MARKET STRUCTURE, CONDUCT AND PERFORMANCE OF FIRMS IN THE INSURANCE INDUSTRY: EVIDENCE FROM ZAMBIA.

BY

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2015

I Kondwani Kaonga declare that this dissertation;

(a) Represents my work
(b) Has not previously been submitted for a degree at this or any other University.

Signed:.....

Date:.....

Approval

The dissertation of **Kondwani Kaonga** is approved as fulfilling the partial requirements for the award of the degree of Master of Arts in Economics by the University of Zambia

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Abstract

This paper examines the relationship between market structure, conduct, performance (SCP) in the insurance industry specifically focusing on general and long term insurance by employing a simultaneous equations framework. The empirical analysis was based on quarterly data gathered on fifteen general insurance companies and seven long term insurance companies from 2005 to 2013. The paper developed market share as a proxy for market structure, advertising intensity as a proxy for market conduct and profitability as a proxy performance. Further, the researcher used three Stage Least Squares (3SLS) estimation method to examine the relationship between market structure, conduct and performance using market share, advertising intensity and profitability as proxies respectively. The 3SLS results from the study found that the SCP hypothesis did not hold in both the long term and general insurance industry as the efficient market hypothesis was more likely to apply.

Key words: General insurance, long term insurance, market structure, conduct, performance.

Dedication

I would like to dedicate this paper to Aunty Mellow Kaonga Mulenga and the rest of my family.

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Table of Contents

List of Tables

Tables

List of Graphs

Graphs

Abbreviations

ADV	Advertising Intensity
BoZ	Bank of Zambia
CR_4	Four Firm Concentration Ratio
CAP	Capital Investment
ESH	Efficient Structure Hypothesis
GDP	Gross Domestic Product
GWP	Gross Written Premiums
HHI	Hefindal Hirschman Index
KSR	Capital to Sales Ratio
MS	Market share
OWNDUM	Ownership Dummy Variable
PR	Profitability
PIA	Pensions and Insurance Authority
RMP	Relative Market Hypothesis
SCP	Structure Conduct Performance
TOC	Total Operating Costs
USA	United States of America
ZSIC	Zambia State Insurance Corporation

CHAPTER ONE
INTRODUCTION

1.1 Background

The Zambian Economy has experienced stable growth in the past 10 years with real Gross Domestic Product (GDP) averaging at 6.3 percent from 2005 to 2013, with the lowest growth in the period being recorded at 5.2 percent in 2005 and the highest at 7.6 percent in 2010 (Bank of Zambia, 2007, 2010 and 2013). The growth of the economy can be attributed to the growth of individual sectors such as construction, transport and communication, manufacturing and the financial institutions and insurance industry which collectively contributed to the economy with sectoral contribution to real GDP growth averaging around 1.4 percent, 1.4 percent, 0.5 percent and 0.4 percent respectively. Further statistics from the Central Statistics Office indicate that in 2011, the financial institution and insurance sector had 34,422 people formally employed, contributing 5.4 percent to formal employment in Zambia hence contributing to poverty reduction. According to Grant 2012, there is a positive relationship between insurance development and economic development. Further, Grant 2012 argued that as the economy grows, the insurance market also grows as individuals and firms seek to manage their new risk exposures. It is further argued that an increase in insurance encourages economic growth (ibid).

Therefore, the insurance industry is a key industry in an economy as it reduces the investments risks faced by individuals and firms (both private and public) as well as uncertainties of life. It does so by transferring the risks that such parties may face to the insurance firms to whom a premium is paid in exchange for cover. By receiving premiums the insurance companies form part of the financial intermediaries that channel funds from those that have to those that do not have funds for investments purposes.

In this sense, the insurance industry in Zambia is not an independent sector but is defined as part of a broader sector (Financial Institutions and Insurance). The financial institutions and insurance sector has over the past 5 years increased its contribution to real GDP from 0.3 percent in 2005 to 0.9 percent in 2013[1] (Bank of Zambia 2007, 2010 and 2013).

[1] At constant 1994 prices

It is worth noting that the insurance industry in Zambia became a monopoly in 1971 when the country only had the Zambia State Insurance Corporation (ZSIC) following the 1968 Economic Nationalisation Reforms which saw the nationalisation of 26 foreign insurance companies. However, following the economic reforms of the 1990s which included the liberalisation of the economy, a number of private insurance companies entered the market even though it remained unregulated. With liberalisation of the economy, comes the need for regulation to ensure sustainable growth of economy in general and industries in particular. In this regard, the Government of the Republic of Zambia in 1997 through Parliament enacted the Insurance and Pensions Act ('the Act') which became operational in 1998 and was to be enforced by the Pension and Insurance Authority (PIA) as the regulator in the insurance industry in Zambia. (www.pia.org.zm)

At the time of enacting the Insurance Act in 1997, the Act categorised the companies in the insurance industry as follows: Reinsurance (insurers of insurance companies), General Insurance, Composite Insurance (included both general and long term insurance), Insurance Brokers, Loss Adjustors, Motor Assessors, Claims Agents and Insurance Agents companies. The Act further stipulated the minimum capital requirements for the different types of companies in the industry. Notable among these was reinsurance and general insurance companies which required ZMW 1 million, composite insurance companies required ZMW 2 million while insurance brokers required ZMW 50,000. (The Insurance Act)

However, in 2005 the Insurance Act was amended to prohibit insurance companies from conducting both Life and non-Life insurance business under one entity. The amendment saw the birth of Long term Insurance companies as separate entities from General Insurance. The separation of entities into long term and general insurance is very cardinal as the two differ in certainty with which the occurrence of the event can be predicted. For instance, by means of actuarial data, it is easier to predict a person's life expectancy than the probability of a car being involved in an accident (Jedlicka and Limah, 2006). As such, if companies do not separate the two types of insurance, they are likely to use funds from one type of insurance for the other which might create financial challenges in meeting their obligations to the insured.

Following the amendment of the Act in 2005, the number of general insurance companies has increased from 7 in 2005 to 18 in 2013. On the other hand the number of long term or life insurance companies has increased from 4 in 2005 to 7 as at December, 2013. While long term insurance covers uncertainties that may arise in relation to a long term personal and company liability which includes health and individual savings, general insurance covers the broader part of the economy which includes accidents, aviation, burglary, engineering, agriculture, fire, marine, bonds, property, transportation, liability, motor and miscellaneous. Therefore the general insurance industry is very fundamental in managing investments risks that arise from businesses, while the long term insurance industry is important in as far personal liability is concerned. (Pension and Insurance Annual Reports; 2005, 2007, 2009, 2011 & 2012)

Since the separation of the insurance industry into general and long term insurance, the general insurance industry has grown in gross written premiums from ZMW 296 million in 2005 to ZMW 1,073 million in 2013, and averaging around ZMW 679 million from 2005 to 2013. On the other hand, profits before tax have increased from ZMW 27 million in 2005 to ZMW 69 million in 2013 and have averaged around ZMW 34 million from 2005 to 2013. Further, the long term insurance industry has experienced growth in gross written premiums from ZMW 84 million in 2005 to ZMW 446 million in 2013 and averaging around ZMW 250 million from 2005 to 2013. In addition, the profits before tax have increased from ZMW (2 million) in 2005 to ZMW 71 million in 2013 and averaging around ZMW 36 million from 2005 to 2013. (PIA, 2007, 2009 and 2013)

It is evident that while the general insurance industry as at end of 2013 had 15 companies actively operating, its average profit before tax of ZMW 34 million was lower than the long term insurance ZMW 36 million which had 7 firms operating as at end of 2013.

It is therefore imperative to establish the structure, conduct and performance of the insurance industry, specifically focusing on general and long term insurance in Zambia.

1.2 Statement of the Problem

Following the separation of insurance into general and long term insurance, 12 new firms entered the general insurance industry bringing the total number of firms to 18, of these, 15 were operating as at December, 2013. On the other hand, of the 6 long term insurance companies that were operating in 2005, 2 exited the market while 3 more entered the market bringing the number of long term insurance companies to 7. However, it is evident that the long term insurance industry generates more profits before tax than the general insurance industry. According to economic theory, an industry with higher profits attracts more entrants than one with lower profits. It would therefore be expected that since the long term insurance industry appears to be more profitable, it would generally attract more entrants than the general insurance industry. In this regard, it is imperative that we establish the structure, conduct and performance of the insurance industry in order to understand how the structure and conduct of firms in the two markets affects their performance and to determine if the performance affects their conduct and structure.

According to Ferguson and Ferguson (1994) the classification and analysis of industries on the basis of their structure, conduct and performance helps in understanding the corresponding type of behaviour and performance expected from each market. Once the boundaries of a market are known, the structure of a market can be determined, thereby determining the performance associated with the particular market structure.

The structure conduct and performance (SCP) hypothesis is a theory that helps in analysing and understanding the market structure that an industry may exhibit, conduct of firms and the impact on the performance of firms in the industry as measured by firm profitability. The SCP hypothesis was first used by Bain (1951) to account for inter- industry differences in profitability and has since been applied by other researchers in various sectors ranging from agriculture, manufacturing, tourism, banking, finance and the insurance industry in countries outside Zambia (See; Joskow (1973), Njegomir et al (2011), Bajtelmit et a,l (1998), Choi and Weiss (2005), Thomas (2012), Tung (2000), Zellner (1989).

Not until recent studies by Delrome (2002), traditionally, analysts assumed a one way causal relationship between market structure and market performance via market conduct. Market

structure was exogenously treated to be determined by basic market conditions such as technology and demand. However, studies such as those by Delrome (2002) recognize the existence of a feedback effect in which performance affects both conduct and structure, and conduct in turn affects structure.

Therefore, this study seeks to examine the market structure (as measured by market share), conduct of firms (as measured by behaviour characteristics such as advertising) and the performance (as measured by profitability) of the insurance industry and the feedback effects of the SCP hypothesis to determine the effect of performance on market structure and conduct.

1.3 Objectives

1.3.1 General Objective

The general objective of the study is to examine the relationship between market structure, conduct and performance of firms in the insurance industry in Zambia.

1.3.2 Specific Objectives

The study has the following specific objectives:

(i) Determine the effect of market structure and conduct on performance in the insurance industry;

(ii) Determine the effect of performance on conduct and market structure in the insurance industry;

1.4 Significance of the Study

It has been observed that no study to examine the relationship of market structure, conduct and performance of firms in the insurance industry has been done in Zambia. Given the growing importance of the insurance industry in the economy, it is imperative that a study to test the SCP hypothesis of firms in the industry and determination of the feedback effects be carried out. This study is relevant as the results could be used by policy makers to devise ways of ensuring that the insurance industry is competitive, profitable and sustainable in order to contribute more to economic development and poverty reduction.

1.5 Organisation of the Study

This rest of the study is organized as follows; chapter two gives an overview of the insurance industry, chapter three provides a review of literature on the market structure, conduct, and performance paradigm including the theoretical and empirical reviews, chapter four describes the methodology used in the study, chapter 5 presents the empirical analysis as well as the discussion of the analysis and chapter six gives the conclusion and policy implications of the findings.

CHAPTER TWO
OVERVIEW OF THE INSURANCE INDUSTRY IN ZAMBIA

2.1 Introduction

This chapter provides an overview of the insurance industry in Zambia. The chapter is arranged as follows: Section 2.1 provides the background of the insurance industry in Zambia while Section 2.2 shows the number of insurance companies and their market share, Section 2.3 discusses the performance of the insurance industry in relation to gross written premiums and profit before tax Section 2.4 discusses the some of the challenges that are faced by the Insurance Industry and the Pension and Insurance Authority. Section 2.5 concludes the chapter.

2.2 Background of the Insurance Industry in Zambia

The insurance industry in Zambia was liberalised in 1992, this led to a number of companies entering the market, notable among the companies that started operating at the time include; Madison Insurance, Goldman Insurance, Cavmont Insurance now called Diamond General Insurance, Professional and Nico Insurance.

The industry remained unregulated until 1997 when the Government enacted the Insurance Act No. 27 of 1997 and the Pension Scheme Regulation Act No.28 of 1996 Act. The enactment of the Pension Scheme Regulation Act of No.28 of 1996 established the Pension and Insurance Authority (PIA). However, it is the enactment of the Insurance Act No.27 of 1997 which guides the regulation of the insurance sector, even though both Acts are enforced by the Pension and Insurance Authority. The Insurance Act categorised insurance companies into General, Long Term and Composite Insurance companies (comprising both general and life insurance) and other players in the industry included re-insures, brokers, agents, assessors, loss adjustors and claims agent. However, in 2005 the Insurance Act was amended and significant among these amendments was the discontinuation of issuing licences for insurance companies to operate both long term and general insurance as one entity and to split the already existing composite insurance companies into general and long term insurance. The amendment saw the birth of companies such as Madison Life, Professional Life and ZSIC Life.

It was notable that the insurance industry had grown over the years from the amendment of the Insurance Act in 2005, the number of licensed insurance companies grew from 27 and 49 brokers

as at the end of July 31st 2014. The industry also had 2 local reinsurance companies, 260 agents and a number of other players. Of the 27 registered insurance companies, 18 were general insurance while 9 were long term insurance companies. Of the 18 general insurance companies, only 15 were actively operating as at December, 2013, while the other 3 were yet to establish presence. Of the 9 life insurance companies, only 7 were operating as at December, 2013. The industry had 2 reinsurance companies, 8 Claims Agents, 6 Motor Assessors, 6 Loss Adjusters and 2 Risk Surveyors.

2.3 Companies Operating in the Insurance Industry and their Market Share

Table 2.1 below shows a list of the general insurance firms that were operating in Zambia from 2005 to 2013 and their market share. It is notable from the table that ZIGI exited the market in 2008. This was due to lack of corporate governance within the firm[2]. Further, it was only until 2010 when other general insurance companies started entering the market with a total of 9 firms entering the market from 2010 to 2013. It can be seen from table 2.1 that the four major players with considerable market share included Nico, ZSIC, Madison and Professional general insurance which had been in the industry from the 1990s.

[2] Submission by Pension and Insurance Authority through interviews

Table 2.1: General Insurance Market share (%) from 2005 to 2013

Company	Year								
	2005	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Diamond	1.37	0.748	1.2	2.11	2.92	3.88	5.41	4.84	5.12
Goldman	4.4	3.233	5.1	4.69	4.78	4.77	4.75	5.70	6.74
Madison	24.3	21.06	21.67	21.21	20.08	25.58	24.43	23.04	21.90
Nico	8.71	12.31	11.85	10.11	11.59	12.65	13.27	11.94	10.22
Proffessional	35.9	35.27	33.69	38.02	37.47	28.57	24.0	24.17	24.83
ZIGI	3.79	4.33	2.86						
ZSIC	21.5	23.05	23.64	23.86	23.15	22.67	23.38	21.59	16.17
Hollard						0.30	2.263	3.43	5.27
Mayfair						0.23	0.82	1.23	2.22
Phoenix						1.33	1.69	2.48	2.55
A-Plus									0.40
Advantage								0.35	1.23
African Grey								0.84	1.31
Focus								0	0.39
General Alliance								0.016	0.27
Meanwood								0.361	1.38
Total Industry	100	100	100	100	100	100	100	100	100

Source: Pension and Insurance Authority.

Table 2.2 below shows a list of the long term insurance firms that were operating in Zambia from 2005 to 2013 and their market share. It is also notable from the table that ZIGI exited the market in 2008 as was the case for the general insurance market for the same reasons of poor corporate governance within the firm and Fidelity Life, which was formerly under Diamond Insurance also exited the market in 2008. It is also notable that new firms only started entering the market in 2009 as was the case for Blue Assurance which however started winding up its operations in 2012. From 2010 to 2013 3 firms entered the market bringing the total number of long term insurance firms to 7 as at December, 2013. It can be seen from table 2.2 that the four major players with considerable market share include African Life, ZSIC, Madison and Professional long term insurance.

Table 2.2: Long Term Insurance Market Share (%) from 2005 to 2013

Company	Year								
	2005	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Fidelity Life	0.21	0.05	0	1.195					
African Life	8.5	11.92	24.18	24.96	16.526	25.7	32.39	37.43	33.63
Madison Insurance	46.1	44.26	34.33	31.44	29.989	21.28	24.39	23.36	25.67
Professional Life	15.5	19.14	18.45	15.08	16.383	18.95	14.49	10.63	11.54
ZIGI	0.9	0.971	1.092						
ZSIC	28.8	23.66	21.95	27.32	36.142	33.11	27.59	20.25	20.93
Blue Assurance					0.9609	0.968	1.134	0.982	
Barclays Life								6.04	6.848
Hollard Life								1.269	1.05
Metropolitan								0.042	0.342
Total market share					100	100	100	100	100

Source: Pension and Insurance Authority

2.4 Performance of the Insurance Industry in Zambia

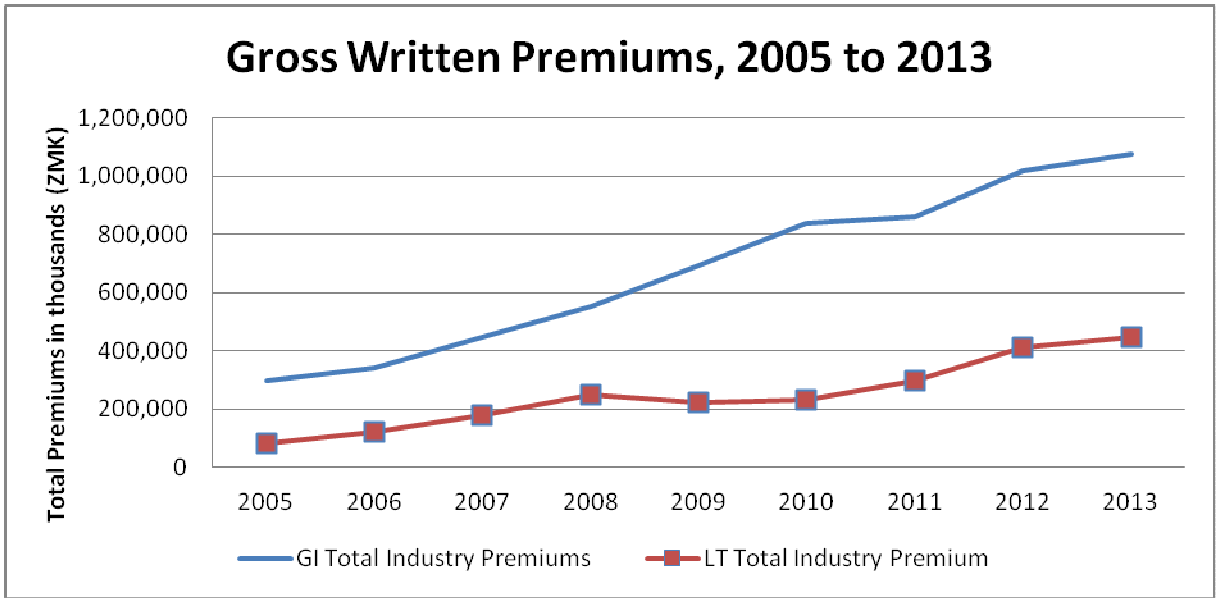
Further, significance growth has also been recorded in volume of business underwritten; the general insurance industry has made major contributions to the gross written premiums of the insurance industry over the years. For example in 2009 the insurance industry recorded a gross written premium turnover of ZMW 915 million, compared to ZMW 801 million in 2008 representing a growth rate of 14 percent. The general insurance business accounted for about 75.6 percent of the total gross written premiums while long-term insurance business accounted for 24.4 percent. The general insurance business posted a growth in gross premiums of 26 percent from ZMW 550.3million in 2008 to ZMW691.8 million in 2009 while long-term insurance business had a decline in gross premiums of 11 percent from ZMW 250.7 million in 2008 to ZMW223.4 million in 2009. (Pension and Insurance Annual Reports, 2009, 2011 & 2012).

In 2011 the insurance industry recorded an increase in gross written premium amounting to ZMW 1,159 million from ZMW 1, 071 million in 2010 representing 7.6 percent increase as compared to 17 percent in 2010. Of the total gross written premiums in 2011, 71 percent comprised general insurance business while the remaining 29 percent arose from long term business. This represented 7 percent decrease and 7 percent increase over the 2010 results,

respectively. Further in 2012, the insurance industry recorded an increase in gross written premiums amounting to ZMW 1, 477million representing an increase of 21 percent from 2011. Of the total gross written premiums. 69 percent comprised of general insurance business while 31 percent was for long term business (Pension and Insurance Annual Reports, 2009, 2011 & 2012).

Figure 2.1 below shows a comparison of general and long term insurance from 2005 to 2013 based on gross written premiums. The graph shows that the general insurance business has grown more than the long term insurance based on the gross written premiums as they have been consistently higher than those of long term insurance.

Figure 2.1: Gross Written Premiums in thousands from 2005 to 2013.



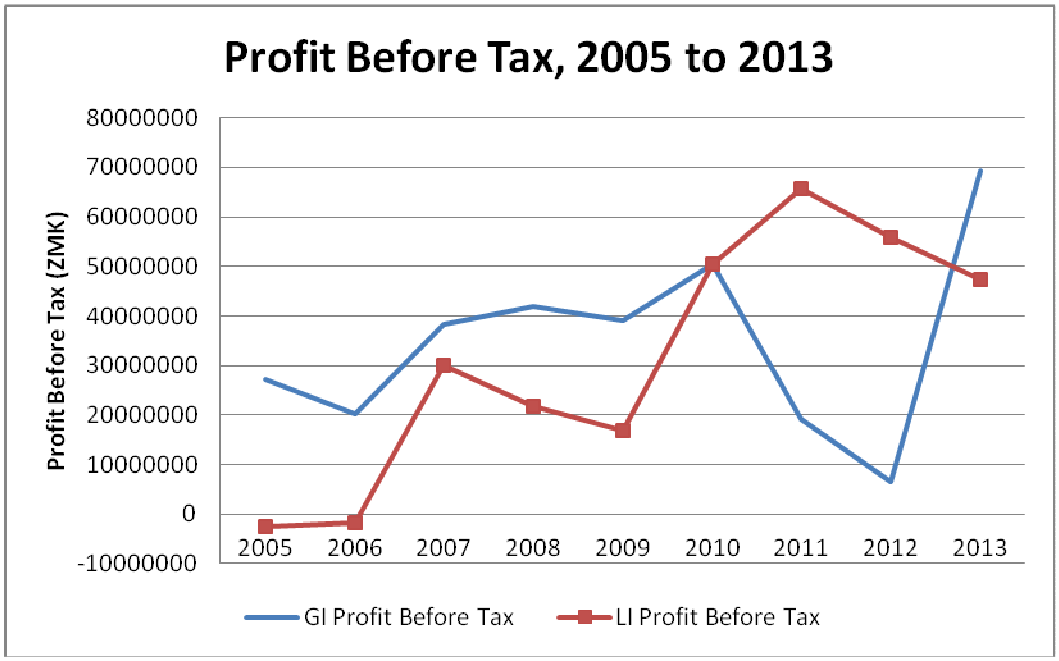
Source: Pension and Insurance Authority

On the other hand, there have been variations in profits between the two industries as long term insurance appears to be more profitable than general insurance. For example, in 2009 Profit before tax for the industry fell by 6.6 percent from ZMW41.8 million in 2008 to ZMW 39 million in 2009. Profit after tax dropped from ZMW29.6 million to ZMW21.9 million, representing a drop of 25.9 percent. This was a result of a 40 percent increase in tax paid. The tax paid as a percentage of profit before taxation was 43.8 percent in 2009 compared to 29 percent

and 12 percent in 2008 and 2007 respectively. In 2011 the industry posted a total profit after tax of ZMW75.6 million of which 87 percent was from long term insurance business while 13 percent was from general insurance business. In 2012, the general insurance business recorded a loss of ZMW 4 million which reduced overall profit after tax to ZMW 52 million. The long term insurance sector posted a total profit after tax of ZMW 56 million (Pension and Insurance; 2009, 2011 & 2012).

Figure 2.2 below shows a comparison of profit before tax for all the general and long term insurance companies from 2005 to 2013. The graph shows that the profits before tax for general insurance companies has been fluacting more than that of long term insurance. The general insurance industry had generated more profits than long term insurance from 2005 to 2009, but made lower profits before tax between 2010 and 2012. However, considering that the general insurance has consistently had more players than the long term insurance industry, the long term insurance industry had comparably performed better from 2007 to 2013.

Figure 2.2: Profit before Tax from 2005 to 2013.



Source: Pension and Insurance Authority

Table 2.3 below shows the gross written premiums generated by each company present in the general insurance industry from 2005 to 2013. It can be seen from table 2.3 that there are six big

firms generating higher premiums in the industry and these include: ZSIC, Professional, Madison, Nico, Goldman and Diamond general insurance which started operating after the industry was liberalised after 1992. Table 2.3 also shows that one insurance company ZIGI stopped operating in 2007. The cause for ZIGI to stop operating was to lack of adherence to corporate governance[3]. It can further be noted that entrance into the industry after the revision of the insurance Act to separate general from long term insurance only started in 2010 with three firms entering the market in that year namely, Hollard, Mayfair and Phoenix general insurance. Other insurance companies entered the market in 2012 which included: Advantage, African Grey, Meanwood Insurance and General Alliance Insurance companies. In 2013, two more insurance companies started operations namely, Focus and A-Plus general insurance. It should be noted there were three other insurance companies that had licences from PIA but had not yet started operations as of December, 2013.

Table 2.3: General Insurance Gross Written Premiums (ZMK) '000' from 2005 to 2013

Company	Year								
	2005	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Diamond	4,063	2,561	5,356	11,616	20,231	32,562	46,571	49,305	54,985
Goldman	13,070	11,073	22,763	25,813	33,075	39,977	40,841	58,103	72,324
Madison a	72,266	72,128	96,777	116,752	138,900	214,513	210,120	234,867	234,967
Nico	25,867	42,157	52,922	55,633	80,194	106,051	114,113	121,698	109,708
Proffessional	106,491	120,777	150,445	209,219	259,198	239,606	206,403	2,463,200	266,539
ZIGI	11,262	14,810	12,747						
ZSIC	63,862	78,943	105,544	131,308	160,181	190,073	201,092	220,025	173,580
Hollard						2,536	19,469	34,954	56,534
Mayfair						2,042	7,078	125,296	23,782
Phoenix						11,182	14,516	25,270	27,405
A-Plus									4,345

[3] Submission by Pension and Insurance Authority through interviews

Company	Year								
	2005	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Advantage								3,526	13,217
African Grey								8,602	14,068
Focus									4,165
General Alliance								162,182	2,907
Meanwood								3,679	14,806
Total Industry Premiums	296,881	342,451	446,554	550,342	691,778	838,541	860,202	1,019,040	1,073,331

Source: Pension and Insurance Authority

On the long term side of insurance, the GWP turnover as at December 2014, stood at about K450 million and K137 million was paid out in claims in comparison to GWP of K26, 431 and claims amounting to K9, 665 recorded in 2002. Table 3 below shows that only African Life, Madison, Professional and ZSIC had been consistently operating from 2005 to 2013. It can be noted that Fidelity which was initially part of Diamond insurance, but was separated at the time separation into general and long term insurance in 2005 stopped operations sometime in 2007. It should be noted that Diamond, Professional, Madison and ZSIC operated as composite insurance companies before the law was revised. At the time of separation the long term insurance business for Diamond insurance was acquired by Fidelity a Zimbabwean company which operated up to 2008 and underwent voluntary liquidation.

It can further be noted that ZIGI stopped its operations in 2007 as it was liquidated possibly due to poor corporate governance and mismanagement of funds obtained from the public. On the other hand Blue assurance which started operations in 2009 was in the process of winding up its operations hence stopped issuing any new policies from 2013 but they were managing the existing policies[4]. In 2012 three long term insurance firms entered the market and these included Barclays, Hollard and Metropolitan Insurance.

[4] Submission by Pension and Insurance Authority through interviews

Table 2.4: Gross Written Premiums (ZMK) in '000'of the Long Term Insurance Industry from 2005 to 2013.

	2005	2006	2007	2008	2009	2010	2011	2012	2013
Fidelity Life	175	59		2,997					
African Life	7,137	14,268	43,410	62,575	36,925	59,964	97,024	153,632	149,905
Madison	38,710	52,960	61,626	78,828	67,007	49,657	73,060	95,879	114,421
Professional Life	13,041	22,898	33,125	37,806	36,605	44,208	43,399	43,623	51,434
ZIGI	755	1,162	1,960						
ZSIC	24,150	28,309	39,400	68,495	80,756	77,256	82,645	83,108	93,293
Blue Assurance					21,474	2,258	3,398	4,030	
Barclays Life								24,791	30,527
Hollard Life								5,209	4,683
Metropolitan								171	1526
Total Industry Premium	83968	119655	179520	250700	223,440	233343	299525	410443	445788

Source: Pension and Insurance Authority

2.5 Challenges faced by the Insurance Industry in Zambia

The insurance industry still remains underdeveloped in Zambia both for general and life insurance. The insurance penetration levels are very low compared to other countries in the region, with a penetration rate that stood at 1.37% in 2012, compared with the African average of 3.65%. The ceding ratio for non-life was 38% in 2006 and 47% in 2011. (http://www.zambia-invest.com/insurance).

There is therefore enough room for competition through entry and innovation in the industry. However, the industry has continued to face challenges such as the inadequate appreciation by the majority of the population of the purpose and use of insurance. Only a small section of the population has insurance policies while the majority have still remained uninsured both in the life and non life insurance. Other challenges are regulatory in nature such that the industry is impeded by the slow and sometimes lack of adjustment in regulations as the market evolves. In additional, the long term insurance industry may further be impeded by the inadequate

specialised human resource required in the actuarial field. It should further be noted that motor and property insurance are the major contributors to general insurance. Even though only a quarter of the motor vehicles are comprehensively insured. This is because by law, only third party insurance is compulsory according the Road Transport and Safety Act.

2.6 Conclusion

This chapter has provided an overview of the insurance industry in Zambia. As noted, both the general and long term insurance have continued to grow though it remains generally underdeveloped compared to other countries in terms of gross written premiums and profit before tax and general coverage of the country. Further, the industry still faces a number of challenges which include inadequate appreciation of the insurance by the majority in the economy. However, it can be noted that while the general insurance industry has performed well in terms of gross written premiums, it is the long term insurance that earns higher profits, even though it only has 7 active market players as compared to general insurance industry which currently has 15. It is therefore imperative to determine the structure and conduct of firms in both the long term and general insurance industry and how it affects the performance of the industry.

CHAPTER THREE
LITERATURE REVIEW

3.1 Introduction

This chapter surveys the theoretical and empirical literature on the relationship between market structure, conduct and performance as well as the feedback effects. The theoretical literature is reviewed under the broader framework of the relationship between market structure, Conduct and Performance. The chapter begins by discussing the various theories in Section 3.1 and then Section 3.2 gives a review of the empirical works on this topic. Finally, Section 3.3 summarizes the chapter.

3.2 Theoretical Literature

3.2.1 The Structure, Conduct and Performance Paradigm

The Structure, Conduct and Performance paradigm (SCP) is used as an analytical framework, which looks at the relationship between market structure, conduct and performance of firms. The theoretical framework of the hypothesis was first developed by Edward Mason in 1939 while the empirical work was started by his student Joe S. Bain in 1951 when he applied it to the American Manufacturing industry for the period 1936 to 1940.[5]

3.2.2 The Simple SCP model/framework without feedbacks

The Structure – Conduct –Performance paradigm attempts to establish the link between Market Structure and Market Performance. The more concentrated an industry in terms of market structure, the more market power would be exercised in the industry.

The SCP approach stipulates that an industry's successful performance in producing benefits for consumers depends critically on the conduct and the competitive behaviour of firms in the market. It is argued that firms with market power in an industry would lead to worst market outcomes for consumers when competition amongst firms is almost nonexistent. In turn, firm conduct hinged upon market structure and collusion is more likely to occur when the number of firms in the industry is few, and there are barriers to entry into the market. On the other hand, when there are many firms in a market, and firms are free to enter, firms in the industry are more

[5] The Relation of Profit rate to Industry Concentration: American Manufacturing 1936-1940

likely to compete with each other. Following this reasoning, an industry's performance (which could be considered as the potential benefits to consumers and society as a whole) are determined by the conduct of the firms within the boundaries of this industry, which in turn depend on the structure of the market (Kumar; 2006).

3.2.3 The Simple SCP model/framework with feedbacks

Another direction in which the SCP literature has headed to is the use of simultaneous equation modelling (Hay and Morris, 1991). This approach has been adopted to take into account the multiplicity of causality between the different variables in the SCP framework. It is argued that there is multiplicity of causality in the SCP framework which suggests that structure affects conduct but conduct strategic behaviour also affects structure, Structure and conduct interact to determine performance. Performance, in turn, feeds back and affects structure. (Lee, 2007).

3.2.4 Efficient Structure Hypothesis

Edwards *et al* (2005) states that there are two competing hypotheses in the SCP paradigm: the traditional "structure performance hypothesis" and "efficient structure hypothesis". The structure performance hypothesis states that the degree of market concentration is inversely related to the degree of competition. This is because market concentration encourages firms to collude. More specifically, the standard SCP paradigm asserts that there is a direct relationship between the degree of market concentration and the degree of competition among firms. This hypothesis will be supported if a positive relationship between market concentration (measured by concentration ratio) and performance exist, regardless of efficiency of the firm (measured by market share). Thus firms in more concentrated industries will earn higher profits than firms operating in less concentrated industries, irrespective of their efficiency.

The efficiency structure hypothesis states that performance of the firm is positively related to its efficiency. This is because market concentration emerges from competition where firms with low cost structure increase profits by reducing prices and expanding market share. A positive relationship between firm profits and market structure is attributed to the gains made in market share by more efficient firms. In turn these gains lead to increased market concentration. That is, increased profits are assumed to accrue to more efficient firms because they are more efficient

and not because of collusive activities as the traditional SCP paradigm would suggest (Molyneux and Forbes, 1995).

3.2.5 Contestable Market Theory

The relationship between profitability and market structure has generated competing hypotheses. On one hand, the traditional market structure–conduct–performance (SCP) or collusion hypothesis (Bain, 1951) claims that, market structure influences conduct (behaviour) of firms through pricing and investment policies, and this in turn translates into performance. On the other hand, the contestable market theory challenges SCP model. In 1982, Baumol, Panzar and Wiling systematically proposed the theory of contestable markets, marking the formation of the theory of contestable markets. The contestable market refers to those markets in which there is the pressure from potential entrants and a strong constraint to existing manufacturer's behaviour. Contestable market theory argues that that as long as market entry is completely free, there will not be any special cost into and out of the market; the potential competitive pressures will force every company in market structure to adopt competitive behaviour, even if a company fully monopolizes the market. (Chen, 2014)

Meanwhile, as long as potential competitors enter and exit the market at that time fully accessibly, manufacturers available on the market - whether it is just a business or has many active vendors, always faced competition from potential entrants pressure .Thus in order to avoid attracting more competitors, pricing and yield selection of the original enterprise will always be forced to be in an equilibrium constraints of no significant excess profits (Baumol, 1988). This is in contradiction to the SCP theory by Bain. Contestable market theory argues that expansion of business scale or increasing of concentration does not mean the increasing of degree of monopoly and the declining of the degree of competition. (Chen, 2014).

It proposes that the characteristic of the market, which determines the performance, is entry barriers. It assumes that conditions external to a market control conditions internally. In addition, it suggests that free entry and exit of competitors to the industry, without losing their capital, own the same cost functions as firms that already serve the industry's market. (Nabieu, 2013).

3.2.6 Portfolio Theory Approach

In bank performance the portfolio theory approach is the most relevant and plays an important role (Nzongang and Atemnkeng, 2006). According to the Portfolio balance model of asset diversification, the optimum holding of each asset in a wealth holders portfolio is a function of policy decisions determined by a number of factors such as the vector of rates of return on all assets held in the portfolio, a vector of risks associated with the ownership of each financial assets and the size of the portfolio. It implies portfolio diversification and the desired portfolio composition of commercial banks are results of decisions taken by the bank management. Further, the ability to obtain maximum profits depends on the feasible set of assets and liabilities determined by the management and the unit costs incurred by the bank for producing each component of assets (Nzongang and Atemnkeng, 2006).

3.2.7 Relative Market Power Hypothesis

Other theories that have been widely used mostly in the banking and the insurance industry is Relative Market Power Hypothesis (RMP). The RMP put forward by Roades (1985), focuses on the role of market share on profit and prices. Under this hypothesis, consumers differentiate the products of large firms from smaller firms. It stipulates that the product differentiation did not have to be real; it must merely be perceived. Inherent product differentiation existed where customers follow a "herd" instinct and purchase products from the market leader to be "just like everyone else"; or customers may rely on market leader's position as an indicator of quality and save search costs. Advertising efforts in which a firm touts itself as a market leader is consistent with the RMP hypothesis. While the structure-conduct-performance hypothesis argues that more concentrated markets lead to higher loan rates and lower deposit rates because of lessened competition, the Relative-market power hypothesis argues that only large banks with some "brand identification" can influence pricing and raise profits. The difference between those two hypotheses revolves around whether market power proves generic to a market or specific to individual banks within a market. (Jeon and Miller; 2005).

3.3 Theoretical Concepts and Terminology

Economic theory has defined five forms of market structure, namely' perfect competition, monopoly market, duopoly, oligopoly and monopolistic competition. Perfect competition and monopoly are extreme market structures while the rest are deviations from the two. The market structures are defined below:

Perfect Competition- A market is said to be perfectly competitive when they are many buyers and sellers who have no influence on the prices of commodities. It is taken that market players in this market have perfect knowledge, the commodities traded in are homogenous and there is freedom of entry and exist. Perfect competition is taken as a benchmark for other forms of market structures. (Anestima *et al,*2013)

Monopoly Market- this is the opposite of perfect competition. It is characterized by a single firm supplying commodities which have no close substitutes. The supplier is called a monopolist and in most cases has monopoly power to restrict output and prices. The market is characterized by high barriers to entry. (ibid)

Duopoly is a market structure made up of only two firms or a market in which two firms nearly own almost the entire product market share. It is the simplest form of oligopoly market.

Oligopoly- this is a market structure characterised by few firms selling standardized products or different commodities. This type of market structure is usually concentrated with a few firms dominating the market. Firms' decisions in terms of pricing and advertising are interdependent. There are possible barriers to entry in this type of market structure. (opcite).

Monopolistic Competition is similar to perfect competition, as it has many buyers and sellers. The main difference being product differentiation which is present in monopolistic competition and non-existence in perfect competition. As a result, firms have some discretion of setting prices in monopolistic competition. However, the presence of many close substitutes limits the price setting ability of individual firm's, and drives profits down to a normal rate of return in the long run. (Anestima *et al* 2013).

From the definition of the above terminologies the insurance industry in Zambia appears to have an oligopolistic market structure.

3.4 Empirical Literature

The structure conduct paradigm has been applied in many industries; specifically a large number of researches have been conducted in the banking industry as compared to the other industries. Research in the insurance industry has also been conducted but most of the research has been conducted in the United States of America (USA), Europe and a few in Asia. In Africa such research is very scarce with an exception of South Africa.

One of the first researchers in the insurance industry that studied S-C-P hypothesis was Joskow (1973). Examining the U.S. non-life insurance industry competitive structure, he found that despite competitive market structure insurers set prices through cartel-like rating bureaus. He concludes that the combination of state regulation, cartel pricing, and other legal peculiarities has resulted in the use of an inefficient sales technique, supply shortages, and over-capitalization. Chidambaran *et al* (1997) empirically analysed the economic performance across 18 different lines of the U.S. property-liability insurance industry with major emphasis on the pricing of insurance and the cost of producing insurance. Their research results, based on the data covering 10-year period (1984-1993), support S-C-P relationship as they found that higher concentration leads to reduced level of pricing rivalry. (Njegomir *et al ;*2011)

Bajtelsmit and Bouzouita (1998) studied the market structure and performance in private passenger Automobile insurance across different states in the USA using data between 1984 and 1992. The study found evidence that supported the SCP Paradigm in the context of private passenger automobile insurance.

Choi and Weiss (2005) investigated the relationships among market structure, efficiency and performance in property-liability insurance in the U.S.A. over the period 1992–1998 using data at the company and group levels. They tested the structure conduct performance paradigm, relative market power and efficient market and the X-efficiency hypothesis. In order to examine the consolidation impact to companies as well as consumers they used two different performance measures, price and profit. The results of the study supported the efficient market hypothesis in the period under review. The research suggested that the market shares was negatively related to price and profit rather than positively. It was noted that concentration was positively related to

profits and prices, although the relationship between concentration and profit and prices appeared to be weaker in the later years of the sample period.

Pope and Ma (2008) examined complex relationship of liberalisation, market concentration and profitability in the insurance industry using regression methodology on the sample of 23 countries during the period 1996-2003. They used market profitability as a measure of performance. Their research results found support for S-C-P hypothesis although they concluded that the effect of market concentration on performance varies depending on the level of market liberalisation. (Njegomir *et al,* 2011)

Caroll (1993) examined the relationship between market structure and performance for the U.S. workers' compensation insurance using data for the period 1980-1987. She tested S-C-P and efficient structure hypothesis. Research results found no support for either tested hypothesis. (Njegomir *et al,* 2011)

Jedlicka and Jumah (2006) conducted a research on the Austrian insurance industry where the structure conduct and performance hypothesis was applied on 52 insurance companies, the focus of the study being non life insurance found that the SCP did not hold for the Austrian Insurance Industry based on the prevailing situation for the industry in the year 2003 over the year 2002.

Liebenberg and Kamerschen (2008) examined the structure, conduct and performance analysis of the South African Auto Insurance market for the period 1998-2000 and found that there was no link between market structure, market conduct and performance. The study found that prices and profits were not statistically significantly related to various sellers concentration measures and did not follow a cyclical trend as observed in other countries.

Query *et al,* (2013) studied the product structure and efficiency within the property insurance industry in China and established that while the market concentration of the Chinese property insurance was high, efficient economies of scale had yet to be achieved.

A study by Stolzle, Weiss and Wende on market structure, efficiency, and performance in the European property –liability insurance industry. The study employed the methods used by Choi and Weiss (2005) in the USA property liability insurance to test the SCP, RMP and ES hypotheses. The research using data from 12 developed European countries over the period 2003

to 2007. The results of the study strongly supported the efficient structure hypothesis. It was noted that more cost and revenue efficient insurance companies charged lower prices than their less efficient counterparts. The study found no support for SCP and only extremely limited support for the relative market power hypothesis existed in the result.

Njegomir *et al,* (2011) conducted a study on liberalisation, market concentration and performance in the non life insurance of ex-Yugoslavia countries which included Bosnia and Herzegovina, Croatia, FYR Macedonia, Serbia and Slovena. The research testing the SCP hypothesis showed support for the SCP hypothesis in the five ex-Yugoslavia countries.

Other research has been conducted in other industries other than banking and insurance. In a research on the relationship between market structure and performance conducted by Tung et al. (2010) that employed a structure conduct performance model of industrial economics to estimate the causes and effects among the international tourist hotel industry in Taiwan from 1995-2006. The three stage least squares estimation results on the system of simultaneous equations indicated a positive and significant impact of market share on a firms' profitability. (Thomas, 2012).

Delorme et al. (2002) has also used a simultaneous equations framework to study the relationship between structure conduct and performance in the U.S. manufacturing industry in the 1980's and 1990's. The paper expanded on earlier structure – conduct - performance studies by using a lag structure to signify that structure conduct and performance did not affect one another contemporaneously. The findings from the estimation showed that industry structure as measured by concentration did not depend on current industry performance as measured by profits. (Thomas, 2012).

A study conducted by Zellner (1989) on the food industry, concluded the existence of a positive relationship between concentration and advertising intensity where advertising is a barrier to entry rather than a form of information which facilitates entry. This positive relationship between conduct and market structure is also supported by the findings of Oustapassidis et al.(2000), where advertising intensity was used as a measure of market conduct. Delrome et al.(2002) has also confirmed this positive relationship between market structure as measured by Herfindhal-

Herishman Index and conduct as measured by advertising intensity. In addition, a study by Misra (2010), which aims at analyzing the relationship between industry advertising intensity and market structure of the Indian consumer goods and services sector has further strengthened this positive relationship. (Thomas; 2012)

Similarly, the findings from Tung et al.(2010) on the international hotel industry has indicated a two way causes and effects relationship between market structure and strategic behavior or conduct. Bhatti et al.(2011) has also indicated the same result by using a simultaneous equations framework when analyzing the efficiency and market power hypothesis in the pakistani diary processing industry. (Thomas; 2012)

Result from an empirical study by Oustapassidis et al. (2000) showed that there is a positive and two- way causes and effects relationship between industry advertising intensity and profitability by using data on Greek's food manufacturing industry. (Thomas; 2012).

Similarly, an empirical analysis of the role of advertising in the Canadian consumer goods industries by Comanor & Wilson (1967) has found that advertising intensity has a positive, statistically significant and quantitatively important impact upon profit rates which provide a measure of market performance. (Thomas; 2012)

In contrast, research findings by Delrome et al.(2002) when studying the relationship between structure, conduct and performance in the U.S. manufacturing industry found out no systematic relationship between advertising and profitability. Empirical results from Misra (2010) further showed that for a given level of concentration, industries which earn lower price-cost margins engage themselves more rigorously in advertising activity than industries which earn higher price-cost margins implying the possibility of a negative relationship. (Thomas; 2012).

Further in Zambia studies have been conducted that used methodology from the New Industrial Organisation Literature. Specifically studies by Musonda (2008) and Simpasa (2013) on the banking industry found that the industry exhibited elements of monopolistic competition using the Panzar-Rosse methodology for the study by Musonda (2008) while the study by Simpasa used both the Panzar-Rosse methodology and Lerner Index Methodology. The studies also concluded that the efficient structure hypothesis was evident in the banking industry and not the

SCP hypothesis. In another study by Sandi (2010) focusing on Price Concentration-Relationship in the Commercial Bank Deposit Markets in Zambia and using the Price Concentration Relationship tool found that the banking industry was highly concentrated and dominated by a few large banks. It was further established that the behaviour of firms in the industry was such that they paid low interest rates to depositors while high interest rates were charged on their loans.

3.5 Summary on Literature Review

The preceding discussion on the theoretical and empirical literature indicates the fact that there is no clear consensus among economists on the relationship between market structure, firm conduct and its effect on performance in a market. The theoretical framework shows the various theories that have been developed to explain the existing relationship among the variables of interest. On the other hand, the empirical studies have shown the various studies that have been undertaken to ascertain the existence of the SCP in various industries across the world. The empirical review has also shown that there are studies in which SCP explained the market structure, conduct and performance in some industries and there are those in which the theory did not hold. However, it is evident that no such study has been undertaken in the Zambian insurance industry to ascertain if the SCP theory could be used to explain the market structure, conduct and performance of both the long term and general insurance industry. Therefore, the review of literature adds support for conducting such a study in Zambia.

CHAPTER FOUR
METHODOLOGY AND ANALYTICAL FRAMEWORK

4.1 Introduction

This chapter provides the model that can be used to test the relationship among market structure, conduct of firms and performance. The model will be specified in terms of the market share as a proxy for market structure, advertising intensity as a proxy for conduct of firms and profitability as a proxy for performance. The chapter is arranged as follows: section 4.1 presents the theoretical framework while section 4.2 gives the hypotheses that will be tested in this study. Section 4.3 gives the model specification while section 4.4 discusses the measurement of variables and the expected signs. Section 4.5 discuses the estimation techniques while section 4.6 discuses the data types and collection. Lastly, section 4.7 gives a summary of the chapter.

4.2 Theoretical Framework

This study draws heavily from the SCP hypothesis. This hypothesis has had wide application in empirical works in arriving at an appropriate model of analysis. As pointed out by Edward *et al* (2005) the SCP paradigm asserts that there is a direct relationship between the degree of market concentration (measure of market structure as measured by market shares of the firms in the industry) and the degree of market performance among firms (market performance as measured by firm profitability). Therefore, this research draws heavily on literature and methodology developed on the SCP hypothesis.

4.3 Hypothesis

This study tests two hypotheses:

(i) Market structure and conduct positively affects the performance of firms in the insurance industry in Zambia.

(ii) Performance positively affects the market structure and conduct of firms in the insurance industry in Zambia.

4.4 Model Specification

The SCP paradigm makes use of simultaneous equations modelling. The approach helps to take into account the multiplicity of causality between structure, conduct and performance within the framework. Therefore, in line with Thomas (2012), Zellner (1989), kambhampati (1996), Oustapassidis et al. (2000), Tung et al. (2010) and Delrome et al. (2002). The study made use of simultaneous equations to study the relationship between structure, conduct and performance in the insurance industry in Zambia

The following model was estimated:

$$MS=f(ADV, PR, OWNDUM, KSR) \quad \ldots(1)$$

$$ADV=f(PR, MS, CR_4, CR_4^2) \quad \ldots(2)$$

$$PR=f(MS, ADV, CAP, TOC) \quad \ldots(3)$$

where MS is market share, ADV is firms advertising intensity, PR is firm profitability, OWNDUM is a dummy variable for domestically owned firms, KSR is capital to sales ratio, CR_4 is the four firm concentration ratio, CR_4^2 is the squared four firm concentration ratio, CAP is total capital investment and TOC is total operating cost. Specifically, the model to be estimated is as follows:

$$MS = a_0 + a_1 ADV + a_2 PR + a_3 OWNDUM + a_4 KSR + \varepsilon \quad \ldots(4)$$

$$ADV = b0 + b1MS + b2PR + b3\, CR_4 + b4CR_4^2 + \gamma \quad \ldots(5)$$

$$PR = c0 + c1MS + c2ADV + c3CAP + c4TOC + \eta \quad \ldots(6)$$

4.5 Explanation of Variables and the Expected Signs

4.5.1 Market Structure

To determine the market structure in the insurance Industry in Zambia, market shares were used as a proxy. In this case, market share of each firm were used to measure the concentration of the industry which in turn would tell us about the structure of the market. Market concentration is a

function of the number of firms in a market and their respective market shares. The research used the concentration ratios as the percentage of market share owned by the largest *m* firms in an industry, where *m* is a specified number of firms often four, but sometimes a larger or smaller number. The concentration ratio is often expressed as CRm, for example, CR4.

The CRm can be expressed as:

$CRm = S_1 + S_2 + S_3 + S_4 + \ldots\ldots + Sm$.....*(7)*

Where Si = market share of the *i th* firm.

As in most studies it is, of course, arbitrary to focus attention on the top four-firms (CR4) in defining concentration ratios than other concentration measures like eight firm concentration ratio (CR8),twenty-firm (CR20) and fifty-firm(CR50) concentration ratios. If the CR4 were close to zero, this value would indicate an extremely competitive industry since the four largest firms would not have any significant market share As a convention, if the CR4 measure is less than about 40 (indicating that the four largest firms own less than 40% of the market), then the industry is considered to be very competitive, with a number of other firms competing, but none owing a very large chunk of the market. On the other extreme, if the CR1 measure is more than about 90, that one firm that controls more than 90% of the market is effectively a monopoly. (Thomas, 2012).

Therefore, this study specifically used the four firm concentration ratio which is calculated as the sum of market shares of the largest four firms.

4.5.2 Market Conduct

Market conduct refers to the behavior of firms in an industry. It specifically refers to the firm's pattern of behavior in executing its pricing and promotion strategy and its response to the realities of the market it serves (www.businessdictinary.com). The behavior of firms is further affected by the type of market structure in which it operates as firm strategies differ with the level of competition. Such firm's strategies include marketing or sales and advertising intensity. The study used advertising intensity as a proxy for market conduct. This was supported by many studies such as those by Zellner (1989), Oustapassidis (2000), Delrome (2000) and Mishra

(2010) which showed that there was a positive relationship between market structure and conduct of firms.

4.5.3 Market Performance

Market performance refers to the relationship of selling price to costs, the size of output, the efficiency of production, progressiveness in techniques (www.businessdictinary.com). Market performance is measured by the profitability of firms. Several studies on SCP have used profitability as a proxy for market performance as evidenced in the studies by Joskow (1973), Njegomir, Stojic & Markovic (2011), Bajtelmit &Bouzounita (1998), Choi and Weiss (2005) among others.

4.5.4 Market Share Equation

In this market share equation, advertising intensity, profitability, ownership dummy variable and capital to sales ratio were included as explanatory variables for market share. Advertising intensity and profitability were treated as endogenous variables and the other two are instruments for market share. Advertising intensity was used in the market share equation due to its effect of creating a barrier to entry in the form of a brand name and product differentiation which had the ability to increase firms' market share.

In addition to advertising intensity, profitability was used as a factor influencing market structure (market share). In cases, where profits are very high, new firms are attracted in that industry and as the competition in that industry increases, the degree of concentration and market share would decrease. However, high profits can also lead to an increase in market share, this is because an increase in profits implies an increase in turnover which automatically increases market share. The impact of profitability on market share will depend on the relative strengths of the two opposing influences. Other factors that may increase market share include growth enhancing activities such as price competition.

Capital to sales ratio is a barrier to entry which is assumed to be positively associated with market share. The higher the capital to sales ratio, the higher the perceived ability of the firm to efficiently utilize its fixed assets in generating profits and market share. A larger capital to sales

ratio is a barrier to market entrance as more fixed assets as compared to sales revenue are required to enter and remain in that market.

Ownership dummy variable was included in this equation to investigate whether a significant difference existed in market shares among domestically owned and foreign owned firms.. (Thomas; 2012).

In this equation, Market share (MS) was defined as the percentage of the gross written premiums in a market that is captured by each firm and was calculated by taking the firm's gross written premiums in the same period and dividing it by the total gross written premiums of the industry over the same period. Advertising intensity (ADV) was defined as the amount of advertising expenses by each firm divided by its total assets. Profitability (PF) refers to the efficiency of a firm on generating profits. Capital to sales ratio (KSR) measures the efficient use of fixed capital of a firm. It is calculated as a ratio of fixed assets to turnover (total premiums received). Ownership Dummy (OWNDUM) is a dummy variable which takes the value 1 for domestically owned firms and 0 for foreign owned firms.

4.5.5 Advertising Equation

In the advertising equation, market share, profitability, four firm concentration ratio (CR_4) and its squared value were included as explanatory variables. Market share and profitability were treated to be endogenously determined while the concentration ratio and its squared value were instruments for advertising intensity. In this equation, the variable market share was included assuming its positive relationship with advertising intensity.

Although there have been a large number of studies regarding the relationship between concentration and advertising intensity such as those by Zellner (1989), Oustapassidis (2000), Bhatti (2011) and Tung (2010) the results have been inconclusive of the sign of the relationship and it is still difficult to identify the actual direction of causation between the variables. Nevertheless a study by Delrome *et al* (2002) found a positive relationship between the four firm concentration ratio and advertising intensity. From previous research results two principal hypothetical models regarding the relationship between advertising intensity and industry concentration have been advanced. These are; (1) advertising intensity and industry concentration are positively and linearly related; (2) advertising intensity and industry

concentration are non-linearly related, suggesting an inverted-U relationship where advertising intensity will be highest at intermediate levels of industry concentration. (Hoveland & Lancaster, 1985).

The positive and linear relationship hypothesis is more likely to happen in oligopolistic markets than in low concentration markets because non price competition like that of advertising is perceived as more profitable and more desirable in oligopolistic markets since changes in non-price competition are not as easily copied by competitors as are changes in price.

On the other hand the non-linear (inverted –U relationship) model implies that advertising is likely to be highest in moderately concentrated industries. In other words, the relationship between advertising intensity and industry concentration will be positive up to a point where concentration is moderate and becomes negative at high levels of concentration. (Hoveland & Lancaster, 1985). This equation includes both the concentration ratio and its squared value to provide evidence as to the linear or non- linear nature of the relationship between advertising intensity and industry concentration. Profitability is included in this equation because; profitability allows a company to spend more resources on advertising. The higher the profit earned by a company, the larger the budget available for investments in advertising. The incentive to advertise is higher when profits are increasing, since there will be more resources available for advertising expenditures. Therefore, profitability is considered as one of the critical factors in the determination of the level of advertising expenditure. (Thomas; 2012).

In this equation, PR, MS and ADV, will be calculated as explained under the market share equation while the four firm concentration ratio is as explained in the equation above on market concentration.

4.5.6 Profitability Equation

In the profitability equation, market share, advertising intensity, total capital investment and total operating costs are included as explanatory variables. Market share and advertising intensity are treated to be endogenously determined while total capital investment and total operating costs are instruments for advertising intensity. The inclusion of market share in this equation is due to its assumed positive effect on a firm's profitability. A higher level of market share enables a firm to utilize economies of scale to reduce costs and gives the firm market power. On the other hand,

the higher the market shares of firms competing in a market, the higher the possibility of collusion among them which is aimed at maximizing their profits. (Thomas, 2012)

It is obviously understood that total operating costs incurred by a firm can directly influence profitability. Although a firms primary objective is to maximize profits, it involves certain costs which are critical in determining how much of a firms output must be produced. A firm with a higher cost of production will be less profitable than that of a firm with lower cost of production. Total capital investment was included as an explanatory variable assuming its negative association with current profitability. Though the long term effect of capital investments on profitability is positive it appears relatively less profitable in earlier years and more profitable in later years which is due to the time lag between capital investments and the expected benefits. (Thomas; 2012).

Further, Total operating cost (TOC) is calculated as the sum of fixed and variable costs of each firm. Capital Investment (CAP) is a measure of a firm's efficiency in deployment of its assets, computed as a ratio of the total value of assets to sales revenue generated over a given period. Capital intensity indicates how much money is invested to produce one unit of sales revenue.

4.6 Estimation Techniques and Analysis

This study made use of the 3 stage least squares estimation technique and the statistical package used was STATA. A 3SLS estimator is a system estimator that is used to estimate two or more identified equations in a simultaneous equations model together. Unlike the 2SLS estimator the 3SLS estimator takes into account the correlation between the error terms in different equations. The 3SLS estimator uses more information than a single equation estimator and therefore produces generally consistent and more efficient estimates than other methods.

Estimating the system of simultaneous equations using a 3SLS estimation method involves three stages. The first stage is to make a regression of market share (equation 4), advertising intensity (equation 5) and profitability (equation 6)equations on all the exogenous variables in the system. This implies that the market share, advertising and profitability equations would be regressed on exogenous variables in the three equations which include ownership dummy variable, capital to sales ratio, concentration ratio, squared concentration ratio, capital invested and total operating costs. This stage is the same as OLS regression. In the second stage, the predicted values of the

endogenous variables (market share, advertising intensity and profitability) from the first stage regression are used as instruments for each of the equations, which is called a 2SLS regression. The third stage uses the predicted values of the endogenous variables from the 2SLS regression as instruments for market share, advertising intensity and profitability and estimates the simultaneous model.

4.7 Data Types and Sources.

The study employed panel quarterly data from 2005 to 2013, this period was chosen as 2005 was when the insurance Act of 1997 was amended to separate insurance companies into general and life insurance. The panel data on market share, profitability, ownership, capital invested, fixed costs, variables costs, fixed assets and total assets was collected from Pension and Insurance Authority.

4.8 Summary

This chapter has described the methodology used in this study to examine the relationship among market structure, conduct and performance of firms in the insurance industry in Zambia. It has discussed the theoretical framework, hypothesis and the model specification. It also looked at measurement of variables and the expected signs as well as the estimation techniques and the data types and sources.

CHAPTER FIVE
RESULTS AND DISCUSSION

5.1 Introduction

This chapter presents and discusses the empirical findings of this study. Section 5.1 summarizes the panel data characteristics of the data while Section 5.2 shows the results and interpretation of the results. Finally, Section 5.3 summarizes the chapter.

5.2 Descriptive Statistics

5.2.1 General Insurance Industry

Table 5.1: Variable descriptive results for the General Insurance industry

Variables	MS	ADV	PR	CR4	SQUARED CR4	KSR	TOC (Million)	CAP
Mean	16.67	0.084	3.95	91.98	8466.95	0.169	1.5	0.91
Maximum	38.47	0.166	19.57	96.45	9302.4	1.55	4.07	1.83
Minimum	0.65	0.021	-59.82	87.7	7691.8	-0.35	8.1	0.326
Standard Deviation	11.04	0.037	10.33	2.41	444.11	0.200	1.07	0.38

Source: Researchers compilation based on data obtained from PIA.

Table 5.1 shows the characteristics of the variables in the model to be estimated. The results show that the general insurance industry is highly concentrated with the minimum four firm concentration ratio of 87.7 percent indicating that the industry has an oligopolistic market structure while the maximum four firm concentration ratio was 96.45 percent. The table also shows that the average market share that was held by a firm was 16.67 percent. The maximum market share was 38.47 percent. The average profitability of the firms in the industry was 3.95 percent and to achieve the average profitability, a firm would incur an average cost of about ZMW 15, million.

5.2.2 Long Term Insurance Industry

Table 5.2: Variable descriptive results for the Long term Insurance industry

Variables	MS	ADV	PR	CR4	SQUARED CR4	KSR	TOC (Million)	CAP
Mean	16.98	0.097	6.29	96.6	5503	0.747	3.87	2.56
Maximum	46.1	0.346	59.73	100	10000	5.38	12.3	32.7
Minimum	0.041	0	-352.183	89.58	8024.32	0.0069	0.2	0.412
Standard Deviation	13.18	0.106	54.98	3.79	4656	0.975	3.59	4.84

Source: Researchers compilation based on data obtained from PIA

Table 5.2 shows the characteristics of the variables in the model. The table shows that the lowest CR4 for the long term insurance industry was 89.58 percent indicating an oligopolistic market structure while the highest CR4 was 100 percent. The maximum market share was 46.1 percent. The table also shows that the average profitability of the industry was 6.29 percent which was achieved by an average total cost of ZMW 38,700,000.

5.3 Estimation Results

The results to be estimated are those shown in equation 5, 6 and 7

The starting point for estimating a system of equations using instrumental variables method is to test whether instrumental variable estimation must be conducted over ordinary least squares estimation. This can be done using the Durbin Wu-Hausman (DWH) test, the method involves fitting the model by both instrumental variable method and ordinary least squares method and comparing the results against the null hypothesis that the OLS estimator is consistent and fully efficient. Using Stata 12, the results in table 5.3 for the general insurance industry for market share. advertising intensity and profitability are obtained in which we reject the null hypothesis that OLS is consistent and efficient and we resort to IV estimation method. Further, the results in table 5.4 for Long Term Insurance industry show that the DWH for the advertising intensity equation favours the rejection of the null hypothesis that OLS is consistent and fully efficient, therefore IV estimation is used.

Further, a check for the validity of instruments is conducted. According to theory, an instrument is valid if it is uncorrelated with the error term but correlated with the endogenous explanatory variable. For an instrument to be valid it must satisfy instrumental relevance and instrumental exogeneity. In instrumental relevance the instrument is correlated with the endogenous explanatory variable and an instrument is exogenous if there is no correlation between the variable and the error term.

In this study the Sargan test for over identification of all instruments was used. The Sargan test is a test used to test that the null hypothesis and all instruments are valid and uncorrelated with the error term. (Thomas, 2012).

5.3.1 General Insurance Industry

Table 5.3: General Insurance Three Stage Least Squares Results

INDEPENDENT VARIABLES	**3SLS DEPENDANT VARIABLES**		
	Market Share Equation	**Advertising Equation**	**Profitability Equation**
Constant	25.196*** (9.35)	23.2*** (5.02)	23.22*** (8.4)
MS		-0.00029 (-1.02)	-0.388** (-2.01)
ADV	-339.3*** (-7.97)		-39.64 (-0.70)
PR	1.17*** (6.59)	0.0047*** (6.27)	
OWNDUM	19.93*** (10.06)		
KSR	-3.04 (-0.94)		
CR4		-0.505*** (-4.61)	
SQUARED CR4		0.0027*** (4.61)	
CAP			-14.91*** (-4.14)
TOC			-2.69e-07 (1.65)
Observations	168	168	168
Durbin Wu-Hausman	0.0135**	0.0038***	0.0.0041

Endogeneity Test			
Sargan Statistic for Overindetification of all instruments	0**	0.558**	28.8

Note: (a) *, **, * denote significance at 10%, 5% and 1%**

(b) z-statistics in parenthesis

In the market share equation in table 5.5 it shows that there is a negative and significant relationship between market share and advertising. This result shows that advertising intensity in the general insurance industry does not form a barrier to entry. The result contradicts the findings by Zellner (1989), Oustapassidis et al(2000), Delrome et al (2002) and Misra (2010), who found a positive and significant relationship between the variables. The result is consistent with the structure of the industry as insurance companies have the same channels through which advertising is conducted, that is through agents and brokers. While agents can only sell insurance on behalf of one insurance company, the brokers can sell insurance on behalf of as many insurance companies as possible.

The equation also shows that there is a positive and significant relationship between profitability and market share indicating that market share is impacted by firm profitability and that an increase in profitability increases firm's market share. This result is consistent with the theoretical expectation that profitability increases market share and shows that the positive relation between profitability and market share is stronger than the negative relationship. The profitability equation however shows a negative relationship between firm profitability and market share. This result implies that an increase in market share does not lead to increase profits. This is consistent with expectations as an increase in market share is based on increase in GWP only without taking into account the costs of the firm which profitability takes into account.

In contrast, the coefficient of capital to sales ratio shows that it is negative and insignificantly related to market share. This result does not support the theoretical expectation that capital to sales ratio serves as a barrier to entry in the general insurance industry and the fact that more fixed assets as compared to sales volume are required to enter and remain in that market.

The equation also shows that there is a positive and significant relationship between ownership dummy variable and market share, this shows that the market share for domestically owned firms was higher than that of foreign owned firms, this is consistent with the fact for a long time the industry was dominated by local firms until recently when foreign firms entered the market.

In the advertising equation, there is a negative and insignificant relationship between advertising and market share showing that market share has no effect on advertising. Further, the results show that there is a positive and significant relationship between profitability and advertising intensity. This result implies that an increase in profitability leads to an increase in advertising as companies have more resources to spend on advertising.

The equation also shows that there is a negative and significant relationship between advertising and four firm concentration ratio at the same time there is a positive and significant relationship between advertising and the squared four firm concentration ratio. Indicating that the relationship between advertising intensity is not linear or non linear as across by Hoveland and Lancaster 1985. The negative relationship between advertising and four firm concentration ratio is not in support with the findings of Zellner (1998), Oustapassidis et al (2000) and Delrome et al (2002) which indicated that a positive relationship between the two variables would imply that advertising would form a barrier to entry.

In the profitability equation the results show a negative and significant relationship between profitability and capital invested which is consistent with theory though the long term effect of capital investments on profitability is positive as it appears relatively less profitable in earlier years and more profitable in later years which is due to the time lag between capital investments and the expected benefits. The results show that market share is negatively and significantly related to profitability. This is in contradiction with the assumed positive theoretical expectation. The result implies that an increase in market share does not lead to increase in profits. The negative relationship between market share and profitability is consistent with the findings of Choi and Weiss (2005) in the property liability industry in the United States of America and inconsistent with the findings of Tung et al (2010) who found a positive and significant impact of market share on firms, profitability in the tourism hotel industry in Taiwan.

The results show that there is a negative and insignificant relationship between profitability and total operating costs. This result implies that as total operating increase due to the increase in average variable costs, profits are expected to fall and is consistent with theoretical expectations. The result also shows a negative and insignificant relationship between advertising and profitability, this result is consistent with the findings of Delrome et al (2002) that there was no systematic relationship between advertising and profitability in the United States of America manufacturing industry and contrary to the findings by Comanor et al (1967) that there was a positive and significant relationship between the two variables. However, the opposite that high profitability leads to high levels of advertising by firms is true in the equations as evidenced by the positive and significant relationship between advertising and profitability in the advertising intensity equation.

5.3.2 Long Term Insurance Industry

Table 5.4: Long Term Insurance Three Stage Least Squares Results

INDEPENDENT VARIABLES	3SLS DEPENDANT VARIABLES		
	Market Share Equation	Advertising Equation	Profitability Equation
Constant	50.86*** (14.21)	-21.4 (-0.81)	69.45* (2.73)
MS		-0.0044* (-1.68)	-2.089** (-2.55)
ADV	-238.5*** (-8.66)		-102.52 (-1.89)
PR	2.71*** (7.83)	-0.0025 (-1.07)	
OWNDUM	20.69*** (5.41)		
KSR	-30.66*** (-8.24)		
CR4		0.47 (0.85)	
SQUARED CR4		0.00003 (3.69)	
CAP			-4.92*** (-1.07)
TOC			1.64e-07**

			(2.55)
Observations	112	112	112
Durbin Wu-Hausman Endogeneity Test	0.8614	0.0640*	0.3252
Hansen J Test for Overindetification of all instruments	0**	0**	29

Note: (a) *, **, * denote significance at 10%, 5% and 1%**

(b) z-statistics in parenthesis

The market share equation in table 5.4 above shows that there is a negative and significant relationship between market share and advertising. This result shows that advertising intensity in the long term insurance industry does not create a barrier to entry by creating a differentiated product through advertising of firm's products. The result contradicts the findings by Zellner (1989), Oustapassidis et al(2000), Delrome et al (2002) and Misra (2010), who found a positive and significant relationship between the variables. However, the result is consistent with the structure of the industry as insurance companies have the same channels through which advertising is conducted, that is through agents and brokers. While agents can only carry one insurance company, the brokers can carry as many insurance companies as possible.

The equation also shows that there is a positive and significant relationship between profitability and market share indicating that market share is impacted by firm profitability and that an increase in profitability increases firm's market share. This result contrasts with theoretical expectations that an increase in profitability should attract new entrants in the industry and as the competition in that industry increases, the degree of concentration and market share are reduced.

In contrast, the coefficient of capital to sales ratio shows that capital to sales ratio is negatively and significantly related to market share. This result is in contrast with the theoretical expectation that capital to sales ratio forms a barrier to entry in the long term insurance industry and the fact that more fixed assets as compared to sales volume are required to enter and remain in that market.

The equation also shows that there is a positive and significant relationship between ownership dummy variable and market share; this shows that the market share for domestically owned firms

was higher than that of foreign owned firms. this is consistent with the fact for a long time the industry was dominated by local firms until recently when foreign firms entered the market.

In the advertising equation, there is a negative and significant relationship between advertising and market share. Implying that an increase in market share does not lead to an increase in advertising. Further, the results show that there is a negative and insignificant relationship between profitability and advertising intensity. This result implies that profitability has no impact on firm advertising as companies.

The results show a positive and insignificant relationship between advertising and four firm concentration ratio and a positive and significant relationship between advertising and the squared four firm concentration ratio. This implies that the relationship is not linear or non linear as put across by Hoveland and Lancaster 1985. The positive and insignificant relationship between advertising and four firm concentration ratio is not in support with the findings of Zellner (1998), Oustapassidis et al (2000) and Delrome et al (2002) which indicated that a positive and significant relationship between the two variables would imply that advertising would form a barrier to entry.

In the profitability equation the results show a negative and significant relationship between profitability and capital invested which is consistent with theory though the long run long term effect of capital investments on profitability is positive as it appears relatively less profitable in earlier years and more profitable in later years which is due to the time lag between capital investments and the expected benefits. The results show that market share is negatively and significantly related to profitability. This is in contradiction with the assumed positive theoretical expectation. The result implies that an increase in market share does not lead to increase in profits and does not increase the firm's market power. The negative relationship between market share and profitability is consistent with the findings of Choi and Weiss (2005) in the property liability industry in the United States of America and inconsistent with the findings of Tung et al (2010) who found a positive and significant impact of market share on firms, profitability in the tourism hotel industry in Taiwan.

The result also shows a negative and insignificant relationship between advertising and profitability indicating that high levels of advertising by firms does not necessary lead to high

profits. This result is consistent with the findings of Dlerome et al (2002) that there was no systematic relationship between advertising and profitability in the United States of America manufacturing industry and contrary to the findings by Comanor et al (1967) that there was a positive and significant relationship between the two variables.

The equation shows a negative and significant relationship between profitability and capital investment which is expected to be less profitable in earlier years of investment. On the other hand the results shows a positive relationship between total operating costs and profitability, which is inconsistent with theory, as firms profits increase the lower their operating costs.

5.4 Conclusion

The above results have shown that there a number of differences and similarities in the general and long term insurance. It can be noted from the results that there are low barriers to entry in both general and long term insurance and both markets are dominated by domestic firms as noted from the ownership dummy variable. Further, the results show that less fixed assets as compared to sales volume are required to enter and remain in both markets hence supporting that there are low barriers to entry in the market. However, the results show that for the general insurance industry a reduction in market concentration increases firms advertising while the relationship is insignificant in the long term insurance. In addition, while an increase in profitability leads to an increase in advertising expenditure, there is no such relationship in the long term insurance industry as it is insignificant. The results of this study reject the structure conduct performance hypothesis.

CHAPTER SIX
CONCLUSION AND POLICY IMPLICATIONS

6.1 Introduction

The objective of this study was to examine the relationship between structure, conduct and performance of firms in the general insurance industry in Zambia. The study employed quarterly panel data for the period 2005 to 2013. The study used market share as a proxy for market structure, advertising intensity as a proxy for firm advertising and profitability as a proxy for performance.

6.2 Main Findings of the Study

The results show that there is a negative and significant relationship between advertising and market share in the general and long term insurance industry. The negative relationship shows that advertising does not lead to barriers to entry in the industry. This is further supported by the negative relationship between capital to sales ratio and market share. This is because the negative relationship implies that less fixed assets as compared to sales volume are required to enter and remain in both markets. The results also show that there is a positive relationship between profitability and market share in the market share equation implying that an increase in profits increases the market share of firms. This results postulate that high profits increase market share. This result is consistent with the opposite theoretical expectations of the relationship between market share and profitability.

However, the profitability equation shows a negative and significant relationship between market share and profitability implying that high market share reduces firm profitability. This result suggests that the efficient market hypothesis as stipulated by Edward, Allen and Shaik (2005) may hold in both markets. Further there is a negative and significant relationship between profitability and advertising in the general insurance market which entails that high profits lead to high advertising expenditure while there is a negative and insignificant relationship between profitability and advertising in the long term insurance industry. However the results show that the reversal effect of an increase in advertising does not lead to an increase in profits as the relationship is insignificant both the long term insurance and general insurance markets.

The results further show that domestically owned firms have higher market share than foreign owned firms, this could be attributed to the fact the industry was dominated by domestic firms in terms of market share. The results of this study suggest that the SCP paradigm does not hold in both the general and long term insurance industry and the hypotheses are both rejected.

6.3 Policy Implications of the Study

The application of the SCP hypothesis could assist policy makers, industry players and other relevant stakeholders to develop the insurance industry. Particularly, it has been noted that there are no barriers to entry in both the long term and general insurance. While this is evident in the general insurance industry as there have been a number of entries, there are other factors that may be hampering the growth of the long term insurance market. Some of these factors include the low levels of uptake of insurance products and services which maybe due to inadequate awareness and consumer education for the public on the benefits of having long term insurance policies such as life, disability and others. In addition, the rapid growth of the general insurance industry could also be attributed to the fact that the Road Transport and Safety Act requires any motor vehicle on the Zambian Road to have a minimum of third party insurance, which contributes to the growth of the general insurance market, while on the other hand, long term insurance policies are optional. Stakeholders could also make use of the existing interrelationships among the different variables examined in this paper for decision making in developing the insurance industry.

6.4 Limitations of the study and recommendations for further research

The study faced a few limitations and notable among them is the fact that the period of time considered was short even though quarterly data was used. The short period of time used was so that the study could capture the performance of the general and long term insurance industry after the amendment of the Insurance Act to separate the operations of general and long term insurance.

This study recommends that further investigations be conducted on this topic to determine the extent to which the efficient market hypothesis may apply in both the general and long term insurance industry.

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