DETERMINANTS OF PROFITABILITY OF INSURANCE FIRMS IN NIGERIA

BY

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BEING A DISSERTATION SUBMITTED TO THE SCHOOL OF POSTGRADUATE STUDIES, NASARAWA STATE UNIVERSITY, KEFFI IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF SCIENCE (M.SC.) DEGREE IN ACCOUNTING AND FINANCE

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DECLARATION

hereby declare that this project has been written by me and it is a report of my research work. It ıas not been presented in any previous application for the degree. All quotations are indicated, ınd sources of information specifically acknowledged by means of references.

05/08/2021

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CERTIFICATION

This Dissertation entitled, "Determinants of Profitability of Insurance Firms in Nigeria" meets the regulations governing the award of Master of Science (M.Sc.) Degree in Accounting, Faculty of Administration, Nasarawa State University, Keffi for its contribution to knowledge and literary presentation.

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DEDICATION

I dedicate this research work to God Almighty and to my Family.

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TABLE OF CONTENT

CHAPTER FOUR: DATA PRESENTATION AND ANALYSIS

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

ABSTRACT

The study examined the determinants of profitability of listed Insurance firms in Nigeria from 2010 to 2019. The population comprised of 19 listed insurance firms on the Nigeria stock exchange. Secondary sources of data were utilized. The determinants considered are firm age, firm size, premium growth, loss ratio, liquidity and leverage and profitability were measure by return on asset. Data were analyzed using panel multiple regression technique and it was found that firm size has positive insignificant effect on profitability oflisted insurance firms in Nigeria. Also, premium growth, loss ratio, firm age and leverage have negative insignificant effect on profitability while liquidity has negative significant effect on profitability of insurance firms in Nigeria. Based on the findings, the study recommends that Insurance firms should reduce their debt-equity ratio because it reduces their profitability.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The existence, growth and survival of financial firms like banks depend on their profitability level. Profitability is the ability of a firm to earn profit from business transactions. According to Al Samman (2012), profitability refers to earnings of firms that are generated from revenues and after deducting all expenses incurred during a given period. Profitability measures are important to owners and agents of a firm. Profitability measures the performance of a firm through the capacity to generate earnings at a rate of sales, level of assets and stock of capital in a specific period of time (Margaretha & Supartika, 2016). The return on assets, return on equity, and net interest margin has been used as indicators to measure profitability of firms. The profitability of banks remains significant to the financial sector and at macro level. That is the profitability of firms is shaped by internal factors which are industry specific and external factors which are macro-economic.

The Profitability of firms is driven by both internal and external factors. These factors affect the net earnings of a firm. Internal factors are specific variables that are directly identified with the firm or industry. They include but not limited to age, firm size, premium growth, loss ratio, liquidity and leverage. Liquidity refers to the extent to which liabilities that mature in a financial period can be repaid from quick assets of the firm. It demonstrates the capacity to convert an asset into cash. Liquidity is a prime concern for firms and the shortage of liquidity can trigger firm failure. For instance, a firm without sufficient liquidity to meet demands from depositors risk a run. However, holding assets

in a highly liquid form tends to reduce income as liquid asset are associated with lower rates of return. Liquidity is often measured in relation to current assets and current liabilities. The availability of liquidity to propel financial transactions in a firm is a function of sources of funds in form of capital or debt.

Increased financial leverage induces agency problems, such as theunderinvestment incentive, that can reduce annual profitability due to the associated increase inthe costs of monitoring and control. As such, high leverage levels can actually be valueenhancingfor banks as the obligation to meet the repayment schedules under debt covenantsdisciplines managers to act in ways consistent with shareholders' wealth maximizationobjectives. This encourages managers to generate future cash flows, thus increasing profitability and the traded value of the firm (Olaosebikan, 2012).

Financial performance is a measure of an organization's earnings, profits and appreciation in value evidenced by increase in share price. Insurance businesses usually express performance as net premiums earned, profitability from underwriting activities, annual turnover, returns on investment and return on equity. These measures can be categorized as profit performance and investment performance measures. Profit performance refers to profits measured in monetary terms. The difference between revenue and expenditure incurred to generate the revenue in a given period. These two factors, revenue and expenditure are influenced by some firm-specific factors, industry features and macroeconomic variables. Investment performance measure can take either of two different forms; the return on assets employed in the business other than cash, and

the return on the investment, operations of the surplus of cash at various levels earned on operations (Chen and Wong, 2004; Asimakopoulos, Samitas & Papadogonas, 2009).

Basically, profitability is an essential requirement for the survival, growth and competitiveness of insurance firms. It helps the industry provide the cheapest source of funds. Without profit, insurers cannot drawexternal capital to meet their set objectives in the ever challenging, competitive and globalized business environment. Profit does not only improve insurers' solvency state, it also plays essential role in persuading policy holders and investors to put in more funds in the business. Thus, one major objective of any insurance company's management is to achieve profitability as an underlying requirement for conducting any insurance business (Chen &Wong, 2004; and Harrington & Wilson, 1989).

Insurance companies offer distinctive financial services for the growth and development of every economy. Such specialized financial services range from underwriting risks inherent in economic activities to the mobilization of large funds for long term investment through premium collection. The risk absorption role of underwriters promotes financial stability in the market and gives a sense of peace to economic entities. The insurance companies' ability to cover risks in the economy is resultant of their capacity to create profit or value for their shareholders. A well-developed insurance industry is an advantage for economic growth as it provides long-term funds for development (Ahmed, Ahmed & Ahmed, 2010; Agiobenebo & Ezirim, 2002). It is based on this that the study evaluates the determinant of profitability in Insurance firms.

1.2 Statement of the Problem

A reliable and efficient financial institution must achieve three goals: to give a considerable profit, to offer a high-quality service to customers and the maximization of shareholders wealth. The growth of any economy largely depends on its financial institution. Every firm tries to earn and achieve good profits in order to be in the business especially at the time of growing competition in the financial markets.

Profitability is of critical concern to all groups who have direct or indirect interest in the business organization. Given this crucial role profit plays in the survival and sustainability of any business, the determinants of profitability of firms; especially insurance firms, still require a lot more attention from financial researchers. This may be necessary to have thorough evaluation of factors that play critical role in profit realization of insurance firms in Nigeria. This work therefore evaluates the factors that influence the profitability of firms in Nigeria.

There are studies which focused on the determinants of profitability of insurance firms in other countries (Hifza Malik, 2011; Mirie & Jane, 2015; Olajumoke Olaosebika, 2013; Emine Kaya, 2015; Dorina & Dorina, 2016 and Teklit & Jasimindeep, 2017). However, not much has been done on this subject in Nigeria. Most literature in Nigeria focus on factors influencing the financial performance of banks rather than insurance companies (Aburime 2008, Buba 2009, Ani*et al* 2012 and Akano 2014). Again, the outcome of the studies conducted in other countries may not be directly applicable to insurance firms in Nigeria because of differences in the environments in which the insurance firms operate in terms of regulation, market, operationand even the laws. In addition, variables used in

other studies, especially from developed market may not be consistent with the realities of the developingnations. To this end, the determinants of the profitability of insurance firms in Nigeria is unique and therefore, require an empirical investigation.

1.3 Research Question

This study will address the following questions:

i. To what extent does age of insurance firms affect the profitability of insurance firms in Nigeria?
ii. To what extent does firm size influence the profitability of insurance firms in Nigeria?
iii. What impact does premium growth rate have on the profitability of insurance firms in Nigeria?
iv. What is the impact of loss ratio on profitability of insurance firms in Nigeria?
v. How does liquidity influence the profitability of insurance firms in Nigeria?
vi. To what extent does leverage affect the profitability of insurance firms in Nigeria?

1.4 Objectives of the Study

The main objective of this study is to examine the determinants of profitability of insurance firms' in Nigeria while the specific objectives are to:

i. assessthe impact of firm ageon the profitability of insurance firms in Nigeria;
ii. evaluate the impact of firm size on the profitability of insurance firms in Nigeria;
iii. ascertain the impact of premium growth rate on profitability of insurance firms in Nigeria;
iv. analyze the impact of loss ratio on the profitability of insurance firms in Nigeria;
v. determine the impact of liquidity on the profitability of insurance firms in Nigeria; and

vi. examine the impact of leverage on the profitability of insurance firms in Nigeria;

1.5 Statement of the Hypotheses

Following from the statement of the problem, the hypotheses are formulated:

Ho1: Firm size has no significant impact on the profitability of insurance companies in Nigeria

Ho2: Premium growth rate has no significant impact on the profitability of insurance companies in Nigeria

Ho3; Loss ratio has no significant impact on the profitability of insurance firms in Nigeria

Ho4: Liquidity has no significant impact on the profitability of insurance firms in Nigeria.

Ho5: Leverage has no significant impact on the profitability of Nigerian insurance firms.

1.6 Significance of Study

The study would provide information to investors both existing and potential investors on factors that affect profitability of insurancefirms to guide their investment decisions. Similarly, the study will help management of insurance firms identify the determinants of profitability in the industryto have them take necessary actions to improve their profitability and to make quality decision in sustaining gained profit positions in their organization going forward. Furthermore, government need to know which insurance firms operate successfully; able to make good their financial obligations andensure returns to investors. This is critical for effective regulation and to achieve desired growth

in the sector. Potential customers want to know the ability of insurance companies to pay claims if the risk occurs, based on success indicators of the companies especially profitability.

The outcome of this study will aid business professionals to give quality advice to their clients. My findings from this study will contribute to financial literatures by giving further evidence to support the positive role of insurance firms in Nigerian Economy. Furthermore, the result is useful to accounting practitioners and regulators. It avails valuable insights into the complex interactions between different factors that determine profitable performance of insurance companies.

1.7 Scope of the Study

This study examined the factors that determine profitability of listed insurance firms in Nigeria. In order to evaluate the impact of these factors, the study covered the period of ten years from 2010 to 2019. This period covers the various reforms that had happened aimed at increasing productivity, performance and efficiency of the insurance industry in Nigeria. The period is considered suitable because it covers the season of capital reforms whichmandated insurance firms in Nigeria to increase their capital base. The study covered nineteen Insurance firms listed on the Nigeria stock exchange.

CHAPTER TWO

LITERATURE REVIEW

2.1 Conceptual Framework

2.1.1 Determinants of Profitability

The determinants of profitability refer to those factors that impact the profitability or otherwise of a business. The factors are categorized as either internal or external; internal factors are those that are specific to a given organization while the external factors relate to general economic variables that influences businesses performance in the given industry, location or economy. In this study, some of the factors I will be focusing on include firm size, premium growth, loss ratio, capital adequacy ratio, liquidity ratio and leverage ratio.

2.1.2 Concept of firm Size

The size of a firm is the amount and variety of production capacity and ability a firmpossesses or the amount and variety of services a firm can provide concurrently to itscustomers. The size of a firm is a primary factor in determining the profitability of a firm due to economies of scale (Niresh & Velnampy, 2014). Increasing firm size allows for incrementaladvantages because the size of the firm enables it to raise the barriers of entry to potentialentrants as well as gain leverage on the economies of scale to attain higher profitability (Ramasamy, Ong & Yeung, 2005).

The size of a firm is considered anordinary logarithm of the total asset of the business. It is standard in literatures that company size is positively and strongly related to financial performance (Ahmed *et al* 2011). This position is supported by Hardwick (1997) who

opined that larger companies normally demonstrate greater capacity for dealing with adverse market fluctuations more than small companies. Larger companies can recruit skillful employees with professional knowledge compared with small companies and finally, the larger insurance companies enjoy economies of scale in terms of labour cost which is the most essential production factor for delivering insurance services. Similarly, Wyn (1998) postulated that large corporate size enhancesinsurers'capacity to effectively spread their assumed risks and respond quickly to changes in market.

Pi and Timme (1993) suggested that operational performance possibly will be inversely correlated to firm size. This is supported by the argument put forward by Jensen and Murphy (1990) that as an organization grows, it often becomes more difficult for owners to effectively monitor and control deviant behaviors of managers. More so as managers normally have incentive to pursue corporate size related objectives like increasing market share rather than maximizing shareholders wealth. In addition, Majumdar (1997) opined that as firms become larger, they might fall into some inefficiencies that typically leads to inferior financial performance. Hence, one can say that theory isequivocal on the exact relationship between the size of firms andoperational performance of companiesas regards profitability or otherwise. As a matter of fact, several studies had been done to examine the effect of firm size on financial performance. But the empirical evidence on that relationship remains mixed. Some studies conductedin the recent past internationally by Yavaraj and Abate (2013), Daniel and Tilahun (2012), Abate (2012), Almajali and Yahaya (2012) and Malik (2011) suggests that firm size is positively and strongly related to financial performance of insurance companies. While similar study conducted by

Adams and Buckle (2000), found no significant relationship between firm size and financial performance of insurance companies.

2.1.3 Concept of Premium Growth

Related literatures have reported that premium growth is another important financial variable that influences financial performance of insurance companies. Growth in premium collectionof insurance firms has been argued to have clear influence on their financial performance, this has been covered repeatedly in related studies. Premium growth is measured by percentage change in total assets or sometimes as percentage change in premium of insurance companies (Abate, 2012). It measures the level of market penetration (Ahmed *et al,* 2011). Empirical result shows that rapid growth of premium volume is one of the underlying factors for profitability (kim*et al,* 1995). According to Chen and Wong (2004), being too obsessed with premium growth can be self-destructive as other important objectives such as the effective selection of profitable portfolios to invest in might be neglected.

Meanwhile Charumathi (2012), submitted a finding of an inverse relationship between premium growth and- firm financial performance. Reasons behind the negative relationship between premium growth rate and financial performance were stated by Akotoy*et al* (2011) to include, excessive focus on marketing to generate more premiums at the detriment of their investment activities. That is more resources are directed towards generating more policy underwriting to grow premium, with no proportionate focus on effective management of assets and liabilities or investments. In that instance, investment income will decline despite any increase in net premium. They further argued that some

of the premiums' written are not paid by the insured and sometimes become unrecoverable at the end of the insured term.

2.1.4 Concept of Loss Ratio

Thisis the ratio of total loss incurred in claims (paid and outstanding) plus adjustment expenses against total premiums earned. Loss ratio is one of the most important profitability indicators for insurance companies. It is expressed as the underwriting risk in relevant literatures and shows the effectiveness of the underwriting activities of insurance companies. The ratio is calculated by dividing the incurred claims by the premium earned. Where an insurance company consistently has high loss ratios, it is a sign of bad financial position. An indication that it is not collecting enough premium to pay claims, expenses and still make profit. It is hence probable that loss ratio has significant impact on the profitability of insurance companies.

2.1.5 Concept of Capital Adequacy Ratio

This measures the excess of the value of assets over the company's liabilities. In the context of finance literature, equity to asset ratio is used as a proxy for capital adequacy. It is acrucialestimate of the financial strength of a company andindicates its capacity to survive in the long run. Insurance companies with greater equity to asset ratio are considered to be financially sound and capable of attracting diverse policy holders. Those with higher capital adequacy ratio are assumed to be relatively safer in terms of loss and bankruptcy. The higher the ratio of equity to asset of an insurer, the lower its risk, this pavesway to increase their credit worthiness. Thus, that insurer will maintain lower cost of fund. Furthermore, insurance companies with higher equity to asset ratio will have less

demand to raise funds from external sources. However, it is very difficult to confirm what relationship that exists between equity to asset ratio and profitability, and as a result, it is subject to empirical study.

2.1.6 Concept of Liquidity Ratio

This refers to the capacity of an insurer to meet its short-term financial obligations when it is due. It is normally calculated as the ratio of current assets to current liabilities. It also shows how quickly an insurer can convert assets into cash. For insurance businesses, primary source of liquidity includes; premium collections, investment income and liquidation of assets (Chen & Wong, 2004). Insurance companiescould use liquid assets to finance their operations and investment when there is shortage of external fund. Low liquidity ratio shows that an insurer is having difficulties meeting its short-term financial obligations. But again, avery high liquidity ratio could also mean that the insurer is keeping idle cash that could generate income if effectually invested. This makes the impact of liquidity ratio on profitability variable and open for further research.

2.1.7 Concept of Leverage Ratio.

This is the ratio of debt to equity. It shows the amount of debt used to finance the assets of a given firm. A firm with significantly more debt than equity is considered to be highly leveraged. The risk of an insurer increases as its leverage upturns. Literatures in capital structure states that a firm's value will increase to optimum point as leverage increases and then begin to decline if the leverage increases further beyond its optimum level. Renbao and Wong (2004), said that leverage above the optimum level could lead to higher risk and low value of the firm. Harrington (2005), stated that relationship between

leverage and profitability has been studied extensively in support of capital structure theory. He argued that insurance companies with lower leverage will largelyreport higher return on assets (ROA). Consequently, leverage ratio is probable to have a significant relationship with firms'profitability.

2.1.8 Concept of Financial Performance

Financial performance refers to the measure of an organization's earnings, profit and the appreciation invalue of the entity's share price. Insurance companies generally express performance as either net premium earned, turnover/profit from underwriting activities, returns on investment or return on equity. These measures are classified as either profit performance orinvestment performance measures. Profit performance consist of profit measured in monetary terms; revenue less expenses for a given period. Revenue and expenditure aresusceptible to firm-specific factors, industry features and macroeconomic variables. While investment performance could take either of two forms: return on assets employed other than cash or return on investment operations, which isthe surplus of cash at various levels earned on operations (Chen & Wong, 2004; Asimakopoulos, Samitas & Papadogonas, 2009).

Malik (2011), indicated various ways financial performance can be measured. They include, return on asset (ROA), return on equity (ROE) and return on invested capital (ROIC). They all separately provide clear picture of management's efficiency and effectiveness. Return on asset (ROA) reveals the measure of profit a company earns given its assets base. It indicates how profitable a company is relative to its asset base giving an idea of how efficiently management is using organizational assets to generate

revenue. Assetcomprises cash in bank, account receivable, equipment, furniture and inventory. Return on equity (ROE) on the other hand measures the rate of return on the ownership interest of common stockholders (shareholder's equity). It shows how well a company uses investment funds to generate earnings. While return on invested capital (ROIC), measures managements effectiveness in allotting capital under its control to profitable investments. This metricindicates a company's capacity to generate returns through the effective utilization of its productive assets. Comparing a company's ROIC with its weighted average cost of capital (WACC) will reveal if invested capital is used efficiently or not.

Daniel and Tilahun (2012) states that the key indicator of a firms profit performance is the ROA which is derived as profit after tax divided by total assets. Likewise, Malik, 2011and Abate (2012) suggested that though there are alternative ways to measure financial performance, return on asset (ROA)should be preferred to return on equity (ROE). This is because an analysis of ROE disregards financial leverage and risks associated with it as a measure of profitability in insurance companies.

2.2 Empirical Review

2.2.1 Firm age and profitability

Abate and Yuvaraj (2013) examined the effect of firm specific factors like; the age of company, size of company, volume of capital, leverage ratio, liquidity ratio, growth and tangibility of assets on the performance of nine insurance companies in Ethiopia. The work covered a period of nine years from 2002. That research revealed some variables like growth, leverage, volume of capital, size, and liquidity were the most important

determinants of profitability. While age of the companies and tangibility of assets were not significantly related toprofitability. Finally, the study advised that insurance companies should not focus only on firm specific variables but on macroeconomic factors also to improve profitability.

Hifza (2011) analyzed the factors affecting profitability of insurance companies in Pakistan for a period of four years. The researcher included a sample of 35 listed life and non-life insurance companies and specifically examined the impacts of firm specific factors such as age of the company, size of the company, volume of capital, leverage ratio and loss ratio on profitability. The outcomeindicated there was no relationship between profitability and age of the company but there was positive relationship between size of the company and theirprofitability. The study also stated that volume of capital was positively related with profitability while loss ratio and leverage ratio indicated negative relationship with profitability. The workproposed that for profitability to be improved, there should be a reversal and significant relationship between leverage ratio and loss ratio as independent variables. The objective of the study was achieved however, conclusion of the study is geared towards Insurance firms in Pakistan.

Vijayakumar and Kadirvelu (2004) studied the determinants of Profitability of Indian Public Sector Power Industries using multiple regression model was used, return on total assets and profit margin to sales ratio were used as a major indicator of profitability. The study based in India covered from 1981 to 2002. The explanatory variables included Size, represented by total assets, growth by measure of growth rate of assets, leverage, current ratio, and inventory turnover ratio, operating expenses to sales ratio, vertical integration

and age. The study identified that the age had strong significance in relation to the determinant of profitability and was followed by operating expenses to sales ratio, leverage, fixed assets turnover ratio, inventory ratio, size, current ratio, growth rate and vertical integration and further, size, operating expenses to sales ratio and fixed assets ratio had negative significance to the variation of profit in the Indian public sector power industries.

2.2.2 Firm size and profitability

Ifeduni and Charles (2018) examined the determinants of profitability of manufacturing organizations in Nigeria. Twelve manufacturing firms out of twenty-two manufacturing firms in the Nigerian stock market constituted the sample of the study. The main variable used in the study include Return on Equity and Return on Assets used as proxies for profitability and Firms size, leverage, lag profitability, capital base and productivity used as explanatory variables. A panel data regression analysis via the fixed effect, random effect and Hausman test were conducted to analyze the data and the outcome was that all the explanatory variables were important determinants of profitability in the Nigerian manufacturing sector though it emphasized that efficient utilization of assets is more significant than the asset size. The modalities for manufacturing firms differ from Insurance firms therefore, a study of Insurance firms is necessary to bridge the gap in the existing literature.

Mwangi and Murigu (2015), studied the determining factors in financial performance of general insurance companies in Kenya for the period 2009 to 2012. The study was aimed at established the factors that impact the profitability of general insurers in the country using multiple linear regression analysis and return on assets (ROA) as the dependent

variable. The outcome showed that profitability was positively related to leverage, equity capital, management competence index but negatively related to size and ownership structure. No positive impact was established between performance and retention ratio, liquidity, underwriting risk or age of firm. The study showed that the contribution of the general insurance industry to the gross domestic product of Kenya was about 2.08%. They recommend that general insurers in Kenya should upturntheir leverage, equity capital and quality of staff in order to enhance their financial performance. This study was in Kenya and cannot be generalized to the Nigeria firms.

Al-Jafari and Al Samman (2015) investigated the determinants of profitability for industrial firms in Oman using a sample of 17 industrial companies listed on Muscat securities market covering the period from 2006 till 2013 is utilized. Results from the panel ordinary least squares model reveal a positive and statistically significant relationship between profitability, the firm size, growth, fixed assets and working capital. On the other hand, the average tax rate and the financial leverage variables show a negative relationship with profitability. However, this relationship is significant only for the financial leverage variable. The study concludes that large growing firms with efficiently managed assets improve revenue and ultimately enhance profitability.

Takon, Obim and Atseye (2019) provided empirical evidence of bank-specific determinants of profitability of top 10 deposit money banks in Nigeria for the period spanning 2007-2016 based on the Central Bank of Nigeria 2017 classification. The study employed ex-post facto research design with data from annual reports and financial statements of the sampled banks. Data were analysed using descriptive statistics and panel least squares (fixed effect) model both the techniques. Estimated panel results

indicated a significant effect of capital adequacy and bank size on profitability, while credit risk and liquidity had insignificant effect on profitability of deposit money banks in Nigeria.

Akbaş (2012) examine how bank-specific, industry-specific and macroeconomic factors affect the profitability of 26 commercial banks in Turkey over the period from 2005 to 2010. Return on Assets (ROA) and Return on Equity (ROE) are used as the profitability measures of banks in the study. The results of the study indicate that the ratio of loan loss provisions to gross loans, the ratio of total costs to total income, Herfindahl–Hirschman Index (HHI) for deposits and inflation have a statistically significant and negative relationship with ROA. When the ROE is taken as the measure of profitability; it was found that the ratio of equity to total assets, the ratio of loan loss provisions to gross loans, the ratio of total costs to total income, logarithm of total assets, and finally, HHI for assets are negatively and significantly related to profitability.

Sorana (2014) established the determinants of financial performance in 126 Romanian companies listed on the Bucharest Stock Exchange, over a period of ten-years (2003-2012). The analysis is based on cross sectional regressions. Return on assets is the performance proxy, while the variables expected to have a significant impact on profitability are debt, asset tangibility, size, liquidity, taxation, risk, inflation and crisis. Regression results indicate that profitable companies operate with limited borrowings. Tangibility, business risk and the level of taxation have a negative impact on return on assets. Although earnings are sustained by significant sales turnover, performance is affected by high levels of liquidity.

Pratheepan (2014) tested the determinants of profitability for 55 Sri Lankan manufacturing companies using static panel models. The results show that size has a significant positive relationship with profitability. Accordingly, tangibility found to have an' inverse statistical relationship with profitability. On the other hand, leverage and liquidity found to have insignificant impact on profitability.

Hifza (2011) analyzed the factors affecting profitability of insurance companies in Pakistan for a period of four years. The researcher included a sample of 35 listed life and non-life insurance companies and specifically examined the impacts of firm specific factors such as age of the company, size of the company, volume of capital, leverage ratio and loss ratio on profitability. The outcomeindicated there was no relationship between profitability and age of the company but there was positive relationship between size of the company and theirprofitability. The study also stated that volume of capital was positively related with profitability while loss ratio and leverage ratio indicated negative relationship with profitability. The workproposed that for profitability to be improved, there should be a reversal and significant relationship between leverage ratio and loss ratio as independent variables.

Ani, Ugwunta, Ezeudu and Ugwuanyi (2012) studied profitability determinants of manufacturing companies in Nigeria. 28 Manufacturing companies were taken into consideration and the time frame of 10 year which is from 2001 to 2010 considered. Pooled ordinary least squared (OLS) regression was applied to analyze the data. The outcome showed that an increase in the firms" size cannot lead to an increase in profits as a result of diseconomies of scale but an increased capital assets ratio, and loans and advances add robustly to the profitability of these firms.

Vijayakumar (2011) study on the Determinants of Profitability: An Empirical Investigation using Indian Automobile Industry The profit of a business might be measured by examining the gainfulness of interest in it. It is the test of effectiveness, intense motivational variable and the measure of control in any business. Profitability is exceedingly delicate financial variable which is influenced by host of components working through an assortment of ways. The goal of this study is to look at the determinants of productivity of chosen Automobile Industry. Determinants of benefit are broken down utilizing the strategies of customary minimum squares. It is clear from the outcomes that size is the most grounded determinants of benefit of Indian Automobile Industry taken after by the variables vertical joining, past gainfulness, development rate of advantages and stock turnover proportion.

Olajumoke (2012) examined the determinants of the profitability of micro life insurers in Nigeria over the period of four years, 2003-04 to 2007-08. The result indicated that factors such as ownership structure, leverage and the size of firm do not have significant influence on the profitability of micro-life insurance companies. It was also indicativethat the level of reinsurance in micro-life insurance has no positive relationship with their profitability. This suggests that reinsurance in micro-life insurance sector in Nigerian may be highly priced to reflect the increased risk associated with insuring the lives of low-income groups. However, the study found that the profitability of micro-life insurers in Nigeria was positively influenced by the rate of interest in the economy.

Zaid, Ibrahim and Zulqernain (2014) investigated the determinants of profitability for the construction companies in Malaysia. They found that liquidity and size have a significant

and positive relationship with profitability. On other hand, capital structure of the firm found to have negative and insignificant relationship with profitability.

Mittal et al (2010) researched on the trend in the management of working capital, in the cement industry of India. Two firms namely Gujarat Ambuja Cements Ltd (GAC Ltd) and Associated Cement Companies Limited (ACC Ltd) were selected for this research. These two firms were the market leaders in India in the cement industry and also were the major competitors in India. This research was based on a four years period which is from 2006 to 20009. Secondary data was utilized for this research and the financial statement of the firms were the source of data. The study examined the relationship between the working capital size, Sales, total assets and net profit. The mean, standard deviation, coefficient of variation, correlation, multiple regressions and descriptive statistic were used for this study. The findings of the research stated that there was no significant relationship in the size of working capital and profitability of these firms and on the other hand, there was a positive significance relationship between the components of working capital and the profitability of firms in the cement industry of India.

2.2.3 Premium growth and profitability

To determine the factors affecting the financial performance of insurance companies in Ethiopia, Mehari and Aemiro (2012) have analyzed the impact of firm-specific factors (size of the company, leverage, tangibility of assets, loss ratio, growth in writing premium, liquidity, and age of the company) on the ROA of nine Ethiopian insurance companies during the period from 2005 to 2010. According to the results, the financial performance of Ethiopian insurance companies is significantly and positively influenced by the size of the company, tangibility of assets, and leverage, while loss ratio has a

negative and significant influence on financial performance. The results also show that the age of the company, growth in writing premium, and liquidity are not significantly related to financial performance.

Daniel and Tilahun (2012) investigated the impact of firm level characteristics (size, leverage, tangibility, Loss ratio (risk), growth in written premium, liquidity and age) on performance of insurance companies in Ethiopia. Return on total assets (ROA) a key indicator of insurance company's performance was used as dependent variable while age of company, size of the company, growth in writing premium, liquidity, leverage and loss ratio were independent variables. The sample includes 9 insurance companies over the period 2005-2010. The results of regression analysis revealed that insurers" size, tangibility and leverage are statistically significant and positively related with return on total asset; however, loss ratio (risk) is statistically significant and negatively related with ROA. Thus, insurers" size, loss ratio (risk), tangibility and leverage are important determinants of performance of insurance companies in Ethiopia. However, growth in written premium, insurers age and liquidity have statistically insignificant relationship with ROA.

Charumathi (2012) examined the determinants of profitability of in Indian life insurers within the period of 2008-2010. For this purpose, firm specific characteristics such as leverage, size, premium growth, liquidity, underwriting risk and equity capital are regressed against Return on Assets. This study concludes that profitability of life insurers is positively and significantly influenced by the size (as explained by logarithm of net premium) and liquidity. The leverage, premium growth and logarithm of equity capital have negatively and significantly influenced the profitability of Indian life insurers. The

study did not find any evidence for the relationship between underwriting risk and profitability. The limitation of the study was the limited period covered. If the period captured by the researcher had increased, there is every tendency that the result of the study would have change.

Burca and Batrînca [2009] investigated the factors that influence the financial performance of the 21 insurance companies operating in Romanian insurance market between 2008 and 2012. For this purpose, 13 explanatory variables have been empirically tested: financial leverage in insurance, company size, number of years of operations in the Romanian market, growth of gross written premiums, equity, total market share, diversification, underwriting risk, investment ratio, reinsurance dependence, retained risk ratio, solvency margin, and growth of GDP/capita. As an indicator of the financial performance, the return on total assets ratio has been used. By applying specific panel data techniques, the authors have shown that the determinants of the financial performance in the Romanian insurance market are financial leverage in insurance, company size, growth of gross written premiums, underwriting risk, risk retention ratio, and solvency margin.

2.2.4 Loss ratio and profitability

Hifza (2011) analyzed the factors affecting profitability of insurance companies in Pakistan for a period of four years. The researcher included a sample of 35 listed life and non-life insurance companies and specifically examined the impacts of firm specific factors such as age of the company, size of the company, volume of capital, leverage ratio and loss ratio on profitability. The outcomeindicated there was no relationship between

profitability and age of the company but there was positive relationship between size of the company and theirprofitability. The study also stated that volume of capital was positively related with profitability while loss ratio and leverage ratio indicated negative relationship with profitability. The workproposed that for profitability to be improved, there should be a reversal and significant relationship between leverage ratio and loss ratio as independent variables.

Akbaş (2012) examined how bank-specific, industry-specific and macroeconomic factors affect the profitability of 26 commercial banks in Turkey over the period from 2005 to 2010. Return on Assets (ROA) and Return on Equity (ROE) are used as the profitability measures of banks in the study. The results of the study indicate that the ratio of loan loss provisions to gross loans, the ratio of total costs to total income, Herfindahl–Hirschman Index (HHI) for deposits and inflation have a statistically significant and negative relationship with ROA. When the ROE is taken as the measure of profitability; it was found that the ratio of equity to total assets, the ratio of loan loss provisions to gross loans, the ratio of total costs to total income, logarithm of total assets, and finally, HHI for assets are negatively and significantly related to profitability.

Odusanyaa, Yinusab and Ilo (2018) examined the determinants of firm profitability for 114 firms listed on the Nigerian Stock Exchange (NSE) from 1998 to 2012, using the system Generalized Method of Moments (GMM). The results show that lagged profitability exerts significant positive effect on contemporaneous firm profitability. However, short-term leverage, inflation rate, interest rate and financial risk have significant negative effects on firm profitability. The study therefore suggests, among other recommendations, that the cost of borrowing to the real sector of the economy

should be reduced in order to minimize costs of production, enhance productivity and profitability while necessary macroeconomic policies should be put in place by the government to curb inflationary pressure in the economy.

2.2.5 Liquidity and profitability

Lorena, Danijel and Marko (2016) investigates determinants of the profitability of industrial firms in Croatia, using data for large, medium and small companies for the period 2003-2014. The determinants studied are size of firm, revenues, growth rate of revenues, sales, profit in previous years, ownership, productivity level, financial leverage, liquidity, cost of inputs, indebtedness. Results from the panel ordinary least squares model for Croatia's manufacturing sector reveal a positive and statistically significant relationship between profitability, total factor productivity, and concentration measured through Herfindahl-Hirschman index. On the other hand, indebtedness and liquidity show a negative relationship with the firm profitability of Croatia's manufacturing sector.

Mwangi and Murigu (2015) studied the determining factors in financial performance of general insurance companies in Kenya for the period 2009 to 2012. The study was aimed to establish the factors that impact the profitability of general insurers in the country using multiple linear regression analysis and return on assets (ROA) as the dependent variable. The outcome showed that profitability was positively related to leverage, equity capital, management competence index but negatively related to size and ownership structure. No positive impact was established between performance and retention ratio, liquidity, underwriting risk or age of firm. The study showed that the contribution of the general insurance industry to the gross domestic product of Kenya was about 2.08%.

They recommend that general insurers in Kenya should upturntheir leverage, equity capital and quality of staff in order to enhance their financial performance.

Sorana (2014) established the determinants of financial performance in 126 Romanian companies listed on the Bucharest Stock Exchange, over a period of ten-years (2003-2012). The analysis is based on cross sectional regressions. Return on assets is the performance proxy, while the variables expected to have a significant impact on profitability are debt, asset tangibility, size, liquidity, taxation, risk, inflation and crisis. Regression results indicate that profitable companies operate with limited borrowings. Tangibility, business risk and the level of taxation have a negative impact on return on assets. Although earnings are sustained by significant sales turnover, performance is affected by high levels of liquidity.

Abate and Yuvaraj (2013) examined the effect of firm specific factors like; the age of company, size of company, volume of capital, leverage ratio, liquidity ratio, growth and tangibility of assets on the performance of nine insurance companies in Ethiopia. The work covered a period of nine years from 2002. That research revealed some variables like growth, leverage, volume of capital, size, and liquidity were the most important determinants of profitability. While age of the companies and tangibility of assets were not significantly related toprofitability. Finally, the study advised that insurance companies should not focus only on firm specific variables but on macroeconomic factors also to improve profitability.

John et al. (2013), in their research articleexamined if the profitability of insurance firms in Ghana werepositively influenced by working capital management and leverage. The

study covered about eighteen firms over the period ten years. Current ratio was used to represent the result of working capital management policies while financial & operating leverages were the benchmark for capital structure. Panel data was employed to decide whether profitability of insurance companies' was related to certain indicators in accordance with the accepted financial theory. The research result showed that the degree of financial leverage and liquidity were inversely related to profitability while operating leverage was positively related to profitability.

Amal et al. (2012), in their work investigated various factors that affect financial performance of twenty-five Insurance Companies in Jordan over a period of five years. The result showed that variables such as leverage ratio, liquidity, management competencyand company size all have positive statistical effect on the financial performance of insurance Companies. However, age of the company was discovered not to have any influence on their financial performance. This encourages new entrants into insurance industry. The researcher suggested that insurance companies should consider highly increasing their assets base and well qualified employees in their top management positions to stimulate better financial performance.

Rasiah (2010) in his research determinants of profitability of commercial banks separated the gainfulness determinants into two fundamental classifications, the inside determinants and the outside determinants. The inside determinants included administration controllable elements, for example, liquidity, interest on securities, interests on backups, credits, non-performing advances, and overhead consumption. The outside determinants incorporate those elements which are outside the control ability of administration of these

organizations, for example, financing costs, swelling rates, market development and market share.

Al-Jafari and Alchami (2014) investigated the determinants of profitability of Syrian banks utilizing the generalized method of moments (GMM) technique. Their results reveal that liquidity ratio, credit risk, bank size, and management efficiency affect significantly the profitability of Syrian banks.

2.2.6 Leverage and profitability

Al-Jafari and Al Samman (2015) investigates the determinants of profitability for industrial firms in Oman using a sample of 17 industrial companies listed on Muscat securities market covering the period from 2006 till 2013 is utilized. Results from the panel ordinary least squares model reveal a positive and statistically significant relationship between profitability, the firm size, growth, fixed assets and working capital. On the other hand, the average tax rate and the financial leverage variables show a negative relationship with profitability. However, this relationship is significant only for the financial leverage variable. The study concludes that large growing firms with efficiently managed assets improve revenue and ultimately enhance profitability.

Blažková and Dvouletý (2018) evaluated the determinants of firm profitability, from the perspective in the Czech food processing industry during years 2005-2012 (622 Firms in 10 Sectors). The study assessed an impact of industry (i.e. market concentration, sector growth rate and growth rate of imports) and firm-level characteristics (i.e. market share, firm age, firm size, number of employees, leverage and short-term risk) on the return on assets (ROA). The study found a positive impact of market concentration and market

share and a negative effect of age and risk-taking behaviour on a firm profitability. Based on these findings, managers in the Czech food and drink industry should pay more attention to the debt policy.

Abate and Yuvaraj (2013) examined the effect of firm specific factors like; the age of company, size of company, volume of capital, leverage ratio, liquidity ratio, growth and tangibility of assets on the performance of nine insurance companies in Ethiopia. The work covered a period of nine years from 2002. That research revealed some variables like growth, leverage, volume of capital, size, and liquidity were the most important determinants of profitability. While age of the companies and tangibility of assets were not significantly related toprofitability. Finally, the study advised that insurance companies should not focus only on firm specific variables but on macroeconomic factors also to improve profitability.

Olajumoke (2012) examined the determinants of the profitability of micro life insurers in Nigeria over the period of four years, 2003-04 to 2007-08. The result indicated that factors such as ownership structure, leverage and the size of firm do not have significant influence on the profitability of micro-life insurance companies. It was also indicativethat the level of reinsurance in micro-life insurance has no positive relationship with their profitability. This suggests that reinsurance in micro-life insurance sector in Nigerian may be highly priced to reflect the increased risk associated with insuring the lives of low-income groups. However, the study found that the profitability of micro-life insurers in Nigeria was positively influenced by the rate of interest in the economy.

Pratheepan (2014) tested the determinants of profitability for 55 Sri Lankan manufacturing companies using static panel models. The results show that size has a significant positive relationship with profitability. Accordingly, tangibility found to have an inverse statistical relationship with profitability. On the other hand, leverage and liquidity found to have insignificant impact on profitability.

Hifza (2011) analyzed the factors affecting profitability of insurance companies in Pakistan for a period of four years. The researcher included a sample of 35 listed life and non-life insurance companies and specifically examined the impacts of firm specific factors such as age of the company, size of the company, volume of capital, leverage ratio and loss ratio on profitability. The outcomeindicated there was no relationship between profitability and age of the company but there was positive relationship between size of the company and theirprofitability. The study also stated that volume of capital was positively related with profitability while loss ratio and leverage ratio indicated negative relationship with profitability. The workproposed that for profitability to be improved, there should be a reversal and significant relationship between leverage ratio and loss ratio as independent variables.

Akoteyet *al* (2011) studied the determinants of profitability in the life insurance industry of Ghana. The work used investment income, underwriting profit and overall net profit as proxies for profitability. Financial statements of ten life insurance companies covering a period of eleven years were analyzed through panel regression. The findings showed that while gross premium have a positive relationship with insurers' profitability, its relationship with investment income is adverse. Secondly it showed that life insurers incur large underwriting losses due to overtrading and price concession. The result

revealed a set-off rather than a complementary relationship between underwriting profit and investment income with regard to enhancing overall profitability of life insurers. The major drawback of this study was the mixture of both macro and micro determinant variables on life insurance, neglecting the non-life insurance.

Amal et al. (2012), in their work investigated various factors that affect financial performance of twenty-five Insurance Companies in Jordan over a period of five years. The result showed that variables such as leverage ratio, liquidity, management competencyand company size all have positive statistical effect on the financial performance of insurance Companies. However, age of the company was discovered not to have any influence on their financial performance. This encourages new entrants into insurance industry. The researcher suggested that insurance companies should consider highly increasing their assets base and well qualified employees in their top management positions to stimulate better financial performance.

2.3 Theoretical Framework

At the moment, there is no universal theory on the determinants of profitability of business firms that could be used to support this study. There are however some conditional theories that attempt to approach the determination of financial performance which I find useful for this study. These theories include agency theory and resource-based theory. The details of each of the theories is provided below:

2.3.1 Agency Theory

Adams Smith notably warned against the laxity and profusion of managers handling money other than their own. Agency theory is central in corporate governance literatures. The theory describes the primary conflict between self-regarding managers and business

owners, where the former has control of the firm or business, but the latter bears most of the wealth effects.

It's an assumption that describes the relationship between a principal and an agent in a business, targeted atdemystifying problems that can occur in agency relationship due to unaligned goals of management and owner or varied levels of risk aversion. An agent is meant to represent the best interest of the principal in a business transaction without regard for self-interest. The principal/agent problem happen because sometimes, the agent is stirred to act in own personal interest rather than those of the principal. Researchers have widely studied the conflict between managers and business owners concerning the operation of the firm. Berle and Means (1932) indicated that with increase in management professionalism, firms are likely be operated at the interest of managers first rather than the owners.

Agency problem arises where two parties have different interests and disproportionate information (the agent having more information), such that the principal cannot directly ensure the agent always acts in his best interests, particularly when actionsvaluable to the principal are costly or not equally beneficial to the agent. Also, where the cost of monitoring the agents' activities is too high for the principal, moral hazard or conflict of interest may arise. It is possible the principal may be adequatelyapprehensive about the possibility of being exploited by the agent, to decide not to enter into any transaction at all. Meanwhile, the deal would have essentially been inthe best interest of both parties. The deviation from a principal's interest by an agent is called agency costs (Lucian &Jese, 2004).

Jensen's and Meckling's (1976) original model indicates that low managerial ownership stakes in organizations results to increase in non-pecuniary spending by the managers because they do not fully assume the costs. This kind of problemwill generate agency cost. A key issue in their theory is that outside shareholders cannot causelessly observe managers' actions. Jensen's and Meckling's insights lead to the model where the ownership structure is not only focused on how much insiders own in the company, but more so in the sense of how concentrated the holdings of outside shareholders in the company is.

Berger *et al* (1997), argued that reasons at the bottom of the operational Performance of financial services firms are difficult to determine because of the intangible nature of outputs and lack of transparency around resource allocation decision. However, financial economics literature like the agency theory; can provide important insights into the determinants of operational performance in financial services firms. As the separation between ownership and control swells due to corporate growth and contracts terms, compensation schemes have to be introduced to ensure the alignment of owners and managers interests. Hence, operational performance will also be influenced by the effectiveness of a firms' contractual mechanism in attracting, retaining and controlling managerial talent to maximize owners' wealth.

There are different views to the role of ownership structure of firms' aside agency costgenerated by the managers. Barclay and Holderness (1989), and Bebchuk (1999) suggested that owners with highnumber of shares might use their position to acquire private benefits, which are not available to other investors. Such benefits include

consumption of the goods produced by the firm, withdrawal of assets or takeover defense for insiders. If these benefits have adverse effects on a firms' performance, it means higher ownership concentration by either outside or inside investors might essentially hurt performance. The main thrust of the private benefits literature is that it is not only about the agency problem between owners and managers, the relationship between large and small shareholders can also be thought in the same terms.

Agency theory has been used in various researches to determine the financial performance of the firm where separation of ownership and control exist. Agency control apparatuses is put in place to align the goals of managers (agents) to those of owners (principals). Agency cost is therefore the expense of all activities and operating systems intended to align the interests and actions of managers with the interests of owners in an organization.

The efficiency of firm assets, the firms choice of finance sources; debt or equity, adequate utilization of premium collected, effective management of the companies policy relating to indemnifying the insured, and the ability to maintain adequate liquidity to meet daily activities as they arise has the potential to either increase or diminish a firms financial performance due to agency costs.

2.3.2 Resource Based Theory.

The resource-based view (RBV) was initiated in the mid-1980s by Wernerfelt (1984), Rumelt (1984) and Barney (1986). It has since become one of the leading approaches for the analysis of sustained competitive advantage in recent times. Anessential premise of the resource-based view is that firms compete on the basis of resources and capabilities

they control (Peteraf & Bergen, 2003). Most resource-based view researchers "look within the enterprise and the market factor conditions that the firm must contend with in searching for possible bases for sustainable competitive advantages", holding constant all external environmental factors (Peteraf & Barney, 2003). The inward-looking approach has been confirmeduseful for the analysis of many strategic issues among which is the conditions for sustained competitive advantage and diversification (Foss & Knudsen, 2003).

The resource-based view (RBV) highlights firm's resources as the central determinant of competitive advantage and performance. It adopts two assumptions in analyzing sources of competitive advantage. First, that firms within an industry or a strategic group may be heterogeneous with respect to the bundle of resources they control. And secondly, it assumes that resource heterogeneity may persist over time because the resources used to implement firms' strategies are not perfectly mobile across firms. This means some of the resources cannot be traded in factor markets and are difficult to accumulate or imitate. Resource heterogeneity (or uniqueness) is considered a necessary condition for a resource bundle to contribute to a competitive advantage (Peteraf & Barney, 2003).

The ability of a firm to earn a rate of profit in excess of its cost of capital depends on the viability of its industry and the establishment of competitive advantage over rivals. Industrial organization economics emphasizes industry attractiveness as the major basis for superior profitability. The implication is that strategic management will primarily seek favorable industries, locate attractive segments and strategic groups within the industry and moderate competitive pressures by influencing industry structure and competitor's behavior. Therefore, a resource-based theory of the firm encompasses a knowledge-based perspective.

A subsequent distinction was made by Amit and Schoemaker (1993), it states that encompassing concept called "resources" can be divided into two; resources and capabilities. Resources been categorized as those tradable and non-specific to the firm which are used to engage the resources with the firm (Makadok, 2001). This distinction has been widely adopted in resource-based view literatures. Inhighlighting the distinction between capabilities and resources, capabilities was defined as a special type of resource, specifically an organizationally embedded, non-transferable and firm-specific resources whose key purpose is to enhance the productivity of other resources possessed by the firm. Resources according to Cornner and Prahalad, (1996) are stocks of available factors owned or controlled by the organization while capabilities are organizational capacity to deploy the resources. Resource based theory has hence been found appropriate for this study. The theory postulates that performance is a function of resources deployed which may be tangible or intangible. Meaning therefore that insurance firms are resource-based organizations which make use of both tangible and intangible resources to achieve their objectives.

2.4 Summary

As observed from the review of literature, factors influencing the financial performance or profitability of insurance firms have been studied, particularly in developed and some developing economies majorly outside Nigeria to the best of my knowledge. It is also established that there is no universal theory for determinates of firm profitability in insurance industry. This study reviewed some useful conditional theories that attempts to approach or relate to the determination of profitability infirms such as agency theory and resource base theory.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research Design

For the purpose of this study, descriptive research design is adopted in dealing the research problem. Descriptive design is used to examine the statistical link or relationship between two or more variables. It is considered most appropriate for this study because it allows for testing of the cause effect between variables and helps in making predictions. This study involvesmeasuring six independent variables per one dependent variable, and the assessment of the relationship between those variables concerned.

3.2 Population, Sample and Sampling Technique

The population of the study consists of all nineteen (19) insurance firms in Nigeria as at December31, 2019. The population and sample of the study are show below:

Table 3.1: Population of the Study

S/N	COMPANIES	Year of Listing
1	African Alliance Ins. Coy Ltd	September 17th 2009
2	AIICO Insurance PLC	July 14th 1970
3	Consolidated Hallmark Ins. Plc	February 22nd 2008
4	Continental Reinsurance Plc	August 22nd 1991
5	Cornerstone Insurance PLC	July 26th 1991
6	Goldlink Insurance Co Ltd	February 12th 2008
7	Guinea Insurance PLC	December 3rd 1958
8	Lasaco Assurance PLC	December 20th 1979
9	Law Union &Rock Ins PLC	July 9th 1990
10	Linkage Assurance PLC	November 18th 2003
11	Mutual Benefits Ass PLC	May 28th 2002
12	Nem Insurance PLC	September 5th 1990
13	Niger Insurance PLC	August 29th 1962
14	Prestige Assurance PLC	December 3rd 1990
15	Regency Assurance PLC	June 16th 1993
16	Sovereign Trust Ins PLC	November 29th 2006
17	Staco Insurance PLC	July 10th 1991
18	Universal Insurance PLC	November 2nd 2009
19	Veritas Kapital Insurance PLC	August 8th 1973

Source: NSE, 2019

3.3 Method of Data Collection

To fulfill the stated research objectives, the study employed quantitative panel data from secondary sources. The data were obtained from the annual reports of individual insurance companies sourced. Therefore, the data needed was extracted from the financial reports of the selected firms within the period of the study. The use of secondary data for this study may be justified in view of the fact that most studies on firm level characteristics (Kozak, 2011; Chen & Wong, 2004; Swiss Re, 2008; Green &Segal, 2004; Wright, 1992; Li, 2007;Agiobenebo&Ezirim, 2002) all used secondary data.

3.4 Techniques of Data Analysis and Model Specification

Multiple regression data analysis technique was used for this study. This technique was adopted to ascertain the impact of factors like; age, firm size, premium growth, loss ratio, liquidity and leverage on the profitability of insurance firms in Nigeria, with Return on Asset (ROA) as the proxy. The data analysis was done using Eview 10 and the outcome used to test the hypotheses of the study after conducting necessary check. In view of this, panel data regression analysis was adopted for the study. A panel data contains cross-sectional unit (firms) over the same period (Wooldride, 2009). This work adopts the model of Kozak (2011), Malik (2011) and Abate (2012). The linear model is expressed as follows:

$$FP=(ROA)$$

Profitability proxied by ROA is a function of six explanatory variables, namely: age (AG), firm size (FS), premium growth (PG), loss ratio (LR), liquidity (LIQ) and leverage (LEV)

Therefore

$ROA = f(AG, FS, PG, LR, LIQ, LEV)$..... *(1).*

The Generalized Least Square (GLS) regression model was used to estimate the impact and the equation is given below:

$ROA_{it} = \beta_0 + \beta_1 AG_{it} + \beta_2 FS_{it} + \beta_3 PG_{it} + \beta_4 LR_{it} + \beta_5 LIQ_{it} + \beta_6 LEV_{it} + e_{it}$.....*(2)*

Where:

$\beta_0, \beta_1, \beta_2, \beta_3$.....$\beta_6$ are parameters to be estimated with a prior expectation.

ROA = Return on asset

AGE = Age

FS = Firm size

PG = Premium growth

LR = Loss ratio

LiQ=Liquidity

LEV = Leverage

β_0= Constant

E = Error term.

Variable Measurement.

The measurement of both the dependent and independent variables is provided in Table 3.2. There are various ways of measuring profitability as revealed in previous studies. In this study, net profit after tax to total assets which is the (ROA) was adopted for measuring financial performance of insurance firms in Nigeria. The decision is because

(ROA) is a more appropriate proxy for insurancecompanies' profitability instead of the alternative Return on Equity (ROE). The analysis of (ROE) disregards financial leverage and the risks associated with it in measuring profitability in insurance companies. This was confirmed by Ahmed et al (2011) and Al-Shimi (2008). Hence performance is considered by net profit after tax divided by total assets of the insurance companies.

TABLE 3.2 Variable Measurement and Sources

Variable measurement	Proxies/definition	Expected Sign
Performance(ROA)	This is represented by net profit, and calculated as net income after tax divided by total asset (Malik, 2011).	
Age (AG)	Age of insurance firm is measure by natural logarithm of year of incorporation (Ahmed *et al*, 2011).	+
Firm size (FSIZ)	Size is measured as the natural log of total assets of the company (Abate, 2012).	+
Premium growth (PG)	This is the percentage increase in gross written premium. Its equation is: $PG=\{GW(_t)-GW(_{t-1})\}/GW(_{t-1})$ (Daniel &Tilahan,2012)	+
Loss ratio (LR)	LR is measured as the ratio of incurred claims to total Premium earned. It is measures as: LR =net claims incurred/net earned premium (Daniel &Tilahan, 2012).	–
Liquidity (LIQ)	Liquidity of insurance firm is measured as the ratio of current assets to current liabilities (*Ahmed et al*, 2011).	+
Leverage (LEV)	The leverage is taken as total debts divided by total assets of insurance firm (Sumaira & Amjad, 2013).	-

3.5 Justification of Methods

The period of the study was used to make the study more recent and panel multiple regression technique was used for the study because the determinants is more than one. The insurance firm is used due to inadequate literatures in the sector.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1 Data Presentation

The annual report was used to extract the data for the study using secondary method. The data comprised of the determinants of profitability of the insurance firms in Nigeria. The determinants considered in this study are the firm age, firm size, premium growth, loss ratio, liquidity and leverage. The descriptive statistics, diagnostics test of variance inflation factor (VIF)and Random model test summary were presented in tables in the next section. The data for the study is attached in the appendix of this study.

4.2 Data Analysis and Results

Table 4.2.1: Descriptive Statistics

	ROA	AGE	Firm Size	Premium Growth	Loss Ratio	LIQ	LEV
Mean	0.0780	19.7105	7.2063	0.9641	0.3638	1.5782	0.2430
Median	0.0378	16.0000	7.0475	1.5196	0.3558	1.4788	0.1750
Maximum	0.9105	60.0000	9.9728	9.8088	1.1550	4.2568	1.1466
Minimum	0.0010	1.0000	4.1942	-5.9553	0.0003	0.0024	0.0003
Std. Dev.	0.1436	14.8643	0.8016	2.3349	0.1991	0.8995	0.2283
Observations	190	190	190	190	190	190	190

Source: Generated from E-view, 2019

The result shows that averagely, the mean of insurance firms is 0.077987 which shows the firms average profitability while the minimum profitability of the firms is 0.000975 while the maximum is 0.910500. Therefore, it connotes that the firms under consideration have increase in profitability of that amount from 2010 to 2019 and the firms have not incurred a loss on their profitability based on the amount of the profit; the median of which is 0.037821.

Also, firm age of the insurance firms in Nigeria has a mean of 19.71053 and median of 16 respectively while the maximum listing age of the sampled firms is 60 with a minimum listing age of 1. In the same way, the size of the firms shows is within the range of 4.194237 and 9.972819 respectively as the minimum and maximum value while the mean of the sector is 7.026336 and the median is 7.047461. Therefore, it means that the firm have large firm size based on their maximum and minimum value.

The premium growth shows that the firms have grown from a loss of -5.955264 to 9.808804 as the maximum value while the mean of the premium growth over the period is 0.964088 with a median of 1.519564. Also, the loss ratio of the firm ranges from 0.000253 and 1.154986. The loss ratio signifies that the firms have incurred a minimum claim of 0.000253 and maximum of 1.154986 while the firms as a sector have incurred an average mean of 0.363842 while the median is 0.355815.

Furthermore, the liquidity position of the insurance firms in Nigeria is within 0.002432 and 4.256750 hence, it therefore means that at a given period of time of this study, the firm has an excess of current liabilities to current asset which gives bead signal to the investors while the excess of current asset over current liabilities shows that the firms have four times of current asset over current liabilities based on the maximum value of liquidity. The mean and median of liquidity is 1.578170 and 1.478802 accordingly. The leverage of the firm shows a high proportion of debt to equity because it has high leverage in one of the firms with a maximum value of 1.146554 while in a particular year total equity is greater than the debt because it shows a minimum leverage of 0.000270 accordingly. The means and median of the leverage are 0.242986 and 0.174975 respectively.

4.2.2 **Table 4.2.2 Correlation Matrix**

	ROA	AGE	FS	PG	LR	LIQ	LEV
ROA	1.000000						
AGE	-0.184314	1.000000					
FS	0.107377	-0.161723	1.000000				
PG	-0.054212	-0.095492	-0.085271	1.000000			
LR	-0.037566	0.048547	-0.024446	0.079318	1.000000		
LIQ	-0.223047	0.063975	-0.283960	0.058561	-0.001493	1.000000	
LEV	-0.075668	0.029933	0.094270	0.225010	0.193513	0.007071	1.000000

Source: Generated from E-view, 2019

The correlation result shows the relationship between determinants and the profitability of insurance firms in Nigeria. The result shows age, premium growth, loss ratio, liquidity and leverage have negative correlation with return on asset of insurance firms while firm size has positive correlation with profitability of insurance firms in Nigeria. However, the correlation between the determinants and the profitability differs with age having a correlation with profitability to the extent of -0.184314 while firm size has correlation with profitability to the extent of 0.107377. Also, it was discovered that premium growth and loss ratio has correlation with profitability to the extent of -0.054212 and -0.037566 respectively. Furthermore, liquidity and leverage both have negative correlation with profitability to the extent of -0.223047 and -0.075668. The degree of the relationship is below 0.7% which signifies absence of correlations based on Gujarati (2009)

Table 4.2.3 Regression Summary

Variables	Coefficient	t-values	P-values	VIF
FA	-0.001632	-2.310838	0.0220	1.047824
FS	0.004336	0.316994	0.7516	1.142247
PG	-0.002580	-0.563646	0.5737	1.085896
LR	-0.010296	-0.195596	0.8451	1.044142
LIQ	-0.032328	-2.714178	0.0073	1.090798
LEV	-0.037267	-0.786868	0.4324	1.111182
Constant	0.145228	1.318672	0.1889	
R^2	0.086209			
Adj. R^2	0.056249			
F-stat.	2.877436			
F-sig.	0.010549			
Hausman p-value	0.1781			

Source: Generated from E-view, 2019

The multicollinearity of the determinants variables indicates no multicollinearity problem between them because their VIF values is below 10 hence, they have strong effect on profitability of Insurance firms in Nigeria. The Hausman test enables the selection between fixed and random effect model. If the Hausman p-value is less than 5%, fixed effect is more appropriate otherwise Random effect is more appropriate. So, based on the Hausman test with P-value of 0.1781, Random effect is appropriate for the study. Firm age has negative significant effect on profitability of insurance firms in Nigeria with p-value less than 5% level of confidence. This means that increase in age of the firm will decrease profitability by -0.001632 coefficient.

Firm size has a positive but insignificant effect on profitability of insurance firms in Nigeria with p-value greater than 5% level of confidence. Based on statistical evidence, firm size will not influence profitability of insurance firms in Nigeria. In the same way, premium growth has negative but insignificant effect on profitability of insurance firms in Nigeria with p-value greater that 5% level of confidence. The statistical evidence provides a basis were the study concludes that premium will not influence profitability of the firms.

Furthermore, loss ratio has negative but insignificant effect on profitability of insurance firms in Nigeria with p-value greater than 5% level of confidence hence, neither increase nor decrease will affect profitability of insurance firms due to the changes in loss ratio of the firm while liquidity has negative significant effect on profitability with p-value less than 5% level of confidence thus, increase in liquidity will decrease profitability by -0.037267. This is could be that increase in liquidity signifies increase in current liabilities which decreases the company profitability.

Leverage has negative but insignificant effect on profitability of insurance firms in Nigeria with p-value greater than 5% level of confidence. Thus, increase in leverage will not affect profitability of the firms based on the statistical evidence.The coefficient of determination explained changes on profitability of insurance firms in Nigeria to the extent of 8% while the remaining variation is explained by other variables not included in the model and is accounted for by the stochastic term in the model and the model is fit with f-statistics less than 5% confidence level.

4.3 Discussion of Findings

4.3.1 Firm Age and profitability

Based on the statistical evidence from the regression result, firm age has negative significant effect on profitability of insurance firms in Nigeria which means that as the company increases, company profitability decreases. This could be as a result of high tax and other factors imposed on the business operation with less incentives from the government. Therefore, the study rejects the stated hypothesis that firm age has no significant effect on profitability of insurance firms and thus accept the alternate that firm age has significant effect on profitability of insurance firms in Nigeria. This finding corroborates with the findings of Vijayakumar and Kadirvelu (2004) but disagree with the finding of Abate and Yuvaraj (2013), Hifza (2011).

4.3.2 Firm Size and Profitability

Firm size has a positive but insignificant effect on profitability of insurance firms in Nigeria. Based on statistical evidence, firm size will not influence profitability of insurance firms in Nigeria. Based on the finding, the study accepts the null hypothesis which states that firm size has no significant effect on profitability of insurance firms in Nigeria and the finding is in line with the result of Olajumoke (2012), Ani, Ugwunta, Ezeudu and Ugwuanyi (2012) that firm size has insignificant effect on profitability but disagree with the findings of Ifeduni and Charles (2018), Mwangi and Murigu (2015), Abate and Yuvaraj (2013), Sorana (2014),Zaid, Ibrahim and Zulqernain (2014).

4.3.3 Premium Growth Rate and Profitability

In the same way, premium growth has negative but insignificant effect on profitability of insurance firms in Nigeria. The statistical evidence provides a basis were the study concludes that premium has negative and insignificant influence profitability of the firms thus, the study accepts the null hypothesis that premium growth has no significant effect on profitability of insurance

firms in Nigeria. The finding is in line with the finding of Mehari and Aemiro (2012), Daniel and Tilahun (2012), Abate and Yuvaraj (2013) but not in line with the finding of Charumathi (2012), Lorena, Danijel and Marko (2016).

4.3.4 Loss Ratio and Profitability

Furthermore, loss ratio has negative but insignificant effect on profitability of insurance firms in Nigeria hence, neither increase nor decrease will affect profitability of insurance firms due to the changes in loss ratio of the firm. Based on the outcome, the study accepts the hypothesis four that loss ratio has no significant effect on profitability of insurance firms in Nigeria which corresponds to the findings of Hifza (2011) but disagree with Akbaş (2012), Rasiah (2010).

4.3.5 Liquidity and Profitability

Also, it was gathered that liquidity has negative significant effect on profitability thus, increase in liquidity will decrease profitability. This is could be that increase in liquidity signifies increase in current liabilities which decreases the company profitability. Thus, the study rejects hypothesis four that liquidity has no significant effect on profitability of insurance firms in Nigeria. This finding agrees with the findings of Lorena, Danijel and Marko (2016), Mwangi and Murigu (2015),Sorana (2014), Pratheepan (2014)but disagree with the findings of Al-Jafari and Al Samman (2015), Al-Jafari and Alchami (2014).

4.3.6 Leverage and Profitability

Leverage has negative but insignificant effect on profitability of insurance firms in Nigeria. Thus, increase in leverage will not affect profitability of the firms based on the statistical evidence and the finding give a basis to accept the null hypothesis that leverage has no significant effect on insurance firms in Nigeria. This outcome is in line with the study of Olajumoke (2012),Pratheepan (2014)but not in line with the findings of Ifeduni and Charles (2018), Mwangi

and Murigu (2015), Al-Jafari and Al Samman (2015), Abate and Yuvaraj (2013), Mwangi and Murigu (2015), Hifza (2011).

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

The study examined the determinants of profitability of insurance firms in Nigeria and the chapter one gave the general overview of the study which covers the introduction to the study, statement of the problem, research questions, objective of the study, hypotheses of the study, scope as well as the significance of the study. The study is guided by six questions, objectives and six hypotheses. The study conceptualized the determinants considered in the study as well as profitability of the study. Literatures were reviewed based on the objective of the study and the theory that underpinned the variable of the study were reviewed.

The study adopts correlational research design and the population comprised of 19 listed insurance firms on the Nigeria stock exchange. Secondary sources of data were utilized. The determinants are firm age, firm size, premium growth, loss ratio, liquidity and leverageand profitability were measure by return on asset. The study covers 2010-2019 to make the study more recent.

Data were analyzed using panel multiple regression technique and it was discovered that firm age has negative significant effect on profitability, firm size has positive insignificant effect on profitability on insurance firms in Nigeria. Also, premium growth, loss ratio and leverage have negative insignificant effect on profitability of insurance firms in Nigeria while liquidity has negative significant effect on profitability of insurance firms in Nigeria. The study ends with the summary, conclusion and recommendation.

5.2 Conclusion

The study examined the determinants of profitability of insurance firms in Nigeria. Based on the findings, the study concludes that increase in firm age will decrease profitability of insurance firms because there is inverse relationship between the variables as evident from the statistical analysis.

Also, it is concluded that firm size is not a strong determinant of profitability in listed insurance firms due to the inability of the outcome to establish significance statistical evidence between this determinant and profitability of the firms.

In the same way, the study concludes that neither increase nor decrease in premium growth, loss ratio and leverage will affect profitability of insurance firms in Nigeria because the variables have no statistical effect on profitability hence other determinant such as firm age and liquidity better influences the profitability of the firms.

Finally, it is concluded that liquidityexert significance influence on the profitability which shows that increase in liquidity will decrease profitability of insurance based on statistical evidence.

5.3 Recommendations

From the conclusions the following recommendations are made:

i. It has been noted that conflicts always arise between the liquidity of a firm and its profitability required to maximize the firm's returns and tends to dilute returns where not effectively managed. Based on the outcome observed from this study, I recommend that financial managers should ensure that there is no Asset and Liability mismatch. Long term liabilities – promise to pay the insured, must be backed with appropriate asset matched to their financial obligation. If not, the mismatch will affect the firm's profitability eventually with a lasting impact.

ii. Insurance firm should slow down from debt-equity financing usually pursued to help increase the size of the firm with the aim of better performance. Financing business activities through debt-equity should be discouraged because firm size is not among the determinates of profitability in Nigeria.

iii. Majorly, other factors should be explored in making decision regarding business operation because most of the firm specific determinants (firm size, premium growth, loss ratio and leverage) does not have significant effect on insurance profitability.

5.4 Limitation of theStudy

The study determined the determinants of profitability of insurance firms in Nigeria from 2010 to 2019. The study considered onlynineteen listed insurance firms in Nigeria, with the determinants studied limited to firm age, firm size, premium growth, loss ratio, liquidity and leverage. While profitability was measured by return on asset.

5.5 Suggestion for Further Studies

The study suggest that similar study should be conductedto consider other determinants rather than the ones used in this studyusing other firms rather than the insurance firms used in this work to have a generalized finding.

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APPENDIX

DESCRIPTIVE STATISTICS

	ROA	AGE	FS	PG	LR	LIQ	LEV
Mean	0.077987	19.71053	7.206336	0.964088	0.363842	1.578170	0.242986
Median	0.037821	16.00000	7.047461	1.519564	0.355815	1.478802	0.174975
Maximum	0.910500	60.00000	9.972819	9.808804	1.154986	4.256750	1.146554
Minimum	0.000975	1.000000	4.194237	-5.955264	0.000253	0.002432	0.000270
Std. Dev.	0.143592	14.86430	0.801598	2.334868	0.199121	0.899494	0.228313
Skewness	4.221740	0.846725	1.408189	-0.443117	0.905255	0.229212	1.371331
Kurtosis	21.87214	2.852238	8.921028	3.782946	4.431695	2.264597	4.777887
Jarque-Bera	3383.978	22.87607	340.3419	11.07078	42.17760	5.945169	84.57437
Probability	0.000000	0.000011	0.000000	0.003945	0.000000	0.051171	0.000000
Sum	14.81749	3745.000	1369.204	183.1768	69.13004	299.8524	46.16739
Sum Sq. Dev.	3.896937	41759.08	121.4436	1030.354	7.493712	152.9178	9.851961
Observations	190	190	190	190	190	190	190

CORRELATION MATRIX

	ROA	AGE	FS	PG	LR	LIQ	LEV
ROA	1.000000	-0.184314	0.107377	-0.054212	-0.037566	-0.223047	-0.075668
AGE	-0.184314	1.000000	-0.161723	-0.095492	0.048547	0.063975	0.029933
FS	0.107377	-0.161723	1.000000	-0.085271	-0.024446	-0.283960	0.094270
PG	-0.054212	-0.095492	-0.085271	1.000000	0.079318	0.058561	0.225010
LR	-0.037566	0.048547	-0.024446	0.079318	1.000000	-0.001493	0.193513
LIQ	-0.223047	0.063975	-0.283960	0.058561	-0.001493	1.000000	0.007071
LEV	-0.075668	0.029933	0.094270	0.225010	0.193513	0.007071	1.000000

VARIANCE INFLATION FACTOR

Variance Inflation Factors
Date: 12/11/20 Time: 18:05
Sample: 1 190
Included observations: 190

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
AGE	4.88E-07	2.900022	1.047824
PG	2.05E-05	1.272015	1.085896
FS	0.000183	93.94657	1.142247
LEV	0.002195	2.376441	1.111182
LIQ	0.000139	4.466372	1.090798
LR	0.002711	4.548775	1.044142
C	0.011867	115.8752	NA

HETEROSKEDASTICITY TEST

Heteroskedasticity Test: Breusch-Pagan-Godfrey
Null hypothesis: Homoskedasticity

F-statistic	2.983236	Prob. F(6,183)	0.0084
Obs*R-squared	16.92832	Prob. Chi-Square(6)	0.0096
Scaled explained SS	139.5734	Prob. Chi-Square(6)	0.0000

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 12/11/20 Time: 18:06
Sample: 1 190
Included observations: 190

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.038828	0.060011	-0.647016	0.5184
AGE	-0.000669	0.000385	-1.737841	0.0839
PG	0.000147	0.002495	0.059014	0.9530
FS	0.014000	0.007453	1.878592	0.0619
LEV	-0.021428	0.025808	-0.830304	0.4074
LIQ	-0.014766	0.006490	-2.275108	0.0241
LR	-0.004859	0.028684	-0.169402	0.8657

R-squared	0.089096	Mean dependent var	0.018742
Adjusted R-squared	0.059231	S.D. dependent var	0.079227
S.E. of regression	0.076845	Akaike info criterion	-2.257906
Sum squared resid	1.080644	Schwarz criterion	-2.138278
Log likelihood	221.5010	Hannan-Quinn criter.	-2.209446
F-statistic	2.983236	Durbin-Watson stat	1.550509
Prob(F-statistic)	0.008368		

POOLED REGRESSION

Dependent Variable: ROA
Method: Panel Least Squares
Date: 12/11/20 Time: 17:57
Sample: 2010 2019
Periods included: 10
Cross-sections included: 19
Total panel (balanced) observations: 190

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AGE	-0.001632	0.000699	-2.336175	0.0206
FS	0.004336	0.013529	0.320470	0.7490
PG	-0.002580	0.004529	-0.569826	0.5695
LR	-0.010296	0.052070	-0.197741	0.8435
LIQ	-0.032328	0.011782	-2.743937	0.0067
LEV	-0.037267	0.046848	-0.795496	0.4274
C	0.145228	0.108938	1.333131	0.1841

R-squared	0.086209	Mean dependent var	0.077987
Adjusted R-squared	0.056249	S.D. dependent var	0.143592
S.E. of regression	0.139495	Akaike info criterion	-1.065425
Sum squared resid	3.560985	Schwarz criterion	-0.945798
Log likelihood	108.2154	Hannan-Quinn criter.	-1.016966
F-statistic	2.877436	Durbin-Watson stat	1.323872
Prob(F-statistic)	0.010549		

FIXED REGRESSION

Dependent Variable: ROA
Method: Panel Least Squares
Date: 12/11/20 Time: 17:58
Sample: 2010 2019
Periods included: 10
Cross-sections included: 19
Total panel (balanced) observations: 190

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AGE	-0.000764	0.003614	-0.211310	0.8329
FS	0.041325	0.020975	1.970240	0.0505
PG	-0.001117	0.004504	-0.248061	0.8044
LR	0.009674	0.057007	0.169694	0.8655
LIQ	-0.055703	0.017151	-3.247843	0.0014
LEV	-0.020544	0.056135	-0.365976	0.7149
C	-0.114306	0.160449	-0.712413	0.4772

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.262582	Mean dependent var	0.077987
Adjusted R-squared	0.155322	S.D. dependent var	0.143592
S.E. of regressibn	0.131970	Akaike info criterion	-1.090399
Sum squared resid	2.873670	Schwarz criterion	-0.663159
Log likelihood	128.5879	Hannan-Quinn criter.	-0.917331
F-statistic	2.448076	Durbin-Watson stat	1.707081
Prob(F-statistic)	0.000499		

RANDOM MODEL

Dependent Variable: ROA
Method: Panel EGLS (Period random effects)
Date: 12/11/20 Time: 18:00
Sample: 2010 2019
Periods included: 10
Cross-sections included: 19
Total panel (balanced) observations: 190
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AGE	-0.001632	0.000706	-2.310838	0.0220
FS	0.004336	0.013677	0.316994	0.7516
PG	-0.002580	0.004578	-0.563646	0.5737
LR	-0.010296	0.052641	-0.195596	0.8451
LIQ	-0.032328	0.011911	-2.714178	0.0073
LEV	-0.037267	0.047362	-0.786868	0.4324
C	0.145228	0.110132	1.318672	0.1889

Effects Specification

	S.D.	Rho
Period random	0.000000	0.0000
Idiosyncratic random	0.141025	1.0000

Weighted Statistics

R-squared	0.086209	Mean dependent var	0.077987
Adjusted R-squared	0.056249	S.D. dependent var	0.143592
S.E. of regression	0.139495	Sum squared resid	3.560985
F-statistic	2.877436	Durbin-Watson stat	1.323872
Prob(F-statistic)	0.010549		

Unweighted Statistics

R-squared	0.086209	Mean dependent var	0.077987
Sum squared resid	3.560985	Durbin-Watson stat	1.323872

HAUSMAN SPECIFICATION

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	8.921029	6	0.1781

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
AGE	-0.000764	-0.001491	0.000012	0.8349
FS	0.041325	0.013752	0.000203	0.0528
PG	-0.001117	-0.001663	0.000001	0.6009
LR	0.009674	0.001697	0.000524	0.7274
LIQ	-0.055703	-0.038080	0.000120	0.1073
LEV	-0.020544	-0.032771	0.000753	0.6559

Cross-section random effects test equation:
Dependent Variable: ROA
Method: Panel Least Squares
Date: 12/11/20 Time: 18:00
Sample: 2010 2019
Periods included: 10
Cross-sections included: 19
Total panel (balanced) observations: 190

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.114306	0.160449	-0.712413	0.4772
AGE	-0.000764	0.003614	-0.211310	0.8329
FS	0.041325	0.020975	1.970240	0.0505
PG	-0.001117	0.004504	-0.248061	0.8044
LR	0.009674	0.057007	0.169694	0.8655
LIQ	-0.055703	0.017151	-3.247843	0.0014
LEV	-0.020544	0.056135	-0.365976	0.7149

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.262582	Mean dependent var	0.077987
Adjusted R-squared	0.155322	S.D. dependent var	0.143592
S.E. of regression	0.131970	Akaike info criterion	-1.090399
Sum squared resid	2.873670	Schwarz criterion	-0.663159
Log likelihood	128.5879	Hannan-Quinn criter.	-0.917331
F-statistic	2.448076	Durbin-Watson stat	1.707081
Prob(F-statistic)	0.000499		

ROBUST REGRESSION

Dependent Variable: ROA
Method: Robust Least Squares
Date: 12/11/20 Time: 18:07
Sample: 1 190
Included observations: 190
Method: M-estimation
M settings: weight=Bisquare, tuning=4.685, scale=MAD (median centered)
Huber Type I Standard Errors & Covariance

Variable	Coefficient	Std. Error	z-Statistic	Prob.
AGE	-1.70E-05	0.000160	-0.106232	0.9154
PG	0.001127	0.001037	1.086578	0.2772
FS	-0.001654	0.003097	-0.534061	0.5933
LEV	0.007006	0.010725	0.653169	0.5136
LIQ	-0.003075	0.002697	-1.139954	0.2543
LR	-0.030698	0.011921	-2.575118	0.0100
C	0.063093	0.024940	2.529756	0.0114

Robust Statistics

R-squared	0.020326	Adjusted R-squared	-0.011794
Rw-squared	0.061505	Adjust Rw-squared	0.061505
Akaike info criterion	291.6088	Schwarz criterion	319.3168
Deviance	0.285639	Scale	0.031793
Rn-squared statistic	9.053402	Prob(Rn-squared stat.)	0.170597

Non-robust Statistics

Mean dependent var	0.077987	S.D. dependent var	0.143592
S E. of regression	0.151307	Sum squared resid	4.189572

DATA

FIRM	YEAR	lev	ROA	lr	liq	pg	fs	AGE
African Alliance Ins Coy Ltd	2010	0.040349	0.019031	0.358345	0.768264	1.632816	7.190155	
	2011	0.028923	0.001576	0.481031	0.963334	1.632816	7.13355	
	2012	0.480714	0.047742	0.532409	0.021625	2.782552	7.17131	
	2013	0.312843	0.002447	0.580004	0.446652	4.370445	7.205702	
	2014	0.224047	0.188242	0.404405	0.672127	4.321964	7.364133	
	2015	0.234623	0.027247	0.476965	0.718118	3.15178	7.522163	
	2016	0.277371	0.004824	0.462151	0.553463	2.552986	7.616522	
	2017	0.322561	0.080187	0.005743	0.444033	-1.97332	7.659423	
	2018	0.372006	0.081653	0.0086	0.204852	-1.01174	7.641778	1
	2019	0.938728	0.068945	0.476965	0.703752	4.17781	7.656536	1
AIICO Insurance PLC	2010	1.004055888	0.010478	0.331546	0.27153	1.550887	7.343992	3
	2011	0.87052388	0.118317	0.018894	0.633982	1.550887	7.437995	4
	2012	0.420578344	0.037674	0.307051	0.250428	0.940962	7.544746	4
	2013	0.353498742	0.037876	0.290673	0.594332	-1.0019	7.542428	4
	2014	0.537284738	0.037876	0.372175	0.925046	1.017721	7.624291	4
	2015	0.105042283	0.038275	0.56086	0.663414	-1.41127	7.765952	4
	2016	0.582436532	0.012174	0.663252	0.433465	-1.81041	7.89974	4
	2017	0.876389349	0.130993	0.698205	0.484027	-1.36942	7.868721	4
	2018	0.860733622	0.016906	0.731808	0.456068	4.652152	7.939638	4
	2019	0.578934118	0.02653	0.747137	0.502417	1.822937	7.99198	4
Consolidated Hallmark Ins	2010	0.0427	0.048931	0.127934	0.437364	-5.95526	9.783285	
	2011	0.0238	0.03864	0.1743	0.437364	-5.95526	9.783285	
	2012	0.1815	0.044749	0.232441	0.437364	-3.62851	9.783285	
	2013	0.3381	0.059302	0.191844	0.544919	5.413547	9.823757	
	2014	0.018123347	0.033785	0.000253	0.885882	-1.31777	9.787486	
	2015	0.034909678	0.030278	0.382188	0.095485	-1.51687	9.786172	
	2016	0.117733741	0.076718	0.300338	0.138912	2.674639	9.842872	
	2017	0.37878229	0.026773	0.395391	0.066539	3.078311	9.868792	
	2018	0.49124714	0.037766	0.386334	0.659186	4.748878	9.972819	
	2019	0.117733741	0.811638	0.300338	0.228654	-4.56278	8.925403	
Continental Reinsurance	2010	0.082608286	0.057878	0.555252	0.071257	2.480499	4.194237	
	2011	0.071161049	0.070638	0.401674	0.002432	2.480499	4.211281	
	2012	0.018158989	0.066917	0.112117	0.782623	-1.26025	7.333606	
	2013	0.009319198	0.053422	0.432256	0.603471	-1.74102	7.381105	
	2014	0.001207029	0.060725	0.576777	0.959623	0.932524	7.244537	
	2015	0.000269552	0.023452	0.61882	0.950233	-2.28934	7.244537	
	2016	0.00659701	0.072909	0.566694	0.898486	-2.54713	7.423761	
	2017	0.071003739	0.032095	0.583684	0.271787	1.704816	7.520701	
	2018	0.000337106	0.04779	0.61882	0.5469	9.808804	7.151052	
	2019	0.00659701	0.055814	0.566694	0.786274	-1.54713	7.539802	

Cornerstone Insurance PLC	2010	0.021233939	0.409518	0.286409	1.207124	1.591775	6.964905	12
	2011	0.038487088	0.021362	0.28079	2.217508	1.591775	7.009209	13
	2012	0.063217161	0.02885	0.520975	2.97783	2.69937	7.028675	14
	2013	0.08552838	0.036754	0.345866	3.2315	-1.28914	7.072165	15
	2014	0.103465758	0.06674	0.042402	3.083409	2.113272	7.144961	16
	2015	0.137285342	0.086094	0.332005	3.384301	1.880091	7.173031	17
	2016	0.153560516	0.029885	0.3995	3.188593	2.143734	7.253317	18
	2017	0.792942092	0.156143	0.93869	2.646008	-3.59019	7.264068	19
	2018	1.146553862	0.139568	0.472247	1.952838	3.980405	7.318158	20
	2019	0.581686157	0.105097	0.423051	2.651466	2.533379	7.458067	21
Goldlink Insurance Co Ltd	2010	0.024045087	0.064476	0.132474	1.591866	0.90401	6.928627	1
	2011	0.043456613	0.005979	0.205035	2.581436	0.90401	7.878782	2
	2012	0.134135714	0.605883	0.550711	1.010598	1.78609	6.579863	3
	2013	0.080291514	0.233859	0.403255	0.89348	1.78609	6.547117	4
	2014	0.278227818	0.026254	0.300492	0.677438	1.021905	6.416547	5
	2015	0.144042921	0.246344	0.53121	0.58934	-1.3265	6.332084	6
	2016	0.07605112	0.189308	0.513753	0.530793	-2.43616	6.267154	7
	2017	0.062128369	0.189308	0.251146	0.418573	-2.43616	6.267154	8
	2018	0.048874277	0.691708	0.606893	0.423085	-2.20546	6.272802	9
	2019	0.062128369	0.385894	0.422485	0.406155	-3.19715	6.254074	10
Guinea Insurance PLC	2010	0.209350411	0.019735	0.08395	1.15876	2.246477	6.626044	51
	2011	0.073746738	0.025913	0.079074	1.94159	2.246477	6.611804	52
	2012	0.079573552	0.096898	0.209269	1.319428	2.246477	6.60911	53
	2013	0.10978481	0.012655	0.249006	1.425901	1.623399	6.597493	54
	2014	0.081679128	0.009453	0.406353	1.669873	-4.631	6.62469	55
	2015	0.046689232	0.040973	0.261583	1.575759	-4.13406	6.659415	56
	2016	0.083189308	0.001756	0.35453	2.156344	1.760243	6.614486	57
	2017	0.047772215	0.010059	0.064934	2.156344	-3.98327	6.606018	58
	2018	0.115731173	0.057015	0.085648	1.152894	1.053913	6.643743	59
	2019	0.045261902	0.043014	0.18834	1.095414	3.780223	6.645597	60
Lasaco Assurance PLC	2010	0.0555	0.035258	0.381712	1.279282	0.042125	6.99088	30
	2011	0.0246	0.055258	0.381712	1.279282	0.042125	6.99088	31
	2012	0.0634	0.060553	0.381712	1.279282	0.042125	6.99088	32
	2013	0.2663	0.060553	0.381712	1.279282	0.042125	6.99088	33
	2014	0.3217	0.024247	0.411474	1.279282	0.042125	7.048954	34
	2015	0.2832	0.031302	0.781347	1.279282	-1.44964	7.15352	35
	2016	0.0089	0.017561	0.45532	1.911148	4.757619	7.207727	36
	2017	0.0098	0.04894	0.319185	1.131187	3.212111	7.285518	37
	2018	0.1537	0.03564	0.491462	2.049423	2.295568	7.268837	38
	2019	0.461422736	0.043177	0.390378	2.558564	1.99572	7.231788	39
Law Union &Rock Ins PLC	2010	0.085568583	0.042895	0.258394	2.171529	2.320521	6.836748	19

	2011	0.3054	0.048991	0.241119	2.171529	2.320521	6.867293	20
	2012	0.3578	0.033038	0.193008	2.171529	2.847403	6.878266	21
	2013	0.0287	0.202068	0.315772	3.108004	-3.6551	6.820693	22
	2014	0.0107	0.202068	0.421456	3.108004	1.44984	6.820693	23
	2015	0.6578	0.017198	0.421456	3.108004	1.44984	6.86294	24
	2016	0.8745	0.033954	0.401701	2.529207	1.44984	6.917685	25
	2017	0.7334	0.017918	0.363357	0.792058	1.44984	6.933532	26
	2018	0.6552	0.018789	0.267887	3.739803	1.44984	7.001378	27
	2019	0.1926	0.023507	0.354293	4.25675	2.365941	7.049733	28
Linkage Assurance PLC	2010	0.4976	0.034233	0.757729	1.704122	-2.35763	6.989638	6
	2011	0.3058	0.034047	1.154986	1.722433	4.689531	7.002343	7
	2012	0.4772	0.020988	0.926934	2.824641	2.225115	7.02181	8
	2013	0.3125	0.002813	0.422045	1.914158	-0.57404	7.225926	9
	2014	0.3132	0.023355	0.407385	1.467742	-1.5357	7.248917	10
	2015	0.2165	0.018079	0.560469	1.069354	1.878095	7.254698	11
	2016	0.2571	0.02628	0.368534	2.561423	1.999959	7.289862	12
	2017	0.2474	0.026783	0.216227	2.108131	-2.80957	7.30819	13
	2018	0.3068	0.124045	0.365703	2.537448	0.158183	7.367508	14
	2019	0.1591	0.012535	0.779568	1.396162	1.314256	7.364467	15
Mutual Benefits Ass PLC	2010	0.1939	0.098445	0.341423	0.992941	2.910917	7.001407	7
	2011	0.2312	0.088182	0.272826	0.501391	2.910917	7.009993	8
	2012	0.1732	0.090588	0.243772	0.273726	1.435895	7.059569	9
	2013	0.3921	0.00119	0.307037	1.44032	2.976974	7.142821	10
	2014	0.4123	0.002354	0.372422	1.833608	4.187586	7.159814	11
	2015	0.3521	0.154864	0.205957	1.306631	3.76792	7.161026	12
	2016	0.1714	0.041308	0.254604	2.978358	-1.70149	7.198622	13
	2017	0.1879	0.083872	0.195163	1.336977	1.998677	7.219561	14
	2018	0.2656	0.032332	0.322235	1.300966	1.379072	7.272315	15
	2019	0.776087254	0.024042	0.368824	2.889235	2.655212	7.300205	16
Nem Insurance PLC	2010	0.06838498	0.154194	0.144064	1.271979	1.045721	6.74493	19
	2011	0.057347119	0.121044	0.217692	1.193331	1.045721	6.843481	20
	2012	0.049947047	0.050446	0.413519	2.219875	1.220191	6.864095	21
	2013	0.057936658	0.055586	0.321863	2.769786	1.561901	6.892602	22
	2014	0.047013934	0.036722	0.413519	2.098552	-2.79265	7.001988	23
	2015	0.030603288	0.13458	0.300701	2.403214	1.934517	7.049184	24
	2016	0.029321888	0.054906	0.462677	2.276929	-3.21536	7.096365	25
	2017	0.026037451	0.127558	0.313632	2.408591	1.488082	7.161171	26
	2018	0.018625211	0.156514	0.181961	2.694431	-1.55579	7.244626	27
	2019	0.010078975	0.090077	0.17804	2.44123	1.999913	7.350873	28
Niger Insurance PLC	2010	0.023447156	0.002626	0.098639	1.666556	-2.17575	7.307496	16
	2011	0.1335	0.005583	0.098639	1.785152	-2.17575	7.327385	17
	2012	0.3145	0.058802	0.283877	1.473961	2.813431	7.324064	18
	2013	0.1867	0.021635	0.283877	1.071863	2.399594	7.337109	19

	2014	0.1735	0.02479	0.3571	2.187932	1.079496	7.383486
	2015	0.2497	0.024253	0.427954	2.844	0.881975	7.346639
	2016	0.4332	0.02792	0.444132	2.579489	0.574314	7.309343
	2017	0.1101	0.002315	0.578471	2.467863	-1.68952	7.340069
	2018	0.3122	0.044492	0.624052	2.217236	3.592674	7.346801
	2019	0.2641	0.002315	0.578471	2.397723	3.592674	7.340069
Prestige Assurance PLC	2010	0.2816	0.000975	0.761373	0.790297	1.740871	8.784044
	2011	0.456554528	0.063475	0.181386	2.477578	1.740871	6.87816
	2012	0.172898538	0.004945	0.095359	1.511478	2.510394	6.84601
	2013	0.172898538	0.80516	0.181386	1.79223	2.510394	5.881618
	2014	0.018409174	0.008963	0.655657	2.613954	2.510394	7.005802
	2015	0.018108684	0.001193	0.141289	2.849597	-1.67605	7.075326
	2016	0.026775973	0.014014	0.104344	2.242831	1.450901	7.015684
	2017	0.27604876	0.02291	0.390077	2.385468	-1.96536	6.986305
	2018	0.328940623	0.045165	0.452705	2.454376	2.933555	7.070981
	2019	0.27604876	0.02291	0.390077	1.385468	-1.46401	6.986305
Regency Assurance PLC	2010	0.1945	0.9105	0.280759	0.023833	2.910917	9.668159
	2011	0.3619	0.898152	0.287768	0.026907	2.910917	9.712482
	2012	0.2313	0.004505	0.181893	0.803746	1.435895	6.668793
	2013	0.2816	0.075352	0.147658	1.880488	2.976974	6.715174
	2014	0.4641	0.067531	0.301437	1.483643	4.187586	6.77645
	2015	0.4818	0.046664	0.301494	1.91802	3.76792	6.800708
	2016	0.3527	0.049554	0.202599	1.159822	-1.70149	6.827792
	2017	0.2921	0.049554	0.441108	1.159822	1.998677	6.827792
	2018	0.3655	0.026751	0.441108	2.638696	1.379072	6.865968
	2019	0.2955	0.0268	0.469627	1.228278	2.655212	6.893253
Sovereign Trust Ins PLC	2010	0.174550297	0.07605	0.197461	2.633958	2.494859	6.635609
	2011	0.215688906	0.054601	0.236331	2.185372	2.494859	6.752428
	2012	0.142906844	0.096317	0.261347	2.015168	2.694675	6.863941
	2013	0.321069745	0.20755	0.199209	2.176083	1.242788	6.852067
	2014	0.30627183	0.040111	0.406565	2.490559	1.73237	6.936981
	2015	0.193851985	0.034728	0.428766	2.763049	-1.03744	6.929053
	2016	0.105861763	0.06284	0.346667	1.040869	-2.16324	6.966839
	2017	0.024940654	0.00248	0.367809	1.350793	-2.0646	6.978252
	2018	0.028629705	0.014594	0.338258	1.317777	-1.6844	7.034134
	2019	0.01149466	0.030406	0.172904	2.665271	3.354957	7.053901
Staco Insurance PLC	2010	0.085041376	0.055366	0.283065	2.243389	1.299975	6.893412
	2011	0.040868791	0.004987	0.255199	1.157146	1.299975	6.936195
	2012	0.056227596	0.131312	0.233675	2.455367	2.514185	6.855292
	2013	0.036514557	0.03176	0.276662	2.407295	1.488241	6.891397
	2014	0.1743	0.009828	0.258042	1.113665	1.488241	6.891397
	2015	0.049992666	0.009828	0.258042	1.113665	1.245613	6.989731
	2016	0.086218426	0.001373	0.375843	1.269291	1.245613	7.020573
	2017	0.1262	0.259867	0.375843	1.269291	1.245613	7.020573

	2018	0.5272	0.031761	0.375843	1.269291	1.412502	7.020573	10
	2019	0.5619	0.031761	0.375843	1.269291	1.412502	7.020573	11
Universal Insurance PLC	2010	0.5493	0.040506	0.446972	1.526669	1.910917	7.031545	1
	2011	0.5931	0.046009	0.288826	1.526669	2.910917	7.031545	2
	2012	0.5931	0.00187	0.195602	1.526669	1.435895	7.031545	3
	2013	0.5272	0.002727	0.15686	1.526669	1.910917	7.045969	4
	2014	0.5459	0.064099	0.237388	2.778661	1.627116	5.96383	5
	2015	0.5868	0.040265	0.098268	2.778661	1.627116	7.034821	6
	2016	0.1754	0.002558	0.873448	2.778661	1.627116	7.038576	7
	2017	0.1281	0.002484	0.496073	1.61124	1.910917	7.075407	8
	2018	0.1401	0.002484	0.496073	1.61124	1.910917	7.075407	9
	2019	0.1088	0.002484	0.496073	1.61124	1.910917	7.075407	10
Veritas Kapital Ins PLC	2010	0.2119	0.002558	0.873448	2.911901	2.877182	7.038576	35
	2011	0.2175	0.021426	0.065692	1.503829	2.877182	6.948341	36
	2012	0.2008	0.04383	0.006631	2.208075	1.721189	6.975142	37
	2013	0.1451	0.029781	0.109075	1.535658	1.606397	7.023052	38
	2014	0.1353	0.02232	0.229806	1.568533	1.692482	7.020563	39
	2015	0.1408	0.013415	0.177288	1.739865	-1.6478	7.023093	40
	2016	0.3604	0.031739	0.204632	2.534548	-1.71748	7.030528	41
	2017	0.3562	0.025402	0.436957	1.167508	-2.58966	7.051015	42
	2018	0.4911	0.061814	0.66644	2.714859	1.095999	7.054408	43
	2019	0.5424	0.061814	0.98639	2.714859	1.095999	7.054408	44