3	
2011	Q1	2.5		1.5	0.3	(0.0)	0.0	0.2	0.0	(0.0)	
	Q2	5.1		2.7	0.6	0.0	1.6	0.3	0.1	0.1	
	Q3	7.4		3.7	1.1	0.1	2.2	0.5	0.2	0.3	

	Q4		3.0	1.4	0.4	0.0	0.7	0.3	0.1	0.4
2012	Q1		5.5	2.9	0.9	0.0	0.1	0.3	0.1	0.4
	Q2		1.0	3.2	0.9	0.0	1.7	0.2	0.1	0.4
	Q3		9.4	4.4	2.0	0.2	2.5	0.4	0.1	0.4
	Q4		3.0	1.4	0.4	0.0	0.6	0.2	0.1	0.9
				-	-	-	-	-	-	-
2010	Q1	KMFS	0.1	0.0	0.0	(0.0)	0.0	(0.1)	-	(0.1)
	Q2		0.1	0.0	0.0	-	0.1	(0.2)	(0.1)	(0.1)
	Q3		0.3	0.0	0.0	-	0.2	(0.1)	(0.0)	(0.1)
	Q4		0.6	0.0	0.1	0.0	0.6	0.5	0.2	-
2011	Q1		0.5	0.0	0.1	-	-	0.2	0.1	(0.0)
	Q2		0.6	0.0	0.1	-	0.5	0.1	0.0	(0.0)
	Q3		1.5	0.1	0.2	-	0.7	0.1	0.0	(0.1)
	Q4		0.5	0.1	0.1	0.0	0.1	(0.0)	(0.0)	0.0
2012	Q1		0.5	0.1	0.2	0.0	0.4	0.0	0.0	0.1
	Q2		1.3	0.1	0.2	0.0	0.5	(0.1)	(0.0)	0.1
	Q3		1.4	0.2	0.4	0.0	0.7	(0.0)	-	(0.0)
	Q4		0.2	0.0	0.1	0.0	0.1	0.0	0.0	(0.0)
			-	-	-	-	-	-	-	-
2010	Q1	Nicoz	7.2	2.3	1.6	0.9	1.8	(1.2)	(0.4)	0.7
	Q2		10.3	3.5	2.6	0.9	2.3	(1.8)	(0.5)	0.7
	Q3		16.3	5.8	5.0	1.3	3.7	(1.4)	(0.4)	0.8
	Q4		5.2	1.8	3.1	1.4	1.2	0.2	0.1	1.5

2011	Q1		10.4	3.5	3.1	1.0	0.5	0.5	0.1	1.8
	Q2		14.1	5.2	2.1	1.0	2.3	(0.4)	(0.1)	1.0
	Q3		21.2	7.8	7.1	1.4	4.2	0.3	0.1	2.1
	Q4		6.8	2.6	1.2	0.6	1.4	0.3	0.1	2.0
2012	Q1		12.8	5.6	2.9	0.7	2.7	0.5	0.1	1.9
	Q2		16.4	7.1	2.9	0.7	3.3	0.3	0.1	1.5
	Q3		22.7	10.1	6.4	1.3	5.1	1.1	0.2	2.5
	Q4		8.8	3.0	1.4	0.7	0.9	0.4	0.0	3.3
			-	-	-	-	-	-	-	-
2010	Q1	Quality	0.2	0.0	0.0	0.0	0.1	(0.1)	0.0	0.0
	Q2		0.3	0.1	0.0	0.1	0.1	(0.1)	(0.0)	0.0
	Q3		0.8	0.1	0.1	0.1	0.3	0.1	0.0	0.2
	Q4		0.3	0.0	0.1	0.0	0.1	(0.0)	(0.0)	0.2
2011	Q1		0.8	0.1	0.1	0.1	0.1	0.2	0.0	0.4
	Q2		1.2	0.1	0.2	0.2	0.5	0.2	0.1	0.4
	Q3		1.6	0.2	0.4	0.3	0.7	0.2	0.1	0.4
	Q4		0.3	0.1	0.1	0.0	0.1	(0.0)	(0.0)	0.4
2012	Q1		0.7	0.1	0.2	0.1	0.3	(0.0)	(0.0)	0.4
	Q2		1.8	0.2	0.2	0.1	0.5	0.2	0.1	0.4
	Q3		1.7	0.2	0.4	0.3	0.7	0.3	0.0	0.6
	Q4		0.5	0.1	0.1	0.1	0.2	0.3	0.0	1.0
			-	-	-	-	-	-	-	
2010	Q1	RM	5.1	1.7	1.4	0.3	1.3	0.1	0.0	4.7

	Q2		7.5	2.4	2.3	0.4	1.9	0.2	0.1	4.4
	Q3		11.0	3.6	3.3	0.4	3.1	1.4	0.4	5.4
	Q4		4.3	1.2	2.3	1.1	1.0	0.7	0.2	6.3
2011	Q1		8.4	2.7	2.3	0.6	0.3	1.7	0.2	6.9
	Q2		12.2	4.5	3.6	0.8	3.2	1.3	0.4	2.3
	Q3		16.4	5.9	5.0	0.9	4.4	1.5	0.4	2.5
	Q4		6.6	2.1	1.6	0.5	1.3	0.2	0.1	4.3
2012	Q1		11.9	4.0	3.0	0.9	2.8	0.7	0.2	3.1
	Q2		15.5	5.8	3.0	0.9	4.6	1.9	0.6	3.1
	Q3		22.7	7.9	6.1	1.5	6.6	3.0	0.7	4.8
	Q4		8.4	2.6	2.0	0.6	1.6	1.3	0.8	5.5
			-	-	-	-	-	-	-	-
2010	Q1	Tetrad Hail	3.3	2.7	0.5	-	0.2	(0.1)	(0.2)	0.2
	Q2		3.2	2.5	0.4	-	0.9	0.3	0.1	0.2
	Q3		3.2	2.5	0.4	-	0.9	0.3	0.1	0.2
	Q4		4.0	2.9	1.1	1.3	0.4	0.2	0.1	0.2
2011	Q1		4.0	2.9	1.1	(0.6)	(0.6)	0.3	0.1	0.4
	Q2		4.0	2.9	(1.1)	0.6	0.5	0.4	0.1	0.5
	Q3		4.0	2.9	1.2	0.6	2.8	2.6	0.8	0.3
	Q4		4.2	3.0	(1.2)	0.5	0.4	(0.5)	(0.1)	0.3
2012	Q1		4.3	0.1	0.7	(0.5)	4.3	4.0	1.2	0.3
	Q2		4.7	1.5	0.6	(0.1)	0.6	0.2	0.1	0.3
	Q3		5.4	3.6	0.1	(1.0)	1.3	1.1	0.3	1.2

	Q4		1.3	1.0	0.5	(0.3)	0.3	0.2	0.0	1.4
			-	-	-	-	-	-	-	-
2010	Q1	Tristar	4.5	1.8	1.7	0.8	0.1	(1.9)	(0.1)	(0.6)
	Q2		8.1	4.3	1.9	0.7	1.0	(1.3)	(0.4)	(0.6)
	Q3		10.2	5.4	3.2	0.8	0.7	(1.9)	(0.6)	(1.1)
	Q4		2.6	2.0	1.4	0.2	1.0	0.9	0.3	(0.5)
2011	Q1		4.6	3.0	1.4	0.1	0.0	1.7	(0.0)	0.3
	Q2		7.0	4.5	(1.1)	0.6	0.5	0.4	0.1	-
	Q3		8.3	5.2	1.2	0.3	2.4	0.5	0.2	(0.9)
	Q4		3.3	1.9	0.4	0.1	0.5	0.7	0.2	(1.4)
2012	Q1		5.1	2.6	0.5	0.1	1.3	(0.3)	(0.1)	(1.2)
	Q2		7.1	4.2	0.5	0.1	1.1	(0.8)	(0.2)	(1.2)
	Q3		9.0	4.4	1.8	0.3	2.2	(0.6)	(0.0)	(1.6)
	Q4		2.6	1.3	0.1	0.0	0.9	(0.3)	(0.0)	(2.2)
			-	-	-	-	-	-	-	-
2010	Q1	Zimnat	7.4	4.9	0.8	0.1	0.7	(0.6)	(0.1)	1.0
	Q2		9.0	6.0	1.2	0.0	1.3	(0.3)	(0.1)	1.0
	Q3		11.3	7.2	1.9	0.1	1.6	(0.6)	(0.2)	0.7
	Q4		4.9	3.6	0.9	0.0	0.6	0.1	0.0	0.6
2011	Q1		8.2	5.6	0.9	0.0	1.3	0.3	0.0	1.8
	Q2		9.8	6.7	1.2	0.0	1.9	(0.1)	(0.0)	0.5
	Q3		12.9	8.5	1.8	0.0	2.5	(0.6)	(0.2)	0.1
	Q4		4.9	3.0	0.3	0.0	1.0	1.7	0.5	0.6

2012	Q1		8.6	5.1	0.9	(0.1)	1.9	0.8	0.2	1.1
	Q2		10.5	6.3	0.5	(0.1)	2.8	1.1	0.3	1.1
	Q3		14.0	8.0	2.1	(0.4)	4.1	0.9	0.1	1.3
	Q4		4.9	2.4	0.6	(0.0)	1.2	0.7	0.2	1.8
			-	-	-	-	-	-	-	-
		Max.	29.2	14.6	8.5	1.5	6.6	4.0	1.2	6.9
		Min.	0.1	0.0	(1.2)	(1.0)	(0.6)	(1.9)	(0.6)	(2.2)