

# **An Industry Level Analysis of Demand for Insurance in South Africa**

A Dissertation

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Of the requirements for the Degree of  
Master of Commerce in Development Finance

by

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## DECLARATION

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I, **Molatelo Motsepe**, do hereby declare that this dissertation is the result of my investigation and research and that this has not been submitted in part or full for any degree or for any other degree to any other University.

\_\_\_\_\_ on this \_\_\_\_ day of \_\_\_\_\_

*(Candidate)*

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## **ABSTRACT**

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The shaky political landscape in South Africa, resulting from high rate of corruption and political instability, is affecting economic growth. Among businesses, the use of insurance contracts has been advanced as one of the most effective risk management strategies to deal with the business risk. Insurance is designed to hedge against unforeseen and unplanned risks that may be attributable to man-made or natural disasters. One of the major reasons for purchasing insurance is to avert risk, whilst most firms in the manufacturing industry are driven by regulations to purchase insurance. The goal of this study was to analyse industry level demand for insurance as well as determine factors contributing to the demand for insurance by corporate firms in South Africa for the period between 2013 and 2014. This study used a multivariate approach to analyse data, to derive a clear picture of what transpires in the purchase of insurance and arrive at intelligent decisions. Multiple regression analysis was used to ascertain the factors contributing to the purchase of insurance as well as to identify dominant patterns in the data revealed by other empirical studies to understand the area under investigation. The study established six variables/factors that played an important role in the purchase of insurance. These were: firm size, operational leverage, industry type, underinvestment, turnover and depreciation and amortisation. The major players that positively influenced the demand for insurance were firm size and industry type followed by turnover, depreciation and amortisation respectively. It was also established that most firms in South Africa are regulated, therefore it was mandatory for firms to buy insurance to hedge against any risk. The policy and research implications of the findings are discussed.

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**TABLE OF CONTENTS**


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| <b><u>Section</u></b>   | <b><u>Page</u></b> |
|---|--------------------|
| Declaration .....   | i                  |
| Acknowledgements .....  | ii                 |
| Abstract .....  | iii                |
| Table of contents .....   | iv                 |
| List of figure .....  | xiv                |
| List of tables .....  | xvii               |
| <br>  |                    |
| <b>CHAPTER 1 : INTRODUCTION .....</b>                                     | <b>1</b>           |
| 1.1 Background of the study .....   | 1                  |
| 1.2 Problem statement .....   | 4                  |
| 1.3 Aim of study .....  | 5                  |
| 1.4 Research Question .....   | 5                  |
| 1.5 Research Objectives .....   | 5                  |
| 1.6 Significance of the Study .....                                       | 5                  |
| 1.7 Scope and Limitations of the Study .....                              | 6                  |
| 1.8 Ethical considerations .....  | 6                  |
| 1.9 Organisation of the Study .....                                       | 7                  |
| <br>  |                    |
| <b>CHAPTER 2 : LITERATURE REVIEW .....</b>                                | <b>9</b>           |
| 2.1 Introduction .....  | 9                  |
| 2.2 Overview of the Industrial Landscape in South Africa .....            | 9                  |
| 2.2.1 Manufacturing .....   | 10                 |
| 2.2.2 Finance, Real estate and business services .....                    | 11                 |
| 2.2.3 Wholesale Trade .....   | 12                 |
| 2.2.4 Analysis of top-performing sectors in the selected industries ..... | 13                 |
| 2.3 Theory of Demand for Corporate Insurance .....                        | 14                 |
| 2.4 Demand for Insurance: Empirical Review .....                          | 16                 |

|  |   |           |
|--|---|-----------|
| 2.5  | Factors on Corporate Demand for Insurance.....  | 22        |
| <b>CHAPTER 3 : DATA AND METHODOLOGY .....</b>            |   | <b>27</b> |
| 3.1  | Introduction .....  | 27        |
| 3.2  | Research Design .....   | 27        |
| 3.2.1  | Population .....  | 27        |
| 3.2.2  | Empirical Model.....  | 28        |
| 3.2.3  | Description and Measurement of Variables .....  | 29        |
| 3.3  | Limitations of Study.....   | 33        |
| <b>CHAPTER 4 : DISCUSSION OF RESULTS .....</b>           |   | <b>34</b> |
| 4.1  | Introduction .....  | 34        |
| 4.2  | Descriptive Statistics.....   | 34        |
| 4.3  | Insurance Demand: Industrial Analysis.....  | 35        |
| 4.4  | Correlation Analysis .....  | 36        |
| 4.5  | Regression Results.....   | 37        |
| <b>CHAPTER 5 : CONCLUSIONS AND RECOMMENDATIONS .....</b> |   | <b>40</b> |
| 5.1  | Introduction .....  | 40        |
| 5.2  | Summary and Conclusions .....   | 40        |
| 5.2.1  | To examine industrial insurance usage by South African firms ....                         | 40        |
| 5.2.2  | To identify the factors for corporate demand for insurance by<br>South African firms..... | 41        |
| 5.2.3  | Policy Recommendations.....   | 42        |
| 5.2.4  | Avenues for Future Research .....   | 42        |
|  | References .....  | 43        |

**LIST OF FIGURE**

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| <b><u>Figure</u></b> | <b><u>Description</u></b>                      | <b><u>Page</u></b> |
|----------------------|--|--------------------|
| Figure 2.1:          | Demand Curve. Source: Mohr et al. (2011) ..... | 15                 |

**LIST OF TABLES**

---

| <b><u>Table</u></b> | <b><u>Description</u></b>                         | <b><u>Page</u></b> |
|---------------------|---|--------------------|
| Table 2.1:          | Percentages based on third quarter 2015 GDP ..... | 9                  |
| Table 2.2:          | Percentages based on third quarter 2015 GDP ..... | 10                 |
| Table 2.3:          | Turnover of top six sectors .....                 | 14                 |
| Table 2.3:          | Summary of empirical studies .....                | 22                 |
| Table 3.1:          | Measurement of variables .....                    | 33                 |
| Table 4.1:          | Summary statistics .....                          | 35                 |
| Table 4.2:          | Industrial analysis of insurance usage .....      | 35                 |
| Table 4.3:          | Correlation Matrix .....                          | 36                 |
| Table 4.4:          | Regression Results .....                          | 38                 |

# CHAPTER 1 INTRODUCTION

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## 1.1 Background of the study

Firms and individual members of society purchase insurance with different motivations and purposes. Insurance is designed to hedge against unforeseen and unplanned risks that may be attributable to man-made or natural disasters. One of the major reasons for purchasing insurance is to avert risk, whilst most firms in the manufacturing industry are motivated by firm size, operational leverage, regulation and the need to hedge against potential loss or occurrence of risk. Risk aversion explains the motivation for individual insurance purchases whilst, for big manufacturing firms, the incentive for insurance policies differs from one firm to the other (Lauren & Yeon, 2007). Insurance involves imposed expenses such as additional administrative costs.

It has been argued by Mayers and Smith (1990) that shareholders that are well-diversified do not allow their firms to reduce their wealth by purchase of insurance policies against assumed risks. Lauren and Yeon (2007) opine that there are different reasons motivating firms' demand for insurance and these include: information asymmetry and agency conflict, transaction and bankruptcy costs, tax optimisation, the company's legal environment, efficient risk allocation and the insurers' relative advantage in services related to risks and damage.

Specific industries' insurance costs for the period 2013-2014 will be compared to determine which industry incurred the largest and which the smallest insurance costs. The manufacturing industry had the highest insurance costs compared to the other three industries analysed, an indication that there is a bigger demand for insurance in the manufacturing industry in South Africa. With reference to the findings presented by StatsSA (2015), this study provides the background on the demand for insurance by firms in the manufacturing industry in South Africa. The researcher acknowledges that access to information on companies' purchase of

insurance is difficult, therefore data provided by StatsSA will be used to analyse demand for insurance.

Hypotheses will be based on prior empirical studies such as the Annual Financial Statistical survey of 2015. This is a literature survey that analyses demand for insurance by manufacturing firms in South Africa for the period 2013-2014 (Over a three-year period). In addition, comparative analysis of insurance demand will be conducted to ascertain the rate of demand for insurance contracts between industries.

The contemporary business environment is fraught with uncertainties that can expose firms to high risk, therefore, it is important for firms to hedge themselves against such risks. The motivation for undertaking this study is to understand the demand for corporate insurance in South African industries, specifically focusing on manufacturing, financial services, retail and motor trade and wholesale trade; the major contributors to the economy's Gross Domestic Product (GDP).

StatsSA (2015) states that finance, real estate and business services contributes 20.7 percent; government services, 17.6 percent; wholesale, retail and motor trade, 14.6 percent and manufacturing, 13.3 percent; are the major drivers of the economy. Firms operating in these industries are exposed to varying degrees of risk, therefore, the demand for insurance is likely to be higher. This assertion will be investigated in this study. The demand for corporate insurance varies from company to company and from industry to industry. Each firm or industry operates in an environment that has unique risk factors, thus, influencing the rate of demand for insurance.

Risks can be man-made or natural disasters that potentially affect the operations of the firm. The presence of risk is costly to the firm, thus reduction of such risk can significantly create value for the firm. There are various factors at play that compel firms to take up insurance and these include political, legal and economic risks (Hill, 2014:82). In order to reduce risks, firms can purchase insurance as a way of transferring and controlling risk (MacMinn & Hann, 1990).

Insurance firms increase a firm's value, resulting in the firm acquiring a useful advantage over its competitors (Zou, Adam & Buckle, 2003). It simply means that the purchase of insurance contracts hedges a firm against any potential risks which may have catastrophic consequences on firms that do not have insurance. Morgenstern and Neumann (2006) state that individuals have different perspectives towards risk. Risk-averse individuals prefer to avoid risk, therefore, these individuals are willing to pay more to mitigate or eliminate any risks.

Hill (2014) defines political risk as the uncertainty or likelihood of drastic changes caused by the political forces which alter the business environment affecting the profitability and viability of the firm. Social unrest and disorder in countries can result in abrupt changes in the political power and policies. While an economic risk is a culmination of mismanagement of the country's business environment (Hill, 2014), there is a relationship between economic and political risks. Hill (2014) defines legal risk as the likelihood of a trading partner reneging or breaking a contract. The rise of legal risks forces companies to have contingency measures—insurance.

Greene (1963, 1964) and Hammond et al. (1967) were the pioneered studies to understand behavioural aspects of the demand for insurance for life and non-life insurance. The studies were conducted on a panel of students using experimental economics with a panel of students. There are studies focusing on the riskiness of situations while, other studies focus on people's willingness to take risks. In this study, the purpose is to review empirical literature on demand for insurance through an analysis of the risk aversion (and risk behaviour) lens. Krummaker and Schulenburg (2007) conducted a study that determined the insurance demand by firms in Germany and the study established that firm size does not affect insurance demand. Companies with a higher risk exposure tend to demand a higher level of insurance coverage.

Michael-Kerjan et al. (2009) conducted a research in the United States of America (USA) to determine the demand for insurance. The study established that larger demanded more insurance because these larger firms were more likely exposed to a greater disaster coverage. Globally, various theories about demand for insurance

exist due to market imperfections. Mohr, Fourie and Associates (2011) define market imperfections as markets where there is a slow pace of information dissemination to market participants. Imperfect markets do not adhere rigidly to perfect information flow to buyers and sellers.

Grace and Rebello (1993) established that information asymmetry played an important role to firms when purchasing insurance. Firms suffering from information asymmetry challenges would demand insurance because being in possession of insurance may be perceived as an indication of reliability. MacMinn (1987) asserts that firms purchase insurance to eliminate or reduce bankruptcy and agency costs. There are various factors that contribute to the purchase of insurance and these will be explored in this study which focuses on firms contributing the most to the country's GDP in South Africa.

## **1.2 Problem statement**

Globally, previous studies have focused on investigating factors affecting corporate demand for insurance, yet empirically, there are limited studies in South Africa that have analysed insurance demand. The absence of such studies creates information asymmetry to firms, shareholders and other stakeholders who may need this vital information for informed decision-making. The reasons for purchasing insurance may be clear—that is, protecting the stockbrokers against the risk of loss. The importance of risk aversion through demand for insurance in corporations is less obvious (Mayers & Smith, 1990). Therefore, it is imperative to establish reasons and rate of demand for insurance in the four selected South African industries.

South Africa's shaky political landscape is affecting economic growth. High rates of corruption and political instability are throwing South Africa in recession, resulting in high economic risks (Schussler, 2016). StatsSA (2016) confirms that South Africa's GDP shrank by 0.7 percent between October and December 2016 and by a further 0.3 percent between January and March 2017 compared with previous years. Loss of consumer and business confidence in South Africa, corruption and political instability have been identified as the major factors at play (Schussler, 2016). Thus, firms are compelled to purchase insurance to hedge against uncertainties in the

country. With reference to economic recession, it is imperative to investigate the demand for corporate insurance in four major GDP-contributing South African industries using data for the period 2013-2014.

### **1.3 Aim of study**

This study analyses demand for insurance in the South African manufacturing industry and suggests ways to improve corporate demand for insurance.

### **1.4 Research Question**

Research questions for the study are:

- What are the industrial differences in insurance usage by South African manufacturing firms?
- What are the determinants of insurance usage by South African manufacturing firms?

### **1.5 Research Objectives**

- a. To examine industrial differences in insurance usage by South African manufacturing firms;
- b. To identify the determinants of insurance usage by South African manufacturing firms.

### **1.6 Significance of the Study**

Research studies on insurance demand or uptake are limited in South African industries. This study is one of the few studies to analyse industry level of demand for corporate insurance in South Africa. By conducting this study, it is believed that a significant contribution to the body of knowledge in the insurance domain will be made by providing an integrated picture of corporate demand for insurance in SA firms. This study uses multivariate approach to analyse data, to derive a clear picture of what transpires in the purchase of insurance to arrive at intelligent decisions. Principal Components/ Factor Analysis will be used to identify dominant patterns in the data revealed by other empirical studies to understand the area under investigation.

South African firms will derive knowledge and information from the study's findings and recommendations, thus new theory will be generated that makes original contributions to the existing body of knowledge. Better knowledge of insurance, types of insurance and purposes will enable stockholders and firms to acquire relevant insurance contracts whilst minimising unnecessary insurance costs.

SA firms may adopt the recommendations presented in this study to create industry best practices to hedge against risk losses. The gaps identified in this study will help future research in corporate demand for insurance and risk management in South African industries. The study advances theories of corporate demand for insurance.

### **1.7 Scope and Limitations of the Study**

The scope of this study was to investigate corporate demand for insurance by firms in South Africa. This study focused on insurance as cost to a firm's wealth, therefore the discussion centred on risk losses as motivation for purchasing insurance. The scope of the study was premised on insurance.

The limitations for this study; first Limitation: this was a literature survey where data was collected from empirical studies and statistical computations performed for the period 2013-2014. Data was collected from secondary sources, thus, eliminating the potential to collect primary data which could have shed some light on events occurring in the manufacturing industry as far as the purchase of insurance is concerned. Second Limitation: one research approach was used, therefore, potential participants who could have provided insights into goings-on in the industry were alienated from the study. This resulted in some deficiency of paramount information that could have altered the findings of this study. Third Limitation was the absence or lack in asking probing questions to get clarity in some issues that could have triggered or motivated purchasing of insurance.

### **1.8 Ethical considerations**

Cohen (2007:01) states that ethical issues are essential in research. There may be several factors that confront researchers. The researcher avoided reporting false or

misleading results by carefully drafting and executing the research plan. Steps were taken to protect the dignity of all stakeholders whose participation in this research was invaluable. If the researcher came across personal information, the researcher ensured that all personal information was not shared or discussed with third parties. This research was conducted in an honest, fair and transparent manner.

## **1.9 Organisation of the Study**

To complete this study, there are five chapters organised as follows:

### Chapter 1 – Introduction

The insights and background of the study are introduced in this introductory chapter. The research problem is highlighted to emphasise the need for one to proceed with the study and suggest solutions to the existing problem. Key issues that augment discussions in the introductory chapter include the main and secondary research questions; aim and significance of the current study and the chapter is concluded.

### Chapter 2 – Literature Review

A critical literature analysis of the current study is presented. In the second chapter of the study, the theoretical framework that helped the researcher to carry out the study, is discussed in detail showing how all phases of the research cycle were conducted.

### Chapter 3 – Data and Methodology

In the third chapter of the study, the research plan of how this study was conducted will be discussed. The discussion in chapter three highlights pertinent issues related to research methodology to ensure the reader follows and understands how one arrived at certain findings.

### Chapter 4 – Results, Discussion and Interpretation of Findings

Research findings are presented, discussed and analysed in the fourth chapter of the study. To augment the findings, the researcher refers to literature review chapter for facts and information.

#### Chapter 5 – Conclusions and Recommendations

The last chapter of the study provides conclusions and recommendations for future studies. The implications of the study (to managers) is discussed in the last chapter.

## CHAPTER 2 LITERATURE REVIEW

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### 2.1 Introduction

The theoretical background and problem statement that was investigated by this research project were presented in the preceding chapter. In this chapter, the focus is to review literature relating to the South African Industrial landscape, theory of demand for corporate insurance and empirical review from other countries. Reviewing literature helps the researcher to augment arguments and information put forward in this study whilst generating new knowledge.

### 2.2 Overview of the Industrial Landscape in South Africa

It is imperative to provide a synopsis of South Africa (SA) as an economy, then analyse industry growth prospects. South Africa is the largest economy in Africa, with Gross Domestic Product [GDP] listed at \$350.1 Billion or R5.416 trillion with a population of 54 million people (World Bank, 2014). The per capita GDP of the economy was \$6,483 (World Economic Forum [WEF], 2014). South Africa was admitted to the BRICS group of countries of Brazil, Russia, India and China (BRICS) in 2011. SA is endowed with a world-class and progressive legal framework which is strong and conforms to international norms and standards (WEF, 2014). The following diverse sectors drive the SA economy:

**Table 2.1: Percentages based on third quarter 2015 GDP**

| Sectors   | Contribution to GDP |
|---|---------------------|
| Agriculture and fisheries                                     | 2.2%                |
| Mining  | 10%                 |
| Manufacturing   | 13.3%               |
| Electricity and water   | 2.6%                |
| Construction  | 3.9%                |
| Wholesale, retail and motor trade, catering and accommodation | 14.6%               |
| Transport, storage and communication                          | 9%                  |
| Finance, real estate and business services                    | 20.7%               |
| Government services   | 17.6%               |
| Personal services   | 5.9%                |

Source: StatsSA (2015)

As illustrated in Table 2.1, the finance, real estate and business services (20.7%); government services (17.6%); wholesale, retail and motor trade (14.6%) and manufacturing (13.3%) industries are the major drivers of the economy. The four industries are the subjects of investigation in the present study.

The SA industrial landscape is informed by the country's Industrial Policy Action Plan (IPAP), which is firmly entrenched in SA government's overall policy designed to address all economic and industrial growth challenges (Department of Trade and Industry [DTI], 2016). One of the key objectives of the IPAP is to enhance the contribution of manufacturing by promoting black industrialists and small businesses (DTI, 2016). In the Annual Financial Statistics Survey [AFS] by StatsSA (2015) in Table 2.2, the different industries in the extreme left hand and three distinct DTI trade cut-off points for small, medium and large enterprises.

**Table 2.2: Percentages based on third quarter 2015 GDP**

| Industry                             | Small enterprises         | Medium enterprises                                   | Large enterprises         |
|--------------------------------------|---------------------------|--|---------------------------|
| <b>Wholesale trade</b>               | Turnover ≤ R144,0 million | Turnover > R144,0 million; Turnover ≤ R288,0 million | Turnover > R288,0 million |
| <b>Retail and motor trade</b>        | Turnover ≤ R85,5 million  | Turnover > R85,5 million; Turnover ≤ R175,5 million  | Turnover > R175,5 million |
| <b>Manufacturing</b>                 | Turnover ≤ R58.5 million  | Turnover > R58.5 million; Turnover ≤ R229.5 million  | Turnover > R229,5 million |
| <b>Finance and Business services</b> | Turnover ≤ R58.5 million  | Turnover > R58.5 million; Turnover ≤ R117.0 million  | Turnover > R117.0 million |

Source: DTI (2015)

### 2.2.1 Manufacturing

The illustration in Table 2.2 indicates that firms in the manufacturing industry generate turnover between R58 million and above R229 million annually across all four size classifications. The number of units produced by the manufacturing industry helps to determine if the industry is declining or growing. Schussler (2017) states that there has been a steady growth in the manufacturing industry, but this growth rate has not significantly contributed to the economy's GDP. For a period of

7 years, SA manufacturing industry has not experienced any growth, thus, manufacturing's relative importance in SA's economy has declined over time then (Schussler, 2017).

Some of the contributing factors to the decline of the manufacturing industry are:

- In recent years, there has been a lack of demand for manufactured goods;
- Persistent electricity shortages have adversely affected SA manufacturers;
- The SA market has experienced an influx of imported goods from China and Germany;
- Accelerated growth rate of other industries led to a decline in market share of manufacturing industry.

### 2.2.2 **Finance, Real estate and business services**

The PricewaterhouseCoopers [PWC] Report (2015) states that the finance, real-estate and business services account for 21.1%, while StatsSA (2015) argues that the industry accounts for 20.7% of the country's GDP. It is acknowledged that the finance, real-estate and businesses services sector is South Africa's biggest contributor to the GDP.

Both PWC (2015) and StatsSA (2015) converge in that the South African banking and financial services sector is highly regarded internationally because of a strong regulatory and legal framework which is supported by the WEF (2014) which states that SA has a world-class and progressive legal framework which is strong and conforms to international norms and standards. Big and small auditing firms are handling some of the country's biggest auditing accounts (KPMG, 2016).

The financial services sector consistently contributes to the country's GDP despite an overall negative growth. Several international financial institutions such as Bank of China, Bank of Taiwan, Citibank, Deutsche Bank AG and Standard Bank have

set up head offices in Johannesburg (SARB, 2015). The Development Bank of Southern Africa, Land and Agricultural Development of South Africa provide infrastructure and developmental project finance.

### 2.2.3 **Wholesale Trade**

The Gauteng Retail Review (2016) states that the SA retail industry has grown over the past years. The growing number of shopping malls and availability of retail space have contributed to the growth of the retail industry. The retail industry grew by an annual average of 3 percent in the past eight years (between 2008 and 2016). In addition, retail sales continue to increase, where 29 percent of the sales were online.

The prevailing economic conditions such interest rates, inflation and economic growth affect economic activities. The economic conditions prevailing in SA the last eight years were stable, thus, an enabling retail trading environment was created (Retail News, 2016). It should be noted and acknowledged that the retail industry contributes a significant portion towards the country's GDP despite industry challenges such as skills shortage and increased operational costs.

The key players in the South African retail industry include the Edcon Group, Pick n Pay Holdings Ltd, Shoprite Holdings Ltd, Woolworths Holdings Ltd, Spar Group Ltd and Massmart Holdings Ltd. The Global Powers of Retailing Report (2012) indicated the following: Shoprite was ranked 92<sup>nd</sup> in the retail sales rank, Massmart, 126<sup>th</sup>, Pick n Pay was ranked 133<sup>rd</sup>, Spar was 179<sup>th</sup> and Woolworths, the 222<sup>nd</sup> of the top 250 retailers globally. There are retailers in the clothing and fashion, footwear and leather goods performing well in the SA economy.

The SA industry has been confronted with numerous economic and socio-economic challenges over the past few years that include exchange-rate volatility, declining availability of credit and inflationary pressures that affected and continue to affect the many households' finances (Schussler, 2016). In addition, retailers are devising strategies to remain afloat and competitive, including regional expansion, product range expansion, and price reductions to attract customers. The challenges confronting the retail industry pose some serious viability risks, therefore, it is

important that contingency measures are put in place to mitigate any potential losses aggravated by risks.

#### 2.2.4 **Analysis of top-performing sectors in the selected industries**

Descriptive statistics are used to draw a picture of the sample to identify any trends present. The findings are based on the Financial Statistics survey of 2015 (StatsSA, 2015). From the disaggregated industry information (Table 1) a total of 185 of 185 firms were considered for this study. 116 (63%) of the firms were in manufacturing; 37 (20%) were from financial services and 32 (17%) were in the retail and motor trade industries. The retail and motor industries produced the highest turnover, followed by the manufacturing industry, and the financial services industry produced the least turnover which concurs with the StatsSA Report (2015) that suggests that the three industries are the major drivers of the economy. The turnover of the top two sectors from each industry were considered to provide a holistic overview of the activities in the industries. Of the 116 manufacturing firms, the petroleum and gas sectors had the highest turnover (R388,772m) (30%) followed by basic chemicals sector (R125, 709m) (9.6%) of turnover, while the retail of sale of motor vehicles (R316,697m) (24.1%) had the largest turnover followed by wholesale trade in machinery, equipment and supplies (R256,046m) (19.6%). Generally, firms in the retail and motor trade had very high turnover, which explains why this industry has the highest turnover compared to the other two (Table 1). The property owning and letting (R131, 017m) (10%) had the highest turnover in the financial and business services industry, followed by software consultancy and supply (R88, 449m) (6.7%).

Firms operating in these industries are exposed to varying degrees of risk, therefore, the demand for insurance is likely to be higher. Each firm or industry operates in an environment that has unique risk factors, thus influencing the rate of demand for insurance (Hill, 2014:82). In order to reduce risks, firms can purchase insurance as a way of transferring and controlling risk (MacMinn & Hann, 1990).

**Table 2.3: Turnover of top six sectors**

| <b>Industry</b>               | <b>Sector</b>          | <b>Turnover (Rm)</b> | <b>Frequency(%)</b> |
|-------------------------------|------------------------|----------------------|---------------------|
| <b>Manufacturing</b>          | Petroleum/ gas         | 388,772              | 30                  |
|                               | Chemicals              | 125,709              | 9.6                 |
| <b>Financial Services</b>     | Property owning        | 131,017              | 10                  |
|                               | Software consultancy   | 88,449               | 6.7                 |
| <b>Retail and Motor trade</b> | Sale of motor vehicles | 316,697              | 24.1                |
|                               | W/sale in machinery    | 256,046              | 19.6                |
| <b>TOTAL</b>                  |                        | <b>1,306,690</b>     | <b>100</b>          |

Source: StatsSA (2014)

### 2.3 Theory of Demand for Corporate Insurance

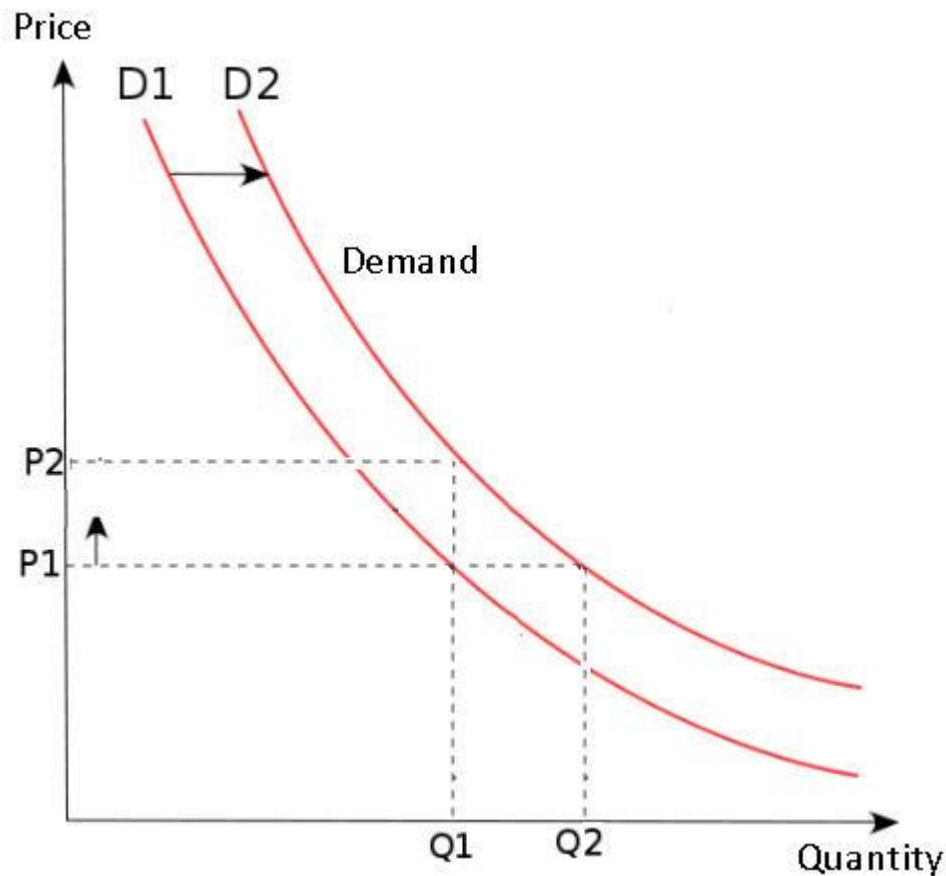
The role of insurance has, to a large extent, been ignored in finance literature; however, corporate demand for insurance remains prevalent in the contemporary business environment. Grace and Rebello (1993) state that the firm's demand for insurance is driven by solely the firm's desire to minimise mispricing its bond contract. Mohr, Fourie and Associates (2011) define demand as a schedule that represents the quantities of goods and or services a consumer is willing to buy over a given range of prices. Consumers react or behave in a certain way when faced with variations in prices of a product or service.

It is possible that firms' customers will also react when confronted with variations in the price of insurance services. In the neoclassical economics, the tendency is that demand reflects the degree of benefits received by consuming a good or product, therefore demand must represent the genuine beneficial value for the consumer of the product or good (Mohr et al., 2011).

Demand also relates to the plans of firms and other participants in the economy and not to events that have already occurred. The quantity demanded may be less than, equal to or greater than the quantity that can be bought. The quantity of a good or service demanded by an individual firm in a period is a function of the price of the

good/service, the prices of related goods/services and the number of firms in that industry and any possible influences (Mohr et al., 2011).

The law of demand states that other things being equal (*ceteris paribus*) the higher the price of the good/service, the lower the quantity demanded. For example, if the cost of buying insurance policies (services) is very high (due to high risk rates), the lower is the quantity of insurance demanded. In the current study, insurance is a form of hedging against any potential risk, therefore, firms might not have options but to purchase insurance policies. A standard linear demand equation is illustrated as:  $Q=a-bP$ . Movements along the curve and shifts of the demand curve on a specific product/service are important in understanding economic theory.



**Figure 2.1: Demand Curve. Source: Mohr et al. (2011)**

The illustration in Figure 1 depicts the quantity demanded in the x-axis and the price for the goods/services at any given period in the y-axis. If the price of

insurance/goods changes, there is a change in the quantity demanded. The shift from the quantity demanded (D1) to (D2) is determined by P1, P2. The relative points on the demand curve show the relationship between price and quantity demanded, on the assumption that other influences on demand are constant. An increase in the price of a substitute product/service will lead to a right forward shift of the demand curve of the service (insurance) concerned. Similarly, a decrease in the price of a service will lead to a decrease in the demand for the service concerned (leftward shift).

## **2.4 Demand for Insurance: Empirical Review**

The demand for insurance is not peculiar to South Africa; globally, the corporate world is confronted by varying levels of risk, therefore, the demand for insurance differs from one firm or industry or country to the other. Mayers & Smith (1982) investigated factors contributing to demand for corporate insurance and established that tax incentives; bankruptcy costs; operational requirements; firm size and industry type played a pivotal role in the purchase of insurance. The study revealed that the role of insurance in corporations was ignored in finance literature, however, the demand for corporate insurance remained relevant and prevalent (Siegfried, 2014).

Smith (1986) states that corporate insurance purchases in the US industries were motivated if the company was closely held, ability of stockholders to eliminate insurance risks by holding diverse portfolios, thus, stockholders would not find the need to purchase insurance. Uninsured losses were likely to move the firm into lower tax brackets, thus, the demand for corporate insurance was likely to grow (Smith, 1986). If the leverage in the corporation's capital structure is high, then the corporate purchase will be greater.

Most firms are in financial distress, resulting in stockholders looking for diversification opportunities. Smith (1986) asserts that it has been established in other studies that firms that purchase insurance eliminate conflicts that arise between bondholders and stockholders. There is a huge demand for insurance in

regulated industries compared to unregulated industries due to the mark-up pricing used by regulators (Smith, 1986). Therefore, the industries that were sampled for this study were all regulated; thus, it became clear that corporate demand for insurance was imperative. Smaller firms were likely to purchase more insurance than larger corporations.

Davidson, Cross & Thornton (1992) conducted a study that investigated factors contributing to the purchase of insurance by large firms. The study hypothesised that the demand for insurance does not affect the cost of equity capital. Davidson et al. (1992) state that a reduced cost of equity did not motivate the demand for corporate insurance. Derrig (1993) conducted a study on price regulation in the US automobile insurance industry, specifically focusing on Massachusetts private-passenger automobile insurance between 1978 and 1990. The study included the participation of national property-casualty companies and contrasts of 103 California personal auto market firms. Derrig (1993) established that it was a regulatory requirement for the firms in the automobile industry to purchase insurance.

In every state in the US, the automotive industry was highly regulated, therefore, it was compulsory for motorists to have auto insurance to provide compensation for an innocent victim (Derrig, 1993). The study also revealed that each state has its own set of requirements mandating corporate insurance in different ways. For example, Texas requires drivers to carry two types of insurance: one covering bodily injury to others and the other for damage to someone else's property (Derrig, 1993). The findings by Derrig (1993) were collaborated by Siegfried (2014) who states that corporations are obligated to purchase insurance to comply with registration requirements.

Ashby and Diacon (1998) investigated the strategic perspective for corporate demand for insurance in the United Kingdom (UK). The study established the circumstances that influenced the purchase of insurance and how insurance demand were affected by a firm's strategic decisions on output and price risk. The study revealed that corporate demand for insurance focused on the ability of insurance to add value to the firm by limiting and reducing the impact of risk on risk-

averse stakeholders. In addition, Ashby and Diacon (1998) established that the motivations for corporate demand for insurance were: stakeholder risk-aversion; cost-effective administration; give-away insurance prices; increasing the value of the firm and controlling “agency” costs.

Yamori (1999) conducted a study investigating the Japanese corporate demand for Insurance and the factors affecting it. The study established that 1.3 trillion Japanese Yen was spent on insurance purchases in 1994. A total of 504 corporations were investigated in this study because these 504 firms disclosed their insurance premiums. Yamori (1999) highlights the belief that purchase of insurance was designed to hedge against risk of loss, while, modern financial theory asserts that investors can diversify to hedge against insurable risks.

Yamori (1999) agrees that corporate demand for insurance persists, however, theories to analyse corporate demand for insurance are required now more than ever. If a firm’s value increases from retention, then the demand for insurance will increase because the value is greater than the market price of risk. Shapiro and Titman (1985) argue that insurance purchases should be part of a firm’s hedging policy to mitigate casualty losses. Firms that suffer from information asymmetry problems would demand insurance because possessing insurance may be perceived as an indication of reliability (Grace & Rebello, 1993). While Skogh (1989) postulates that insurance may be purchased because of the existence of transaction costs.

Yamori (1999) established that the key factors affecting corporate demand for insurance were: ownership structure—whose influence was not easily tested; and tax consideration which affected insured losses. Payment for insurance premiums is deductible from tax profits; leverage—due to unexpected disasters, highly-leveraged corporations were likely to face bankruptcy. This factor was in line with the views of MacMinn (1987) who states that corporate demand for insurance is motivated by stockbrokers buying insurance to eliminate or reduce bankruptcy costs and agency costs.

Zou (2003) analysed the development, regulation and future trend of the corporate insurance market for 212 Chinese listed companies over the period 1997-1999 in the People's Republic of China. The study ascertained the property-insuring behaviour of Chinese companies, thus, it was revealed that purchase of corporate insurance was related to company size and leverage (Zou, 2003). The purchase of property insurance varied according to geographic location and industry sectors (Zou, 2003). Foreign ownership did not appear to influence managerial property-insurance decisions in the Chinese corporate sector.

Michel-Kerjan, Raschky & Kunreuther (2010) analysed the US market for catastrophe and non-catastrophe risks. The study was motivated by a series of unprecedented disasters that hit the US in the past decades. It became imperative to research the demand for corporate insurance when there is a high level of disasters in the country. In the study, a total of 1808 large US corporations were considered, resulting in an analysis that compared corporate demand for standard property insurance and for catastrophe coverage (terrorism). The findings from the study revealed that the demand for corporate insurance was attributable to price fluctuations compared to non-catastrophic insurance. In larger firms, the probability for catastrophes was higher, therefore, larger firms were more likely to purchase insurance. It was imperative for firms to have catastrophe coverage.

Zou (2003) concurs with Mayer and Smith (1982) that small companies are more likely to purchase property insurance than large companies for three reasons: First: there is an inverse relationship between direct costs of financial distress on the size of the firm. Secondly: insurers tend to provide more real services to small firms. Thirdly: there is little or no diversification in small firms and are particularly susceptible to business risks.

In a study conducted to ascertain insurance and disaster management in India, Atmanand (2003) provided a perspective of what strategies had been taken/implemented by the Indian government. Atmanand (2003) acknowledged that the Indian subcontinent is among the world's most disaster-prone areas (hazard vulnerability, earthquakes, wind, cyclones and floods). Atmanand (2003) states that

insurance against calamities such as earthquake, flood and fire must be made compulsory. With reference to Atmanand (2003) it is evident that there is no insurance against natural disasters or risks in India.

Hamid, Osman & Nordin (2009) empirically investigated the determinants of corporate demand for Islamic Insurance (takaful) in Malaysia using data from the main board of public listed companies at Bursa, Malaysia. The data covered a five-year period (2002-2006). The findings from the study revealed that bankruptcy costs, leverage, tax considerations, company size and managerial ownership played an important role in determining the corporate demand for Islamic insurance in Malaysia. Hamid et al. (2009) noted that there was a progressive growth in the takaful industry, and most importantly, the demand for takaful was consistently growing. The net insurance contributions for takaful grew to 19.2% annual growth in 2005.

In another study conducted by Sehhat and Kalyani (2011) that investigated effective factors in corporate demand for insurance in Iran for a period between 2008 and 2009. A quantitative research methodology was adopted. The descriptive research project was based on historical studies on the corporations' financial statements. One hundred and eighty-five firms were randomly selected from the site of the Tehran Stock Exchange. A linear regression was used to measure the relationships between dependent variables.

Sehhat and Kalyani (2011) established that transaction costs, expected bankruptcy costs, tax optimisation, firm size, share ownership, leverage (debt to asset ratio), underinvestment and type of industry contributed to corporate demand for insurance. The findings from the study (Sehhat & Kalyani, 2011) were similar to the findings of Yamori (1999). Sehhat & Kalyani (2011) also pointed out that it was difficult to access information about corporate insurance purchases. Firms were not keen to divulge such information.

Sehhat and Kalyani (2011) noted that large firms with higher bankruptcy costs and operational risk compared to other firms, demanded more property insurance. It was

revealed that firms in the service industry demanded more property insurance than other companies (Sehhat & Kalyani, 2011). The study also found out that tax incentives, leverage and underinvestment were not major contributing factors of demand for property insurance.

In a second study conducted by Michel-Kerjan et al. (2013) on corporate demand for insurance established new evidence from the US terrorism and property market. The study was revised after the authors received additional data and information regarding the US terrorism and property market. Michel-Kerjan et al. (2013) acknowledge that studying corporate demand for terrorism insurance was interesting because it was noted that terrorism presents a set of peculiar characteristics for firms; the risk is difficult to quantify and is dynamic in nature. Insurance against all potential types of attacks is a risk-management strategy.

Prior to the September 11, terrorism was regarded as an unplanned peril which was not charged for by insurers. Following 9/11, the Terrorism Risk Insurance Act (TRIA) came into being in 2002; firms are now compelled to purchase terrorism insurance coverage as a separate policy that is added to property insurance. The study also established that corporate demand for insurance is higher in the New York metro area (+20.6%) because corporate clients are in closer proximity to each other. Hazards to property such as a fire or a chemical spill are more likely to affect other companies located in the area.

The events of September 11 also showed that terrorist attacks in urban centres often affect multiple companies at once. In the case of New York there could be a “trophy target” effect in that terrorist organisations capable of inflicting a large-scale attack might be more likely to attack a city that represents such an American symbol. This was precisely the logic behind the 1993 and 2001 Al Qaeda’s attacks. The empirical studies are summarised in Table 3 below.

**Table 2.3: Summary of empirical studies**

| <b>Author(s); Country(ies); Industry</b>  | <b>Findings (significant factors)</b>   |
|---|---|
| Mayers & Smith (1982); USA; Commercial  | Transaction costs of bankruptcy; tax incentives; type of industry; firm size; operational risk; regulations.  |
| Yamori (1999); Japan; Manufacturing   | Ownership structure—whose influence was not easily tested; tax consideration which affected insured losses.   |
| Sehhat and Kalyani (2011); Iran; Property   | Larger firms with higher bankruptcy costs and operational risk compared to other firms demanded more property insurance. Transaction costs, expected bankruptcy costs, tax optimisation, firm size, share ownership, leverage (debt to asset ratio), underinvestment and type of industry contributed to corporate demand for insurance.                                |
| Smith (1986); USA; Regulated industries   | Regulated industries demanded more insurance than unregulated industries due to the mark-up pricing used by regulators. Smaller firms purchased were likely to purchase more insurance than larger corporations   |
| Derrig (1993); USA; Automobile  | It was a regulatory requirement for the firms in the automobile industry to purchase insurance; in every state in the US, compulsory insurance laws related to auto insurance have been passed to provide compensation for an innocent victim. The study also revealed that each state has its own set of requirements mandating corporate insurance in different ways. |
| Ashby & Diacon (1998); UK; Commercial   | The motivations for corporate demand for insurance were: stakeholder risk aversion; cost-effective administration; give-away insurance prices; increasing the value of the firm and controlling agency costs.   |
| Davidson, Cross & Thornton (1992); US; Property                                   | None of the slope coefficients for pure losses and combined ratios were significant. The overall results showed no pattern of systematic relationship between insurance and the cost of capital. In addition, reduced cost of equity did not motivate the demand for corporate insurance.   |
| Zou (2003); China; Listed Companies   | Purchase of corporate insurance was related to company size and leverage; geographic location and industry sectors;   |
| Michel-Kerjan, Raschky & Kunreuther (2010); USA; Terrorism and property market    | Corporate demand for catastrophe insurance was more price elastic than for non-catastrophe insurance; Michel-Kerjan et al. (2010) also established that large corporations were likely to have some catastrophe coverage and a higher solvency ratio reduces demand for such coverage.  |
| Atmanand (2003); India; No specific industry                                      | Insurance against calamities such as earthquake, flood and fire must be made compulsory; it is evident that there is no insurance against natural disasters or risks.   |
| Hamid, Osman & Nordin (2009); Malaysia; Public-listed companies at Bursa Malaysia | Bankruptcy costs, leverage, tax considerations, company size and managerial ownership played an important role in determining the corporate demand for Islamic insurance in Malaysia.   |
| Michel-Kerjan et al. (2013); USA; Terrorism and property market                   | Corporate demand for insurance is higher in the New York Metro area (+20.6%) because corporate clients are in closer proximity to each other;   |

## 2.5 Factors on Corporate Demand for Insurance

From the discussions presented above, effective factors on corporate demand for insurance include: expected bankruptcy; accumulated depreciation; firm size; ratio

of institutional investors; operational risk; higher debt ratio and type of industry in which the firm operates.

Ashby and Diacon (1998) state that there is little information relating to the amount of commercial insurance purchases by firms. Mohammad (2010) acknowledges that a great share of insurance policies is owned by businesses. The demand and importance of corporate insurance has created research opportunities, resulting in many researchers proposing theories explaining the behaviour of enterprises (Laureen & Yeon, 2007). The effective factors highlighted earlier will be discussed to illustrate their relationships or influence on firms purchasing insurance

*Hypothesis 1: Expected losses on foreign exchange, financial and other liabilities and other assets positively affect corporate demand for insurance*

Losses are divided into foreign exchange; financial and other liabilities and other assets. An increase in the value or price of one currency in terms of another currency (appreciation) automatically implies a decrease in the price of the other currency (Mohr, Fourie and Associates, 2011:389). An exchange insurance will guarantee the company a fixed purchase price, regardless of the evolution of the currencies. Companies are expected to forecast and analyse their future cash flow requirements in terms of foreign currency exposure. Laing (2008) states that it is important for managers to identify the levels of exposure to foreign currency fluctuations so that relationships between potential losses from claims settlements and foreign currency exposure can be determined. Demand for corporate insurance could be attributed to losses incurred through other liabilities such as redemption, liquidation and revaluation of liabilities or disposal of assets, realisation for cash and revaluation of assets.

*Hypothesis 2: Accumulated depreciation and amortisation positively affect corporate demand for insurance.*

Corporations purchasing insurance get tax exemptions on production of proof of insurance policies payments. From an accounting perspective, insurance costs are tax deductible because the insurance cost is an acceptable cost. On the other hand,

purchasing an insurance policy reduces risk. Mayers & Smith (1982) argue that tax codes are difficult to understand, however, under convex tax functions and limited progressive losses, insurance purchases reduce expected tax responsibilities. Joe & Mike (2006) state that the difference between the book value and property replacement value (the current cost of replacing the asset) exposed to tax is capital gain. Ross (2017) states that as with depreciation, firms spread the cost of an intangible asset over that asset's useful life; for example, patents on a piece of equipment. The cost of creating the patent is spread over the life of the patent with each cost being recorded as an expense.

*Hypothesis 3: Firm size negatively affects corporate demand for insurance.*

Risk management can be used to mitigate bankruptcy and rate of demand for corporate insurance. Large firms incur a greater amount of transaction and bankruptcy costs, therefore, purchasing insurance is the ideal option to reduce the possibility of incurring transaction and bankruptcy costs (Yamori, 1999). When firms have valid insurance policies, there are more benefits from the insurer in the form of loss, risk assessment and payment for loss. Insurers provide services and advice, which is a huge advantage to smaller firms which may not have experience in risk management resulting in insurance purchases (Krummaker & Graf, 2007). There is less likely risk exposure to business risk for larger firms compared to smaller firms; for larger firms to purchase insurance based on physical assets for the purpose of financing losses (Laureen & Yeon, 2007).

*Hypothesis 4: Ratio of institutional investors positively affects corporate demand for insurance.*

The purchase decision for corporate insurance might be influenced by share ownership, where firms with considerable/more external capital (compared to internal ownership) may buy insurance to reduce accumulated business risk associated with new investments. All investors expect to receive a return on investment and in the process of investment, investors should develop security mechanisms to protect their investments against any losses.

Grillett (1992) states that owners with a relatively lower chance for special risk diversification are more likely to demand insurance. In firms where the larger portion of company shares are owned by external owners, it might be important that direct control rests with institutional investors. The demand for insurance is likely to be less if there are more major shareholders in a firm. Most shareholders can efficiently diversify their portfolio and emphasise less insurance purchase (Wang, 1999).

*Hypothesis 5: Operational risk positively affects corporate demand for insurance.*

The bankruptcy probability is increased if the firm has a high debt to asset ratio (little liquidity). By purchasing insurance, the objective is to reduce bankruptcy probability, while enabling the firm to pay for damages (Jamil & Nordin, 2009). Laureen & Yeon (2007) argue that the demand for corporate insurance is higher in firms with higher operational risk and higher bankruptcy probability. Insurance coverage helps firms to pay for damages in times of calamities and accidents if the firm's risk or debt is high (Regan, Hur, 2007). As discussed in hypothesis 2 above, firms with a greater accumulated depreciation ratio would demand more insurance. Firms that have higher liquidity ratio or higher ratio of assets to debts do not demand corporate insurance (Laureen & Yeon, 2007).

*Hypothesis 6: Higher debt ratio in capital structure positively affects demand for corporate insurance.*

Mayers & Smith (1987) established that firms with a greater amount of debt demand higher insurance purchases. That is, in the event of property loss, at times shareholders go beyond the project/investment's net positive present value when its benefits belong to bondholders. In that case of losing a property, shareholders should make informed and bold decisions: either to repair or replace the damaged property. Laureen & Yeon (2007) state that shareholders bear the costs of replacing or repairing damaged properties if there are risky debts in capital structure and there is no insurance.

*Hypothesis 7: Type of industry has a significant effect on amount of insurance demand by a firm.*

The probability of damage varies from one industry to the other. There are industries that are confronted with higher risk, while other industries are faced with low to moderate risk. The chemical and petroleum industry has highly inflammable chemical materials that cause higher risks for the industry, therefore, firms operating in this industry should have a higher demand for corporate insurance (Yamori, 1999). It is imperative for insurers to consider risk management and provide all necessary information and consultations to suggest ways for reducing risk in the industry and risk in general. Ranking factors, which measure risk attributes, may also affect the demand for corporate insurance. For example, if a firm has suffered past losses, the firm's insurance policies might increase, resulting in the firm adjusting its insurance purchases.

## **CHAPTER 3 DATA AND METHODOLOGY**

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### **3.1 Introduction**

This chapter discussed data and research plan that was used to collect, analyse and interpret data for the study. A research methodology outlines the distinct steps, processes, tools, techniques that were used in arriving at the research findings. The roadmap for collecting data helps to demystify any challenges that might be raised by the public and other scholars regarding the process of conducting the study. Key elements discussed in this chapter are the research design; population, empirical model and research methodology.

### **3.2 Research Design**

Different studies were considered in this present research, therefore, it was appropriate to use a conclusive research, where causal comparative and descriptive research designs were used in one study. The objective was to reveal the cause-effect relationships between the firms and demand for insurance (van Wyk, 2012). The two research designs helped to address the “why” and “how” type of questions that informed this study. The objective was to uncover the rate of demand for insurance.

#### **3.2.1 Population**

A group of elements or objects that is of interest to the research for data collection is referred to as a population (Collins and Hussey, 2009: 62). In this study, a population comprised companies from where data was collected and contextualized to South Africa. Babbie (2010:116) defines a population “as the entire set of objects and events, or groups of people, which is the object of research and about which the researcher wants to determine some characteristic”. The population for this study was all firms (small, medium and large) corporations in four industries (top industries contributing to SA GDP). These firms purchase insurance policies

(StatsSA, 2015). The whole population for firms in the identified and selected industries were considered in this study. The focal point was the insurance costs incurred in the years 2013 and 2014. The data used for each period is aggregated firm level data for each industrial sector. The sample for 2013\* of 228 aggregated industrial data is made up of 13,151 firms while the 290 aggregated industrial data for 2014† is made up of 12,922 firms.

### 3.2.2 Empirical Model

The researcher conducted statistical analysis to integrate the findings and enhance understanding the concept of insurance demand (Chigada & Hirschfelder, 2017). The study adopts the empirical models of Hamid, Osman & Nordin (2009) and Michel-Kerjan et al. (2013) presented below to test the hypotheses on the significant determinants of insurance demand in South Africa

$$INSPREM_i = \beta_0 + \beta_1 FRL_i + \beta_2 DA_i + \beta_3 FS_i + \beta_4 OL_i + \beta_5 TAXR_i + \beta_6 AST_i + \beta_7 IT_i + \varepsilon_i$$

*INSPREM* is the insurance demand measured as the ratio of insurance premiums to insurance assets; *FRL* are losses resulting from foreign exchange rates, revaluations and liquidation; *DA* is depreciation and amortisation measured as ratio of accumulated depreciation to total assets' net value; *FS* is the firm size (the firm's total assets); *OL* is the operational leverage (operational risk or ratio of debts to assets); *TAXR* is tax rate measured the ratio of income tax to net income; *AST* denotes assets structure measured as the ratio of fixed assets to total assets and *IT* is the industry type (such as manufacturing, services, industrial, electronic and computer). As a cross-sectional study, the ordinary least squares estimation technique was employed to estimate the regression equation. The assumptions underlying the ordinary least squares estimation was examined before the estimation.

\* Refer to page 67 of the link <http://www.statssa.gov.za/publications/P0021/P00212013.pdf>

† Refer to page 67 of the link <http://www.statssa.gov.za/publications/P0021/P00212014.pdf>

### 3.2.3 Description and Measurement of Variables

The objective of the above regression is to identify the key determinants for corporate demand for insurance. The key variable of interest in this study is corporate demand for insurance ( $ID_i$ ). The other explanatory variables are independent.

- ***Insurance Demand***

The role of insurance has, to a large extent, been ignored in finance literature; however, corporate demand for insurance remains prevalent in the contemporary business environment. The demand for insurance is not peculiar to South Africa; globally, the corporate world is confronted by varying levels of risk, therefore, the demand for insurance differs from one firm or industry or country to the other. Grace and Rebello (1993) state that the firm's demand for insurance is solely driven by the firm's desire to minimise mispricing its bond contract or mitigating risk. The  $ID_i$  is measured by the formula presented in section 3.4.4. Corporate demand for insurance is determined by various factors pertaining to specific industries. The risk levels differ from one industry to the other, therefore, corporate demand for insurance differs from industry to industry (Rey, 2012). It should be noted that legislation compels certain industries such as gas and petroleum, aviation or transportation, to insure before starting any operations.

- ***Expected losses on foreign exchange, redemptions, revaluations and disposal of assets***

Losses are divided into foreign exchange; financial and other liabilities and other assets. Losses on foreign exchange are a result of variations in foreign exchange rates transactions. An increase in the value or price of one currency in terms of another currency (appreciation) automatically implies a decrease in the price of the other currency (Mohr, Fourie and Associates, 2011:389). An exchange insurance will guarantee the company a fixed purchase price, regardless of the evolution of the currencies. Homaifar (2004) and Levi (2005) conducted separate studies in the US to ascertain the impact of foreign exchange risks on firms that maintained

financial statements in foreign currency. The findings indicated that the adverse movement in exchange rates affected businesses and investors or the exporting of goods and services. Foreign exchange investors would be exposed to an exchange rate which could have severe financial consequences if there was no insurance to hedge against (Levi, 2005). Expected losses on foreign exchange, redemptions, revaluations and disposal of assets constituting nominal data was not measurable in this study. The significance of this independent variable was to ascertain its relationship with the purchase of insurance.

- ***Depreciation and amortisation***

Corporations purchasing insurance get tax exemptions on production of proof of insurance policies payments. From an accounting perspective, insurance costs are tax deductible because the insurance cost is an acceptable cost. On the other hand, purchasing an insurance policy reduces risk. Mayers & Smith (1982) argue that tax codes are difficult to understand, however, under convex tax functions and limited progressive losses, insurance purchases reduce expected tax responsibilities. Joe & Mike (2006) state that the difference between the book value and property replacement value (the current cost of replacing the asset) exposed to tax is capital gain. Firms will continue to demand corporate tax until the capital gain tax rate is less than corporate profit tax. Ross (2017) states that as with depreciation, firms spread the cost of an intangible asset over that asset's useful life for example, patents on a piece of equipment. The cost of creating the patent is spread over the life of the patent with each cost being recorded as an expense. Laureen and Yeon (2007) state that firms with greater accumulated depreciation ratio demand more corporate insurance because there is a wider gap between the asset's book value and its replacement costs. Firms with high liquidity are associated with low demand for insurance (for example, South African Airways has a low liquidity ratio).

- ***Firm Size***

Large firms incur a greater amount of transaction and bankruptcy costs, therefore, purchasing insurance is the ideal way to reduce the possibility of incurring

transaction and bankruptcy costs (Yamori, 1999). Insurers provide services and advice, which is a huge advantage to smaller firms which may not have experiences in risk management resulting in insurance purchases (Krummaker & Graf, 2007). There is less likely risk exposure to business risk for larger firms compared to smaller firms; for larger firms to purchase insurance based on physical assets for financing losses (Laureen & Yeon, 2007). Sehat and Kalyani (2011) state that firm size negatively affects corporate demand for insurance if external share ownership capital is larger than internal share capital.

- ***Turnover***

Grillett (1992) states that there is a significant relationship between turnover and demand for corporate insurance. Rey (2012) also concurs that the higher the turnover, the higher a firm is likely to purchase insurance. Firms with high turnover tend to do better in their sectors or industries, therefore, these firms have a higher likely chance of loss if faced with uncertainties/risks; this results in high demand for insurance to protect their firms. Sehat and Kalyani (2011) established that firms were likely to increase their turnover because the insurance acted as added security in the event of risks or losses occurring; thus, firms would not face any setbacks.

- ***Operational Leverage (Underinvestment)***

The bankruptcy probability is increased if the firm has a high debt to asset ratio (little liquidity). By purchasing insurance, the objective is to reduce bankruptcy probability, while enabling the firm to pay for damages (Jamil & Nordin, 2009). Insurance coverage helps firms to pay for damages in times of calamities and accidents if the firm's risk or debt is high (Regan, Hur, 2007). As discussed in hypothesis 2 above, firms with a greater accumulated depreciation ratio would demand more insurance. Higher liquidity ratio or higher ratio of assets to debts is synonymous with low demand for corporate insurance (Laureen & Yeon, 2007). Mayers & Smith (1987) established that firms with a greater amount of debt demand higher insurance purchases. That is, in the event of property loss, at times shareholders go beyond the project/investment's net positive present value when its benefits belong to

bondholders. In that case of losing a property, shareholders should make informed and bold decisions—either to repair or replace the damaged property. Laureen & Yeon (2007) state that shareholders bear the costs of replacing or repairing damaged properties if there are risky debts in capital structure and there is no insurance.

- ***Asset Tangibility***

Asset tangibility was observed to be negatively related to insurance demand in both years. This indicates that firms with higher tangible assets demand less insurance. Titman and Wessels (1988) state that the way firms finance their assets through debt and equity is an important approach to ensuring that there is financial continuity for growth and maintaining the firm's competitiveness. Charalambakis and Psychoyios (2012) state that a firm's tangible assets are important drivers that explain the capital structure in a firm. Literature states that tangible assets are more liquid than intangible assets. Therefore, tangibility of assets should reflect the firm's collateral values of assets on the firm's leverage level. In addition, the type of assets possessed by the firm are considered ambiguous when determining the debt-equity-ratio (Olakunle and Oni, 2014).

- ***Industry Type***

The probability of damage varies from one industry to the other. There are industries that are confronted with higher risk, while other industries are faced with low to moderate risk. The chemical and petroleum industry has highly inflammable chemical materials that cause higher risks for the industry, therefore, firms operating in this industry should have a higher demand for corporate insurance (Yamori, 1999). In addition, firms may be affected by insurance-ranking factors, for example a firm's losses in a previous period. In this case, its insurance policy rate is likely to increase, resulting in insurance costs adjustments.

**Table 3.1: Measurement of variables**

| <b>Variable Name</b>          | <b>Symbol</b> | <b>Measurement</b>   |
|-------------------------------|---------------|--|
| Insurance Demand              | INSPREM       | Insurance premiums/PPE+I   |
| Financial losses/charges      | FRL           | Losses + interest + bank charges/operating profits               |
| Depreciation and Amortisation | DA            | Depreciation and amortisation/fixed assets                       |
| Firm size                     | FS            | Log (total assets)   |
| Operation Leverage            | OL            | Total debt to equity ratio                                       |
| Tax rate                      | TAXR          | Income tax/taxable income  |
| Asset structure               | AST           | Fixed assets/total assets  |
| Industry Type                 | IT            | Industry dummy using forestry and fishery as the reference point |

*Note: PPE & I= Property, Plant, Equipment and Inventory*

### 3.3 Limitations of Study

The study focused on insurance demand yet there are other administrative costs that affect shareholder value. The data collected for the study was from the 2013-2014 period, thus other years that could have shown riskier exposure were excluded from this study. For example, the global financial crisis of 2007-2009 created more risks that compelled firms to get some form of hedging. The piece of data emerging from this period would have been interesting to analyse in relation to the demand for insurance in South Africa. The other limitation of the study was attributable to the data collection process. A literature survey approach was used in the present study, resulting in the exclusion of collecting first-hand facts (primary data). If other data collection strategies had been deployed, a fusion of primary and secondary data would have improved the validity and reliability of findings of the study.

## **CHAPTER 4**

### **DISCUSSION OF RESULTS**

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#### **4.1 Introduction**

The research findings are presented based on the four industries that were identified and discussed in chapter two (wholesale trade; retail and motor trade; manufacturing and finance and business services). Findings are presented in the following sections: Descriptive statistics and Analysis of Normality.

#### **4.2 Descriptive Statistics**

Table 2 shows the descriptive statistics related to the dependent and independent variables for sub-industrial firms selected from the industries considered for this study. The demand for insurance was the focal point for this study. The average insurance premiums were 2.39% and 2.30% of property, plant, equipment and inventory in 2013 and 2014 respectively. This suggests a marginal decline in the insurance usage across the industrial sectors between 2013 and 2014. For other variables in Table 4.1, Operational leverage captured by debt to equity ratio averaged 1.959 and 3.4.54; firm size averaged 8.691% and 8.44% in 2013 and 2014 respectively, depreciation and amortisation was 13.87% in 2013 and 13.98% in 2014 while the tax rate of 26.26% and 24.64% was observed in 2013 and 2014 respectively. Financial losses also averaged (12.02% in 2013 but increased substantially to 37.53% in 2014. Assets tangibility of 31.60% 2013 and 30.37% in 2014 suggests that about 30% of the assets of all firms across the industrial sectors in South Africa are made up of fixed assets in property, plant and equipment.

**Table 4.1: Summary statistics**

|             | INSPREM | DER      | SIZE    | DEPRAMOR | TAXR    | FINLOSS  | AST    |
|-------------|---------|----------|---------|----------|---------|----------|--------|
| <b>2013</b> |         |          |         |          |         |          |        |
| Mean        | 0.0239  | 1.9592   | 8.6919  | 0.1387   | 0.2626  | 0.1202   | 0.3163 |
| Std Dev     | 0.0353  | 3.7571   | 2.1252  | 0.0976   | 0.3346  | 5.9252   | 0.2041 |
| Min         | 0.0000  | -33.7104 | 1.6094  | 0.0000   | -1.9485 | -85.7692 | 0.0000 |
| Max         | 0.4000  | 14.3636  | 13.4951 | 0.7949   | 3.3913  | 11.2500  | 0.8696 |
| N           | 224     | 225      | 226     | 222      | 224     | 224      | 226    |
| <b>2014</b> |         |          |         |          |         |          |        |
| Mean        | 0.0230  | 3.4545   | 8.4442  | 0.1398   | 0.2464  | 0.3753   | 0.3037 |
| Std Dev     | 0.0398  | 19.9936  | 2.1539  | 0.0874   | 0.3604  | 1.9450   | 0.1899 |
| Min         | 0.0000  | -16.8125 | 1.0986  | 0.0000   | -2.1132 | -11.5000 | 0.0000 |
| Max         | 0.5000  | 330.3044 | 13.8980 | 0.5327   | 3.6731  | 20.8400  | 1.0000 |
| N           | 287     | 287      | 288     | 286      | 287     | 287      | 288    |

Note: Note: INSP= Insurance premium to Property, Plant, Equipment and Inventory; OL=Debt to equity ratio; FS=Natural log of total assets; DA=Depreciation and amortisation ratio; TAXR=tax rate; FRL=Financial losses and charges; AST=assets tangibility.

### 4.3 Insurance Demand: Industrial Analysis

Table 4.2 presents the average insurance usage across the sub-industrial sectors in South Africa between 2013 and 2014. Across both periods, it is observed that firms in the transport, storage, communication and construction sectors had the highest usage of insurance.

**Table 4.2: Industrial analysis of insurance usage**

| Industrial Sectors                               | Insurance Premiums (%) |      |              |      |
|--|------------------------|------|--------------|------|
|  | 2013                   | Rank | 2014         | Rank |
| Transport, storage and communication             | 5.70%                  | 1    | 6.00%        | 1    |
| Construction                                     | 4.81%                  | 2    | 4.52%        | 2    |
| Community, social and personal services          | 2.50%                  | 4    | 3.47%        | 3    |
| Activities auxiliary to financial intermediation | 2.77%                  | 3    | 2.94%        | 4    |
| Trade  | 2.04%                  | 5    | 1.92%        | 5    |
| Manufacturing                                    | 1.34%                  | 6    | 1.53%        | 6    |
| Forestry and fishing                             | 1.30%                  | 7    | 1.12%        | 7    |
| Mining and quarrying                             | 0.62%                  | 8    | 0.60%        | 8    |
| Electricity, gas and water supply                | 0.28%                  | 9    | 0.25%        | 9    |
| <b>Average</b>                                   | <b>2.39%</b>           |      | <b>2.30%</b> |      |

Note: INSP=Insurance premium to Property, Plant, Equipment and Inventory.

#### 4.4 Correlation Analysis

Firstly, the study needed to ensure that the regression model was not prone to any multicollinearity, which leads to high standard errors. By looking at the correlation coefficients (CC) and tolerance statistics, multicollinearity was not an issue in this model. CC that exceeds 1 and tolerance values that are less than 0.1 pose as threats to high standard errors, impacting the reliability of the study (Brien, 2007). Table 4.3 shows the correlation coefficient between the dependent variable (*INSPREM*) and the independent variables observed in the period. Using the Pearson and Spearman (Paired Correlation Coefficient) in Table 4, there is a statistically significant relationship between the dependent variable and the independent variables, namely: firm size (FS); depreciation and amortisation ( $DA_i$ ); asset tangibility (AST) industry type (InT) at 0.01 level

**Table 4.3: Correlation Matrix**

|             | INSPREM    | DER        | SIZE       | DEPRAMOR   | TAXR      | FINLOSS | AST     | INDUSTRYDUM |
|-------------|------------|------------|------------|------------|-----------|---------|---------|-------------|
| <b>2013</b> |            |            |            |            |           |         |         |             |
| INSPREM     | 1.0000     |            |            |            |           |         |         |             |
| DER         | 0.1046     | 1.0000     |            |            |           |         |         |             |
| SIZE        | -0.2959*** | 0.0629     | 1.0000     |            |           |         |         |             |
| DEPRAMOR    | 0.4555***  | 0.1399**   | -0.2544*** | 1.0000     |           |         |         |             |
| TAXR        | -0.0056    | 0.0986     | -0.0595    | 0.0314     | 1.0000    |         |         |             |
| FINLOSS     | 0.0316     | 0.0320     | 0.0061     | -0.0467    | 0.1938*** | 1.0000  |         |             |
| AST         | -0.1184*   | -0.1382**  | 0.1177*    | -0.3659*** | 0.0090    | -0.0024 | 1.0000  |             |
| INDUSTRYDUM | 0.2149***  | -0.0674    | -0.2259*** | 0.0621     | -0.1238*  | 0.0809  | -0.0429 | 1.0000      |
| <b>2014</b> |            |            |            |            |           |         |         |             |
| INSPREM     | 1.0000     |            |            |            |           |         |         |             |
| DER         | -0.0192    | 1.0000     |            |            |           |         |         |             |
| SIZE        | -0.1799*** | 0.0273     | 1.0000     |            |           |         |         |             |
| DEPRAMOR    | 0.1509**   | -0.0455    | -0.2311*** | 1.0000     |           |         |         |             |
| TAXR        | 0.0131     | -0.0916    | -0.0461    | 0.0082     | 1.0000    |         |         |             |
| FINLOSS     | 0.0014     | -0.1674*** | -0.0098    | 0.0593     | 0.5783*** | 1.0000  |         |             |
| AST         | -0.2329*** | 0.1531***  | 0.0904     | -0.3131*** | -0.0498   | 0.0055  | 1.0000  |             |
| INDUSTRYDUM | 0.2295***  | 0.1227**   | 0.0022     | 0.0575     | -0.1329** | -0.0527 | -0.0134 | 1.0000      |

Note *INSP*=Insurance premium to Property, Plant, Equipment and Inventory; *OL*=Debt to equity ratio; *FS*=Natural log of total assets; *DA*=Depreciation and amortisation ratio; *TAXR*=tax rate; *FR*=Financial losses and charges; *AST*=assets tangibility; *Industrydum*=industry dummy; \*\*\*, \*\* and \* denotes significance of 1%, 5% and 10% respectively.

## 4.5 Regression Results

The results of the analysis to identify the significant determinants of insurance demand among industrial sectors in South Africa in 2013 and 2014 is presented in Table 4.4. The coefficient of determination ( $R^2$ ), which indicates the amount of variation that is explained by the model, was 0.3604 and 0.2198 in 2013 and 2014 respectively. This indicated that the independent variables collectively accounted for 36.04% and 21.98% of insurance demand in 2013 and 2014. In addition, the probability values associated with estimated F statistics were 0.000. This study rejected  $H_0$  at the 1% level of significance, therefore, the study proves that the regression model predicts the outcome of the dependent variable (ID) – Insurance Demand. The model was proven to be significant and multiple regression can further be predicted to answer the study's objectives.

In Table 4.4, a negative coefficient is observed between operating leverage and demand for insurance in 2014 at 10% significance level. This indicates that firms with higher operating leverage have lower demand for insurance. This is inconsistent with the underinvestment theory of Mayers & Smith (1987) that states that the demand for corporate insurance is higher in firms with a greater amount of debt. If shareholders have risky debts in capital structure, they may not make the necessary investment decisions that are in the best interest of shareholders.

A negative coefficient is also observed between insurance demand and firm size (FS), which is in line with the research hypothesis. This indicates that large firms have lower demand for insurance. There is less likely risk exposure to business risk for larger firms compared to smaller firms, for larger firms to purchase insurance based on physical assets for financing losses (Laureen & Yeon, 2007). Smaller firms are more likely to purchase insurance because of the level of concentrate activities in small firms. It becomes more logical for small firms to purchase insurance than it is for large firms. This finding differs with Hong et al. (2001) who established that firm size has a positive relationship with the demand for insurance. Their findings revealed that large firms purchased more insurance than small firms.

**Table 4.4: Regression Results**

|  | 2013                   |       | 2014                   |       |
|--|------------------------|-------|------------------------|-------|
|  | coef.                  | t     | coef.                  | t     |
| Constant   | 0.0363***<br>(0.009)   | 4.02  | 0.0217***<br>(0.008)   | 2.68  |
| OL   | 0.0001<br>(0.0002)     | 0.33  | -0.0010*<br>(0.001)    | -1.68 |
| FS   | -0.0020***<br>(0.0004) | -4.61 | -0.0011***<br>(0.0003) | -3.12 |
| DA   | 0.0181**<br>(0.009)    | 2.05  | 0.0436***<br>(0.008)   | 5.45  |
| TAXR   | -0.0006<br>(0.003)     | -0.19 | 0.0028<br>(0.002)      | 1.38  |
| FRL  | 0.0008<br>(0.001)      | 1.06  | -0.0001<br>(0.0004)    | -0.4  |
| AST  | -0.0173***<br>(0.004)  | -4    | -0.0117***<br>(0.004)  | -3.04 |
| Industry Dummy                                   |                        |       |                        |       |
| Mining and quarrying                             | -0.0051<br>(0.008)     | -0.65 | -0.0033<br>(0.008)     | -0.44 |
| Manufacturing                                    | -0.0044<br>(0.008)     | -0.58 | -0.0013<br>(0.007)     | -0.19 |
| Electricity, gas and water supply                | -0.0005<br>(0.010)     | -0.05 | 0.0006<br>(0.009)      | 0.06  |
| Construction                                     | 0.0188**<br>(0.008)    | 2.33  | 0.0198**<br>(0.008)    | 2.57  |
| Trade  | -0.0002<br>(0.008)     | -0.03 | 0.0013<br>(0.007)      | 0.17  |
| Transport, storage and communication             | 0.0100<br>(0.008)      | 1.28  | 0.0122<br>(0.008)      | 1.61  |
| Activities auxiliary to financial intermediation | -0.0019<br>(0.008)     | -0.25 | 0.0009<br>(0.007)      | 0.13  |
| Community, social and personal services          | 0.0030<br>(0.008)      | 0.39  | 0.0068<br>(0.007)      | 0.93  |
| F(14, 206)                                       | 8.29                   |       | 5.41                   |       |
| Prob > F   | 0.000                  |       | 0.0000                 |       |
| R-squared  | 0.3604                 |       | 0.2198                 |       |
| Adj R-squared                                    | 0.317                  |       | 0.1792                 |       |
| Root MSE   | 0.02927                |       | 0.03617                |       |
| Observations                                     | 221                    |       | 284                    |       |

Note: INSP= Insurance premium to Property, Plant, Equipment and Inventory; OL=Debt to equity ratio; FS=Natural log of total assets; DA=Depreciation and amortisation ratio; TAXR=tax rate; FR=Financial losses and charges; AST=assets tangibility; Industrydum=industry dummy;

\*\*\*, \*\* and \* denotes significance of 1%, 5% and 10% respectively.

The effect of depreciation and amortisation on insurance demand is observed to be positive and significant at 5% and 1% in 2013 and 2014 respectively. This suggests that firms with firms with greater accumulated depreciation ratio demand more corporate insurance because there is a wider gap between the assets' book value and replacement costs (Laureen & Yeon, 2007).

Asset tangibility was observed to be negatively related to insurance demand in both years. This indicates that firms with higher tangible assets demand less insurance. Charalambakis and Psychoyios (2012) state that a firm's tangible assets are important drivers that explain the capital structure in a firm. Literature states that tangible assets are more liquid than intangible assets.

Lastly, across the industry dummies, only the coefficient of the construction industry is observed to be significant at 5% in both years. The positive coefficient suggests that firms in construction industry have high usage of insurance compared to firms in the forestry and fishing industry. As observed from Table 4.2, the average insurance usage of about 4.5% for firms in the construction industry compared to the average of about 1% for the forestry and fishing industry partly explains this result. There is also a statistically negative correlation between  $ID$  and industry type ( $InT$ ) which indicates that industry type has an impact on the demand for corporate insurance purchases. The illustration in Table 4 depicts negative correlation coefficients between  $ID$  and other remaining independent variables (operational leverage and tax) at the 0.01 level and lower are not significant (two-tailed tests).

## **CHAPTER 5 CONCLUSIONS AND RECOMMENDATIONS**

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### **5.1 Introduction**

In the previous chapter, the results were presented. In this chapter, the focus is to present the conclusions of the empirical analysis and provide some policy recommendations for various stakeholders of the study.

### **5.2 Summary and Conclusions**

Insurance is designed to hedge the firm or individual against unforeseen and unplanned risks that might be caused by human beings or natural disasters. Laureen and Yeon (2007) posit that one of the reasons for purchasing insurance was to avert risk caused by different conditions and acts. It was revealed that the contemporary business environment was fraught with uncertainties that potentially exposed firms to high risk, therefore, purchasing insurance was the ideal strategy to mitigate losses. This research examined the industrial demand for insurance in South Africa using cross-sectional data for 2013 and 2014. The conclusions from the primary study are discussed in line with the two research objectives restated below:

#### **5.2.1 To examine industrial insurance usage by South African firms**

From the findings presented in chapter four, it was established that firms in all industries purchased insurance because most of these firms were in regulated industries. Insurance purchase was part of the regulation policy. Firms in the manufacturing industry had the highest turnover, therefore, it was revealed that the higher the turnover, the more likely a firm is to purchase insurance to enhance performance and hedge against unforeseeable losses. The demand for insurance in the manufacturing industry was also attributable to industry type. Overall there was a higher demand for corporate insurance in the manufacturing industry,

followed by the wholesale and retail trade and the least demand for corporate insurance was in the financial, business and real estate industry.

### 5.2.2 **To identify the factors for corporate demand for insurance by South African firms.**

Six variables/factors were identified to be at the core for corporate demand for insurance and these were: depreciation and amortisation, firm size, turnover, operational leverage, underinvestment and industry type. With reference to the first objective above, it was revealed that the six variables identified played a major role in the usage of insurance by selected South African firms.

The study revealed that firms demanded insurance irrespective of industry. Analysis of insurance usage data from the selected South African industries provides a unique opportunity for scholars and practitioners to evaluate determinants of corporate insurance demand. This study is one of the attempts to empirically investigate the demand for insurance in different South African firms. The results in this study support several predictions and findings from previous studies and a call for further research to be built on the current study. Small firms are more likely to purchase insurance than big firms which is consistent with the findings of Yamori (1999). This study also revealed that the selected industries were regulated, therefore, insurance purchase was part of the regulation, which is in line with the conjecture developed by Mayers & Smith (1982) who argued that regulated industries demand more insurance than non-regulated industries.

The author cannot offer evidence that tax consideration plays an important role in determining demand for insurance. It was revealed that firms in this study all recorded positive profits, however, tax is an important factor in firms whose pre-tax income does not fall within the convex of the tax curve. Mayers & Smith (1982) argue that tax codes are difficult to understand, however, under convex tax functions and limited progressive losses, insurance purchases reduce expected tax responsibilities. With reference to the findings from this study, it is recommended that further research be conducted to ascertain how other industries demand

corporate insurance. Further research will expand the horizons of literature and knowledge underpinning insurance in many industries in South Africa.

### 5.2.3 **Policy Recommendations**

The implications from the study of corporate demand for insurance have not been tested due to challenges confronted when trying to obtain data on firms' insurance purchases. Corporate demand for insurance in South Africa is greatly motivated by regulation. The study revealed that firms demanded insurance irrespective of industry, but as a result of regulatory requirements. Firms that operate outside the regulatory framework are at a disadvantage in the event of risks or eventualities occurring. With reference to regulation, insurance firms can enter into insurance contracts with regulated firms, therefore, either way, firms are compelled to register and be regulated for them to be able to get insurance services.

### 5.2.4 **Avenues for Future Research**

There is room for future research because this study focused on a few industries which are major contributors to the country's GDP, whilst ignoring other firms. As it has been established that the demand for insurance is driven by various factors, small firms should not be left out in the discussions on demand for corporate insurance. Secondly, future research can be conducted including all industries and then comparisons can be done to determine which industries demand more insurance than others. Lastly, one would be able to determine factors compelling those firms to demand more insurance.

## References

- Ashby, S & Diacon, S. (1998). "The Corporate Demand for Insurance: A Strategic Perspective", *the Geneva Papers on Risk and Insurance*, 23, pp. 34-51.
- Babbie, E. (2010). *The practice of social research*. 12<sup>th</sup> Edition. Southbank, Victoria: Wadsworth/Thompson.
- Bushaway, R.W. (2015). *Managing Research*. Berkshire, GBR: McGraw-Hill Education.
- Chigada, J.M. & Hirschfelder, B. (2017). Mobile Banking in South Africa: A review and directions for future research, *South African Journal of Information Management*, 19(1), a789.
- Cohen, L. (2007). *Research Methods in Education*, 5<sup>th</sup> edition. New York: Routledge.
- Collins, J. and Hussey, R. (2009). *Business Research: A Practical Guide for Undergraduate & Postgraduate Students*. 3<sup>rd</sup> ed. Hampshire: Palgrave Macmillan.
- Creswell, J.W. (2012). *Research Design: Qualitative, Quantitative and Mixed Methods Approach*. Thousand Oaks, CA: Sage.
- Creswell, J.W. (2017). *Research design: qualitative, quantitative and mixed methods approach*. Thousand Oaks, CA: Sage.
- Davidson III, Wallace N., Mark L. Cross, and John H. Thornton. 1992. Corporate Demand for Insurance: Some Empirical and Theoretical Results. *Journal of Financial Services Research* 6(1): 61-72.
- Department of Trade and Industry (2016). South Africa's economy slows down. Pretoria.
- Grace, M. & Rebello, M. (1993). "Financing and the Demand for Corporate Insurance", *The Geneva Papers on Risk and Insurance: Theory*, 18, pp. 147-172.
- Hill, C.W.L. (2014). *International Business: Competing in the Global Marketplace*, 14<sup>th</sup> Edition. New York: McGraw Hill/Irwin.
- Krummacker, S. & Graf, J. (2007). "Corporate Demand for Insurance: Empirical Evidence from Germany", *Gottfried Wilhelm Leibniz University of Hannover Institute for Insurance Economics*, 4, pp. 1-14.
- Laureen, R. & Yeon, H. (2007). "On the Corporate Demand for Insurance: The Case of Korean Non-Financial Firms", *Journal of Risk and Insurance*, 4, pp. 829-850.
- Leedy, P.D. and Ormrod, J.E. (2010). *Practical Research, Planning and Design*, 8<sup>th</sup> Edition, New Jersey: Pearson Education International.
- MacMinn, R. & Han, L. (1990). "Limited Liability, Corporate Value and the Demand for Liability Insurance", *Journal of Risk and Insurance*, 57, pp. 581-607.
- MacMinn, R.D. (1987). Insurance and Corporate Risk Management. *The Journal of Risk and Insurance* 54(4): 658-677.
- Mayers, D. and Smith, C. (1990). On the Corporate Demand for Insurance: evidence from the reinsurance market, *Journal of Business*, 63 (1), pp. 19-40.
- Mohr, P. Fourie, L. and Associates (2011). *Economics for South African Students*, 4<sup>th</sup> Ed, Van Schaik Publishers, Pretoria.

- Mouton, J. (2005). *How to succeed in your master's and doctoral studies*. Sixth and Seventh Impressions. Pretoria: Van Schaik.
- Ngulube, P. (2014). Theoretical and conceptual frameworks in social research. In Mathipa, E.R. and Gumbo, M.T. (eds). *Addressing research challenges: making headway for developing researchers* (in press).
- Olakunle, A. O., Oni, E. O. (2014) "Assessing the impact of asset tangibility on capital structure: choice for listed firms in Nigeria", Available at <http://www.aebjournal.org/articles/0203/020301.pdf> (accessed on: September 20, 2017)
- Schussler, M. (2017). Factors affecting the country's low growth rate. Business News. Johannesburg.
- Sehhat, S. & Kalyani, V.H. (2011). Effective factors in corporate demand for insurance: empirical evidence from Iran, *Insurance Markets and Companies: Analyses and Actuarial Computations*, 2 (3).64-75.
- Skogh, G. (1989). The Transactions Cost Theory of Insurance: Contracting Impediments and Costs. *The Journal of Risk and Insurance* 56(4): 726-73.
- Smith, Jr., C.W. (1986). On the Convergence of Insurance and Finance Research. *The Journal of Risk and Insurance* 53(4): 693-717.
- South African Reserve Bank (2015). Annual Report: Industry Analysis. Pretoria.
- Stangor, C. (2011). *Research Methods for the Behavioural Sciences* 4<sup>th</sup> Edition, Belmont: Wadsworth, Cengage Learning.
- StatsSA (2015), Annual Financial Statistics survey 2015 (AFS). Pretoria.
- Titman, S., Wessels, R. (1988), "The determinants of capital structure choice", *Journal of Finance*, (43), 1. 1-19.
- Van Wyk, MM. (2012) Measuring Student's Attitudes to Economics Education: A Factorial analysis approach, *Journal of Social Science*, 31 (1):1-42.
- World Bank (2014). A view of developing economies. A perspective of sub-Saharan Africa.
- World Economic Forum (2014). Sustainability and global warming. The way forward. Durban.
- Yamori, N. (1999). "An Empirical Investigation of the Japanese Corporate Demand for Insurance", *Journal of Risk and Insurance*, 66, pp. 239-252.
- Zou, H., Adams, M.B. and Buckle, M.J. (2003). Corporate Risks and Property Insurance. Evidence from the People's Republic of China, *Journal of Risk and Insurance*, 70 (2), pp. 289-314.