Claims Payment, Loss Adjustment and Financial Performance of Listed Insurance Companies in Nigeria

Olugbenga Adedayo FALADE
LCU/PG/001714

Being a PhD Post-field Presentation Submitted to the Department of Management & Accounting, Faculty of Management & Social Sciences,
Lead City University, Ibadan, Oyo State, Nigeria

In Partial Fulfillment of the Requirements for the Award of Doctor of Philosophy Degree (PhD) in Insurance and Risk Management

2023

Certification

This is to attest that Olugbenga Adedayo FALADE with the matriculation number LCU/PG/001714, completed the research project titled "Claims Payment, Loss Adjustment, and Financial Performance of Listed Insurance Companies in Nigeria" for the Doctor of Philosophy in Insurance and Risk Management at Lead City University in Ibadan, Oyo State, and that it has not been done before.

Prof. G. E. Oyedokun
Supervisor

Date

Dr. T. M. Akinbo
Head of Department

Date

Dedication

This research work is dedicated to the Almighty God, Professor A. K. Adeyemo, Mrs. Elizabeth Olakunbi Falade (my adorable wife), and my ever-loving children for the love and encouragement received from start and throughout this work.

Acknowledgement

I give all praise and adoration to God Almighty for guiding me through the course of study in this noble university, Lead City University, Ibadan. I wish to express my profound gratitude to Lead City University, Ibadan, Nigeria for the opportunity given me to undergo this degree. I appreciate the Vice-Chancellor of the University, Professor K.A. Adeyemo, Provost, Postgraduate College, Prof. Oredein, Heads of Departments, Lecturers and other non-academic staff members of the University. My sincere appreciation goes to my supervisor, Prof. G.E. Oyedokun whose thorough, constructive and unsparing criticism helped in no small measure to ensure a huge improvement in my research work.

My sincere gratitude is extended to Dr. T.M Akinbo, (HOD, Department of Management & Accounting), Dr. F. Igbadumhe (Postgraduate Coordinator), and Dr. J.A. Adejuwon for their assistance. My deepest appreciation goes to my loving wife, Elizabeth Olakunbi for her care, understanding and encouragement. Thank you to my children, Adedayo, Martins, Victoria, Ayomikun and Oluwasoyi for your love and prayers.

I also appreciate my Boss, Mr. T. Adaramola for the support and release from the office for the programme. I appreciate my good friends, Pastor O. S. Falana, Engr. M. Akinpelu, Mr S. Odjugo, and my younger colleagues in the office especially Mrs F. Awolesi, for their support and encouragement towards the completion of this project. I also acknowledge Mr. D. M. Oyedokun and Mr. A. Olaleye for their efforts at ensuring that I did not relax.

Even though the above-mentioned institutions and persons have assisted in the process of this research work, the researchers stand responsible for the errors, if any, found in the work.

Abstract

This study examined the relationship between claims payment, loss adjustment and financial performance of listed insurance companies in Nigeria. It generally delved into background of the study, taking a look at calamities that befell some insurance companies in Nigeria owing to the non performance of their statutory duties, while taking a further look at the statement of problem, as direction to the study, and aim and objectives of the study as well as designing four research questions with four corresponding hypotheses. Literature was reviewed conceptually by examining concepts relevant to the subject matter under investigation including financial performance, claims payment, technological advancement in insurance claims management, planning and controlling of payments for claims, loss adjustment, claims investigations and administration, and risk management and claims payment capacity; empirically by ex-raying other methods and findings relevantly related to the study and theoretically by focusing on the theories adopted for elucidation of the subject matter, vis-à-vis, innovations theory of profits, risk management and multivariate. Data were collected across the 23 quoted insurance companies operating on the Nigeria Stock Exchange as of January 2020. Thirteen (13) of the insurers were randomly selected from the population on the basis of old and new generation insurance companies prior to 2004 recapitalization. The data were collected for the period of 2011 – 2020 from the Nigerian Insurers Association Digest while the researcher employed longitudinal research design on the panel data to establish sequence of events among claims payment, loss adjustment and financial performance of listed insurance companies in Nigeria. The findings showed that net claim, net premium, underwriting profit and loss adjustment expenses have significant relationship with the financial performance of the listed insurers in Nigeria. The hypotheses showed that the strength of the positive effect of Net Claim on Financial Performance is measured by the calculated p-value = 0.0034 at significance level (α) of 0.05 and also the strength of the positive effect of Underwriting Profit on Financial Performance is measured by the calculated p-value = 0.0002at significance level (α) of 0.05. The study therefore concluded that net premium, net claims, underwriting expenses and loss expenses all have positive relationships with the financial performance of the listed insurance companies in Nigeria, play significant roles in determining the financial performance of the listed insurers, reflect the companies' ability to pay claims to their clients, motivate their employees and enhance the wealth of their shareholders and also implied that when managed effectively, net premium, net claims, underwriting profit and loss adjustment expenses can increase the value of investment which in turn would lead to improved financial performance of the listed insurance companies in Nigeria. The study recommended that from policy formation to policy termination, claim managers should collaborate with other sections of the insurance companies, closely monitor other administrative costs as they can affect the profit margins and disrupt the claims process. Also, the insurance companies should not lose sight of the main reason for their existence, which is to return the insured to her pre-loss position by paying legitimate claims.

Keywords: Claims management, Claims payment, Financial performance, Net Claim and Net Premium.

Word Count: 502

Table of Contents

List of Tables

List of Figures

List of Acronyms

Abbreviation	Meaning
NAICOM	National Insurance Commission
NIA	Nigerian Insurers Association
RBC	Risk-based Capital
ROA	Return on Asset
ROE	Return on Equity
GAAP	Generally Accepted Accounting Practice
PV	Present Value
GRT	Growth Rate
AT	Asset Tangibility
VECM	Vector Error Correction Model
GDP	Gross Domestic Product
PenCom	National Pension Commission

Chapter One

Introduction

1.1 Background to the Study

The insurance industry was shocked to its superstructure when various Daily Newspaper headlines on 4th April 2021 reported the suspension of the operational licences of two major insurance companies in Nigeria by the insurance regulatory body, National Insurance Commission (NAICOM). Finally, on the 28th day of June 2022, the axe finally fell as NAICOM pronounced them proscribed thus bringing an end to an era of two of the onetime foremost insurance companies in Nigeria[1].

Before the axe fell on these two companies, the Nigerian Insurers Association (NIA) which is the umbrella body of all insurance underwriting arm of the insurance industry in Nigeria had suspended the companies from its membership list and few weeks after that, stories made rounds again that another 'big' insurance company, Industrial and General Insurance Company also lost its operational license[1].

The reason for these acts from the two supervisory bodies is the inability of the organizations to discharge one of their statutory responsibilities which is claims payment as they were unable to settle even 'small claims' as a result of their high insolvency and liquidity crises which led to myriad of petitions and legal threats from the concerned/aggrieved policy holders (Insureds) to the two supervisory bodies[2].

However, technically an insurance firm's underwriting department sound is, no matter how faultless the customer care and marketing departments are, such organization cannot stand where it labours to pay reported genuine claims. This thus underscores the crucial fact that the claims department of an insurance organization is the engine room of the organization because it can sink it or keeps it afloat, hence, claims payment has a huge impact on the

performance of an insurance organization. Claims handling can make or mar the existence of the entire insurance organization depending on the personnel, coordinating activities, types of business underwritten as well as the rates and terms applicable at the underwriting stage.

In a competitive insurance industry, firms` survival is heavily reliant on its financial capability and management to cover risk, exposures. However, the burden of all financial activities of an insurer, whether outflow or inflow, is a product of her financial performance. As a result, financial performance is a pillar of an insurance firm's long-term viability. The financial performance of insurers is a measure of risk-based capital (RBC). Risk Based Capital however measures the minimum level of solvency required by law that measures an insurance firm's financial health and ensures fulfillment of insurance and reinsurance obligations by understanding the magnitude of the firm's capital needs in relation to the level of risk faced by the firm in managing its wealth and obligations. Aside Risk Based Capital, several other indicators could be used such as return on assets and return on investment which seem to emphasize on profit generations on assets or on equity[1].

Furthermore, financial performance is commonly defined as a company's ability to use assets to generate revenue efficiently and is used to determine whether a firm has a good investment opportunity. In addition to enhancing insurers' solvency, financial performance is crucial in persuading shareholders and policyholders to provide funds to insurance companies. However, several studies have shown that financial performance of an insurance company strongly depends on her internal and external strengths of management. The internal factors are concerned with the unique characteristics of an insurer, while external are concerned with industry and macroeconomic variables[2].

In relating claims payment with insurance performance, variables such as net premium growth, net claims, and loss adjustment expenses as well as underwriting profit are crucial in

determining financial performance of an insurance company to some extent. The amount of the premium paid and the insurance benefits received by the policyholder influence how much the insurance company will pay to the insured (customer) in accordance with the agreement. As a result, a deep interest is shifted upon premium level (net premium growth), claims management (i.e., net claims, and claims ratio) as well as underwriting portfolio and a strict risk diversification to curtail the annihilation of an insurer to take advantage of the expertise of reinsurance companies in stabilizing the shareholders' return. In particular, excessive risk exposures and a high degree of increased volatility in their level of cash flows put insurers in a worse business situation. Thus, in order to remove the danger of insolvency and further reduce the cost of anticipated bankruptcy, it is necessary to consider effective risk management for its coverage.

On the other hand, insurance firm as an entity helps to stabilize the economy by insuring or providing risk mechanisms to various sectors of the economy, and by doing so, individuals, businesses, and the government can transfer their various types of risk to insurance firms for effective and efficient management. Individual`s fear associated with their businesses and social lives is removed through insurance by establishing confidence in their various forms of engagement[3]. Insurance companies are critical to any country's economy. For example, they act as financial intermediaries and portfolio managers, create job opportunities, and contribute to economic development by, among other things, providing risk coverage, pooling capital resources, and forecasting. With these, individuals, corporate firms and government go into contract with the insurance companies for coverage on risk exposures[3]. They are expected to pay a certain sum assured, and or periodic payment in form of annuity called "premium" which could be "leveled" of "un-leveled" stream of annuities and in turn the insurer pays a claim when such policyholder suffers for exposure(s) or in a case of life assurance, such claim is paid to the beneficiaries of the policyholders depending on the policy

type and its terms and conditions. It is, in fact, the fear that risk might occur in future that induces individual and economic institutions to take out insurance policies. With these, insurance companies sell policies (promises) to people. A policyholder will be compensated or returned to his former financial position, just before a loss occurred. Therefore, an insurance policy is a commitment from the insurer to the policyholder to pay for potential claims in the future in exchange for collecting the premium up front. The primary goal of insurance is the resolution of claims. Therefore, one of the primary roles of insurance companies in an economy can be stated to be the settlement of claims[4].

Furthermore, an insured or policyholder who suffered a genuine loss, within the meaning and the scope of his policy, needs not to feel apologetic in pursuing his claim under such policy against his insurer[5]. The policyholders approach insurers, in exchange for the payment of premiums, the corporations agree to be responsible for paying them money should a specific catastrophe occur within a given time frame[6]. An insurance claim is a formal request made by a client to an insurance provider in order to get compensation for the risk that was assumed. Situations that result from loss events frequently alert the community of insurers to the necessity of precautionary measures. However, it is acknowledged that claims are the most important channels and a defining factor in how customers view their insurer generally[4].

Most insurance claims are settled routinely between the contracting parties without the intervention of the courts or some other third parties, such as an arbitrator[5]. As a general principle, the responsibility for initiating the claim and for providing both the liability of the insurer and the actual amount of the claim rests with the insured, or the claimant. The right of the insured or the claimant to demand payment can only be enforced after the insured has complied with all the relevant policy terms and conditions, especially all those policy terms that are made conditions precedent to the insurer`s liability. However, on the occurrence of

loss incident, the first action is to examine the policy details and confirm the circumstances of the incident are covered and that its period has not yet expired. After confirming the policy is in order, further processing may follow[7]. Claim payment therefore is a critical point in the relationship between an insurance company and its customers, as well as a way of demonstrating that the years spent paying premiums were worthwhile.

However, claim payment is the most expensive single cost to insurers, accounting for close to 80 percent of total premiums generated. All managerial actions and decisions relating to the resolution and payment of claims in accordance with the conditions of the insurance contract fall under the purview of claims management[7]. The Claims payment process is however the way of carrying out the entire claim process, with particular emphasis on cost monitoring and reduction. The insurers' drive to improve client acquisition, expectation, and retention as well as business insight for product innovation and firm profitability is made possible through claims processing. In order to effectively manage costs, manage risks, and satisfy expectations for good portfolio underwriting, claims payment operations must be driven, accurate, efficient, and effective. The claims payment process must strike a balance between customer expectations and cost efficiency. The client expects to be paid quickly, while claims managers must determine whether the claim is payable and the amount is correct by undergoing a certain investigation called "loss investigation or loss adjustment by the adjuster. The claims manager relies on service providers such as assessors, garages, doctors, loss adjusters, and investigators, and these service providers may not place the same priority on clients as the insurer, resulting in customer complaints about slow turnaround times[8].

Additionally, enough premium income must be generated to cover underwriting costs and claims costs. If this fundamental insurance principle is incorrect, an insurer may delay or struggle to pay claims, which could harm the business's reputation. When claims are not paid

when they are due, policyholders become less confident in the insurers, which makes it more difficult for them to recruit new customers and has a detrimental effect on the company's profitability. Claims from prior years typically resurface in succeeding years, making the insurance industry more complex to operate and making it exceedingly difficult to achieve profitability. Over the years, the insurance market in Nigeria has seen an increase in policyholder claims. Also at the end of June 2017, the reported claims in the financial statements of 22 major leading insurance companies showed claims expenses to be over N40 billion as against N34.1 billion in the previous year. This is a 17.3 percent growth, which when compared with the 8.76 percent growth in premium income, recorded in same periods, calls for concern. More losses were experienced during post-covid-19 period where clients claim to have suffered for one event or the other, especially, in life assurance as some of the policyholders were vulnerable to the pandemic. More claims were paid during the period and ever in the history of insurance in Nigeria and the world at large[8].

In the same vein, most insurers were jeopardized with the effort of loss adjustment expenses on financial stability and performance of their firms. Claims ratio is regarded as the ratio that most influences the level of profitability and this variable is one of the factors behind the current situation of the Industry in Nigeria. The firm is in trouble due to her inability to manage and fulfill customer claims. Failure to manage the claims ratio will result in negative sentiment from consumers and more waves of claims in the future, in addition to worsening financial performance. As an example of poor claims management, the wave of claims began with an overly long claim process that took up to months to process the claims. Insurers realize that the prompt, fair, and courteous payment of claims is one of the strategies of engaging and retaining clients and to remain competitive in the insurance market. Hence, insurers have special people that investigate claimed losses[9].

As a result, claim settlement services are an important factor that distinguishes a good insurance company from others. It does not imply that an insurer should be overly liberal in order to exit the market. The risk for the peril insured against is covered once the policy is issued. When the loss insured against actually occurs, the insured must makes a claim on the insurer for indemnification of such loss, and admitted genuine claims must be settled promptly for an insurance company to maintain a good public image[10]. However, if the loss does not occur, no payment is made to the insured. As long as the insured abides by the conditions stated in the contract or policy, the insurer is obligated to compensate the insured (their client) whenever there is loss on the item insured against. Of course, claims are frequently settled after negotiations between the insured and the insurer, or parties acting on their behalf, such as assessors and loss adjusters.

The first and most important point to make is that it is the insured's responsibility to notify the insurer of a claim. It is important to note that the public should understand that insurance is not a charity. The shareholders of an insurance company, like the shareholders of any other commercial enterprise, should expect to make a profit. However, the policies' interest is to satisfy their profit motive. They are clearly in business solely because they are policyholders.

Quite a number of studies have been done on claims and performance of insurance companies. Further, none of such former write-ups have spanned a period outside 2018 with even a sample size less than 10 insurers. However, this research work is carried out, putting into consideration, thirteen (13) insurance companies listed on the stock exchange for ten years spanning year 2011 to year 2020. The implication of claim payment on financial performance has been defined by many insurance companies. This study is carried out to examine the relationship between Claims Payment and Financial Performance of Listed Insurance Companies in Nigeria

1.2 Statement of the Problem

In Nigeria, the attitudes and belief of the people to most Insurance Companies call for attention, aside the fact that the industry suffers for poor public awareness, some still believe that the insurance companies are only interested in premium collection, and not settlement of claims. This is the 'fact behind poor patronage of the insurance industry. Claims management process has been a daunting task because of its critical function that touches all aspects of the organization relating to service delivery, exposure to risk, positioning of competitiveness, fraud management and infrastructural development. But insurance industry claims from previous years usually surfer in succeeding years, which makes the insurance businesses challenging and very difficult for profit attainment[6].

Furthermore, the basic theory of insurance Claim Management is that premium income must be sufficiently able to cover claim cost and underwriting expenses. If this fundamental principle is incorrect, an insurer may delay or struggle to pay claims, which could harm the business's reputation. When this happens, it supports the say of uneducated people that the insurer is only interested in premium collection, and not settlement of claims. This is the 'fact behind poor patronage of the industry. Nonpayment of claims as at when due reduces the confidence of the policyholders which in-turn makes it difficult to attract new policyholders, thus producing a negative influence on the profitability of the insurance company.

Studies recently conducted in Nigeria among insurance scholars had given quite a number of revelations with respect to insurance fraud; claims handling process; claim cost and insurers` performance; among others[10]. However, paying claims legitimately is a representation of the delivery of the promise at the heart of the insurance contract, which in fact indicates excellent claims handling service that is considered as a differentiator that separate them from their competitors. An excellent claims handling service is an insurance company's competitive edge and thus, noted as a service that customer values greatly. However, this research work is

carried out to put into consideration, thirteen (13) insurance companies listed on the stock exchange for ten years spanning year 2011 to year 2020.

1.3 Aim and Objectives of the Study

The main objective of the study is to assess the functional relationship between derived claims ratio and financial performance of listed insurance companies in Nigerian while the specific objectives of the study are to:

i. examine the effect of net claim on financial performance of listed insurance companies in Nigeria
ii. determine the influence of net premium on financial performance of listed insurance companies in Nigeria
iii. investigate the effect of underwriting profit on financial performance of listed insurance companies in Nigeria
iv. examine the relationship between loss adjustment expenses and financial performance of listed insurance companies in Nigeria

1.4 Research Questions

i. In what way does Net Claim affect the Financial Performance of listed insurance companies in Nigeria?
ii. How does Net Premium influence the Financial Performance of listed insurance companies in Nigeria?
iii. In what way does Underwriting Profit affect Financial Performance of listed insurance companies in Nigeria?
iv. What is the relationship between Loss Adjustment Expenses and Financial Performance of listed insurance companies in Nigeria?

1.5 Hypotheses

Ho1: Net Claim will have no significant effect on Financial Performance of listed Insurance Companies in Nigeria

Ho2: Net Premium will have no significant influence on Financial Performance of listed Insurance Companies in Nigeria

Ho3: Underwriting Profit will have no significant effect on Financial Performance of listed Insurance Companies in Nigeria

Ho4: There will be no significant relationship between Loss Adjustment Expenses and Financial Performance of listed Insurance Companies in Nigeria

1.6 Significance of the Study

The benefit of this research work is basically to show the impact of claims Payment in competitive advantage and to assist the insurance management to take immediate measure to solve the problem.

In addition, it is a contribution as an input in formulating strategy for insurance companies. The research will also serve as a bench mark to conduct deep and professional research on the research topic area.

The results generated from the finding of this study would provide decisions on qualitative and quantitative measures to be used in selecting the real determinants of the insurance claims in Nigeria. This in turn, would allow managers, owners, and potential investors (policyholders) to be better informed about the determinants of the claim management process and how stakeholders might use these determinants to allocate their resources so that the insurers in this sector could become more profitable when alternatives are available to them. This study was designed to benefit students and other researchers that might venture into future researches in this area.

1.7 Scope of the Study

The scope of this study shall focus on the effect of claim payment on financial performance of listed insurance companies in Nigeria. Insurance industry is a fast growing sub-sector in Nigeria and as soon, most corporate firms will realize its significance in business survival. In the study, selection shall be made on the listed insurance companies operating on the floor of the Nigerian Stock Exchange Market. The study shall however consider net claim; net premium growth; loss adjustment expenses; risk-based capital required; and expenses ratio from the annual report of the listed insurers from between period of 10 years (2011 -2020) as submitted to the Nigerian Insurers Association (NIA). This work is relatively limited base on time constraints, data availability, precision of data and data range, and methodology that would be adopted which could further be verified by future research. Nevertheless, the researcher would properly organize the research so as to present dependable results which can aid effective policy making and implementation in the industry.

1.8 Limitation of the Study

There are caveats to this study that need to be recognized in order to open opportunities for additional research. This study is focused on Claims Payment, Loss Adjustment and Financial Performance of Listed Insurance Companies in Nigeria. Therefore, findings of this study are paramount to the indicator of financial performance, Return on Asset (ROA) specified in this research and therefore inappropriate for other financial performance indicator assessment. The data sourcing also has some limitation, the research ensured that data gathered were appropriate to variables examined in this study and were sourced from Listed Insurance Companies in Nigeria, while other insurance companies were ignored posing a limitation on the research.

1.9 Operationalization of Variables

Y = f(X)

Independent Variables

X = Claim Payment and Loss Adjustment being measured by the following parameters:

x_1 = Net Claim (Net_Cl)

$\mathbf{x_2}$ = Net Premium (Net_P)

$\mathbf{x_3}$ = Underwriting Profit (Underw_P)

$\mathbf{x_4}$ = Loss Adjustment expenses (Loss_Adj)

Dependent Variables

Y = Financial Performance (FP) being measured by the following parameters:

y_1 = Return on Asset (ROA)

$\mathbf{y_2}$ = Return on Equity (ROE)

1.10 Operational Definition of Terms

Claims Payment: This involves the appraisal of the claims performance, monitoring of claims expenses, legal costs, settlement costs, compromises and making arrangement for future payments and avoiding error, delay and disputes in the payment of claims.

Claims Ratio: This ratio measures the amount of compensation incurred plus commission paid by the company in comparison to the amount of its premiums earned and commission received from reinsurers.

Financial Performance: This is the company's financial condition in a certain period both regarding aspects of fund raising and fund distribution, which is usually measured by indicators of capital adequacy, liquidity, and profitability, and is an achievement by the company in a certain period that reflects the level of health of the company.

Insurance Premium: The payment of the insured sum to the guarantor in return for services for the transfer of the risk of the guaranteed/Insured. In life insurance premiums are compensations for the protection provided by the guarantor (insurance company) to the insured (customer) by providing a sum of money (benefits) against the risk of old age and death.

Insurance: This is intended to safeguard a person's, a business's, or another entity's financial security in the event of an unforeseen loss. The insurer agrees to pay the policy holder a certain amount of money upon the occurrence of a certain event in return for payments from the insured (referred to as premiums).

Insured/Policyholder: This is the party who parts with the premium to buy insurance satisfaction by transferring his risks to the other party known as the insurer.

Loss Adjusters: Losses are investigated by adjusters who establish the insurance companies' responsibility and the amount of the payout. Insurance companies frequently provide agents draft authority, allowing them to release payouts up to a predetermined amount, because the volume of claims is frequently insufficient to warrant dispatching a special investigator.

Loss Adjusting: This is the process of investigating, establishing the cause of a loss and determining whether it is covered by the insurance policy and the submission of its report or assessment together with recommendations to the insurance company.

Net Premium Growth: By dividing the Net Premium Difference from the Net Premium from the previous year, this is calculated as Net Premium Growth.

Profitability: This is a class of financial metrics that is used to assess a business' ability to generate earnings compared with its expenses and other relevant costs incurred during a specific period of time. The profitability of the insurance industry is germane because it is the essential prerequisite for the survival, growth, and competitiveness of insurance firms, and the cheapest source of funds.

Return on Assets: Returns on assets (ROA) is an indicator of how profitable a company is relative to its total assets. Returns of assets give a manager, investor, or analyst an idea as to how efficient a company's management is at using its assets to generate earnings.

Risk Based Capital: A set minimum amount of solvency level, the amount of funds needed to cover the risk of loss that may arise as a result of deviations (deviations) in the management of wealth and liabilities.

Risk Management: This is considered as a process by which an organization identifies and analyses threats, examines alternatives and mitigate the threats before they obstruct activities of the organization for an improved profitability.

Endnotes

1. T. Ono, A. A. Preztika & A. Rininda, *The Influence of Net Premium Growth, Loss Adjustment Expenses and Risk-based Capital on the Financial Performance of Life Insurance Companies*. **Advances in Economics, Business and Management Research** 127, 2019, 65-68.

2. F. P. Angga, H. Putra, S. Isfenti & M. Iskandar, *The Effect of Loss Adjustment Expenses, Operational Ratio and Retention Ratio on Performance of Insurance Companies in Indonesia Stock Exchange*. **International Journal of Research and Review**, 7(3), 2020.

3. S. S. Akpan, M. Nnamseh, S. G. Etuk & A. J. M. Edema, *Managing the Underwriting Functions and Profitability Paradoxes of Nigerian Insurers: A Pooled Panel Model Study*. **International Journal of Innovation, Creativity and Change**, 14(4), 2020.

4. S. A. Taofeek, *Effect of Claims Payments on Profitability in the Nigerian Insurance Industry.* **Advances in Social Sciences Research Journal**, 5(4), 2018.

5. J. O. Irukwu, *Fundamental of Insurance*. British Library Cataloguing in publication data. 2007.

6. O. T. Yusuf & O. A. Abass, *Investigating the Roles of Claims Manager in Claims Handling Process in the Nigeria Insurance Industry*. **Journal of Business Finance** 1(2), 2013, 69-74.

7. L. A. Akintayo, *Fundamentals of Insurance Claims* (3rd edition). CSS Bookshop Limited. 2002.

8. B. W. Mazviona, M. Dube & T. Sakahuhwa, *An Analysis of Factors Affecting the Performance of Insurance Companies in Zimbabwe*. **Journal of Finance and Investment Analysis**, 6(1), 2017, 1-2.

9. G. E. Oyedokun, & F. G. Gabriel, *Effects of Claims Management on Profitability of Listed Insurance Companies in Nigeria*. **American Journal of Management**, 18(5), 2018.

10. T. O. Yusuf, & S. Dansu, *Francis. Effect of Claim Cost on Insurers` Performance in Nigeria*. **International Journal of Business and Commerce**, 3(10), 2014.

Chapter Two

Literature Review

In this chapter, literatures were established on financial performance; claim payment; technological advancement in insurance claims management; planning and controlling claims payment process; general requirements for claims management; loss adjusting, claim investigations and administrations; claim settled or denied; risk management and claim payment capacity; insurance solvency and claim payment capacity; insurance financial liquidity and claim payment capacity; underwriting practice' contributions to claim payment capacity; asset tangibility and financial performance of insurance industry; insurance industry and the Nigerian economy; and brief historical development of the insurance industry in Nigeria. This chapter equally established some theories (innovations theory of profits; risk management theory; multivariate theory) to explain the phenomena in the literature. Several empirical evidences were established in the chapter to see how the study is empirically supported by the previous studies.

2.1 Conceptual Review

2.1.1 Financial Performance

Financial performance is the result of a formal business's financial position that has been carried out by the company within a specific time frame. Performance, on the other hand, is an undeniable factor for the continued existence of business globally, because no business owner enters the business arena with a setback and loss-control mindset; thus, the sole aim of entering the business arena is to make profit, and without profit, a business will not be able to grow and meet some of its short-term obligations and goals[1]. Financial performance is a measure of a company's income, profits, and value appreciation as evidenced by an increase in its stock price. Financial performance can take the form of a description of a company's

financial condition in a specific position, which includes aspects of fund collection and distribution that are typically measured by indicators of the company's capital adequacy, liquidity, and profitability[2]. Financial performance of insurance companies is typically expressed in net premium earned, profitability from underwriting activities, annual turnover, return on investment, and return on equity[3]. These measures could be divided into two categories: profit performance measures and investment performance measures.

Furthermore, most insurance and profitability researchers agree that the key indicator of a firm's performance is ROA, which is defined as before-tax profits divided by total assets. Financial Performance provides dividends and growth to investors (policyholders) and management, while it provides additional security against insolvency to insurers and regulators[4]. To investors (policyholders) and insurers, performance has a golden ring, whereas to policyholders of a stock insurer, it appears as a mark-up, and to policyholders of a mutual company, it is neutral. When it comes to solvency, regulatory bodies of insurance companies either encourage or try to reduce performance when regulating rates[5].

In recent times, the performance of insurance companies has been compared to that of 'her sister' (banking) industry; however, for insurance companies to compete profitably with the banking sector, underwriting practices must be adequately functional[6]. This suggests that, among other aspects of the insurance business, underwriting is a key determinant. It also accepts the assertion that Performance is regarded as a very important goal of financial management because the primary goal of financial management is to maximize the owner's wealth; as a result, Performance is an important determinant of firms` profitability[7].

However, financial performance is generally measured through the use of Return on Assets (ROA) which is a financial ratio used for measuring the degree to which the firms` assets have contributed to profits generations. A greater Return on Assets (ROA) shows that the better the

company's performance, because of the greater rate of return on investment. Return on assets (ROA) is an indicator of how profitable a company is relative to its assets or the resources it owns or controls[8]. Since the percentage demonstrates how well a business uses its assets to make profits, investors can use ROA to identify promising stock options. A growing ROA over time shows that the business is successfully increasing profits with each dollar it invests. A declining ROA suggests that the corporation may have overinvested in assets that haven't increased revenue, which is a warning the business may be in jeopardy[9].

The simplest way to calculate ROA is to divide net income for a given time by total assets. Calculate the average of the starting asset and the ending asset to obtain the total assets. Falling ROA, particularly for growth enterprises, is a sure warning of impending disaster. In order to increase sales, businesses frequently need to make significant upfront expenditures in assets like inventories, accounts receivable, production machinery, and buildings. An organization may become bankrupt and over-invested in assets that it cannot sell due to a drop in demand. It may lead to a financial disaster[10]. The rate of return required to decide if investing in a firm makes sense is identified by ROA, which is given as a percentage. Investors can determine the company's performance by comparing it to popular benchmark rates like the cost of capital and interest rate on debt. Investors might contrast ROA with, for instance, the interest rates businesses pay on their debts. A company is not doing well if it is extracting less value from its investments than it is spending to finance those investments. An ROA that is higher than the cost of debt, however, suggests that the business is keeping the difference[11].

Similar to this, investors can compare ROA to the firm's cost of capital to obtain a sense of the realized returns on the expansion plans of the business. A corporation should obtain a ROA that surpasses the costs of capital if it plans to expand or make acquisitions that will add value for shareholders. If not, those initiatives are probably not worth pursuing. Investors can also

inquire about how a company's ROA stacks up against that of its rivals and the industry standard. There is an alternative, far more illuminating method of calculating ROA. If we treat ROA as a ratio of net profits over total assets, two illuminating factors—net profit margin (net income divided by revenue) and asset turnover—determine the final result (revenues divided by average total assets)[12]. If the return on assets is increasing, then either net income is increasing or the average total assets are decreasing.

Return on Assets (ROA) = (Net Income/Revenue) X (Revenues/Average Total Assets).

By increasing its profit margin or, more effectively, by utilising its assets to promote sales, a corporation can achieve a high ROA. assuming a firm has a 24 percent ROA. Investors can identify whether a profit margin of, say, 6 percent and a turnover of assets of four times, or a profit margin of 12 percent and a turnover of assets of two times, is what is driving that ROA. Investors can assess whether a firm is performing up to par by understanding what is customary in the company's industry. This also clarifies the various strategic directions that businesses may take, such as turning into a high-margin, low-volume rival or a low-margin, high-volume producer[13].

Also, Return on equity is considered as a measure of firms` profitability, which at the same time can said to be a reflection of financial performance through profits. Return on equity is a measure of firms` profitability of a business in relation to the equity. Return on equity (ROE) is the "amount of net income returned as a percentage of shareholder's equity. Return on equity, which reveals how much profit a company makes with the money investors have invested, gauges a corporation's profitability[14]. It states that the higher the ratio, Return on Equity (ROE) will increase the profit growth. Return on Equity (ROE) indicates the profitability of own capital or often referred to as business profitability. Return on equity (ROE), along with return on assets (ROA), is one of the all-time favorites and perhaps most

widely used overall measure of corporate Organizational Performance. Return on equity is calculated by taking the profit after tax and preference dividends of a given year and dividing it by the book value of equity (ordinary shares) at the beginning of the year. Average equity can also be used. Equity would consist of issued ordinary share capital, plus the share premium and reserves[15]. The calculation of ROE can be broken up into three separate ratios, as follows:

ROE = (Net Profit Margin) x (Asset Turnover) x (Equity Multiplier)

= (Earnings before Tax/Sales) x (Sales/Assets) x (Assets/Equity) x (1-Tax Rate)

The three components, or ratios, can be described (in sequence) as profitability, asset turnover and financial leverage. The ROE can therefore be improved by improving profitability, by using assets more efficiently and by increasing financial leverage. Over time it has become clear that improving the ROE may not necessarily improve shareholder value. Although ROE has some appeal because it links the income statement (earnings) to the balance sheet (equity), it has some serious flaws as a measure of performance. The first and most obvious issue is that, within the parameters of Generally Accepted Accounting Practice (GAAP), the earnings can (and are) legally manipulated by adjustments to accounting policy.. The second flaw is that ROE is calculated after the cost of debt, but before taking into account the cost of own capital. ROE increases with more financial gearing, as long as the returns earned on the borrowed funds exceed the cost of the borrowings[16]. The danger inherent in increasing the financial gearing beyond a certain level is that the increased financial risk may cause the value of the company and the share price to fall. Inconsistent with the economic tenets of creating shareholder value, pursuing a greater ROE may result in wealth destruction[17].

The second component of ROE, namely asset turnover, is affected by inflation in such a way that it may increase even when assets are not utilized better. He reasons that sales immediately reflect the impact of inflation, whereas the book value of assets, which is a mixture of new and older assets, does not adapt as quickly to the effects of inflation.[18] The studies in the 1970's revealed that although the earnings of Standard & Poor's 400 companies decreased dramatically during the 1970's, their ROEs actually increased through increased levels of asset turnover and gearing[19].

2.1.2 Claims Payment

Insurance claims are requests made by the insured persons to the insurer to pay the benefits agreed upon under a defined policy. It is a demand placed by an individual or organisation against a loss covered by insurance policy[20]. Claims payment which is a subset of claims management is essential and vital to an insurer's success. In order to obtain his rights in the form of coverage for losses based on agreements made or agreed, the insured must submit a claim to the guarantor. To put it another way, making a claim is a procedure used by participants to obtain the sum covered following the insured's completion of all duties to the guarantor in the form of premium payments made in accordance with the terms of the policy[21]. An insurance claim is an insurance extract in which the insurer agrees to pay a specific sum of money should a specific event occur or to indemnify the insured against a loss that may or may not occur in the future[22].

The insured risk is the loss that the insurance covers. Insurance is enforceable in court since it is legally acceptable. He continued by saying that the primary obligations of the insured under the terms of the insurance contract are to pay the agreed-upon premium and abide by the terms of the policy, while the obligation of the insurer is to uphold his own obligations and promises under the policy and to promptly and fairly pay or settle all legitimate claims. In spite of

everything, a well-managed claim improves customer relationships and aids in regulatory compliance, fraud prevention, and detection[23].

However, the industry like all other facets of the Nigerian economy is inundated with a number of problems. There is no disputing that, with the help of the government and the knowledge of the insurance-buying public, some, if not all, of these issues may be resolved by insurance professionals. The need to implement insurance plans is typically the last thing on the mind of the average Nigerian, despite the fact that both business and daily living contain risks (both financial and non-financial), many of which can be mitigated by insurance. A effective insurance manager must work to keep a productive claims department with staff that is both technically proficient and dependable. It has also been stated that since the early 1980s, a number of firms have adopted the management idea known as TQM (total quality management), which has aided managers in the settlement of claims and upkeep of a positive insurance culture[9]. But it is the insurer's duty to defend a policyholder in accordance with the provisions of the policy. He also believed that the insurance sector suffers when claims are contested on reasons that are not legitimate. Therefore, insurance providers must make sure that claims are paid as soon as they become due[24].

The claims management process typically has four crucial components: resolving claims, detecting fraud, lowering costs and avoiding litigation. Therefore, managing claims include evaluating how well they are performing, keeping an eye on their costs, including legal fees, settlement costs, and concessions, planning for future payments, and preventing mistakes, delays, and disagreements while paying claims. 80 percent of all premiums are spent on claims payment and related handling fees, which is the insurers' highest single expense[9]. Hence, claims management includes all managerial decisions and processes concerning the settlement and payment of claims in accordance with the terms of insurance contract. The claims process entails some activities, such as verifying that all necessary claim data has been

gathered and following up with the claimant or third party for any missing documents. It was argued that claim managers should limit their attention to only the most important claim duties while still making the best use of their time[25]. For insurers to attain operational efficiency and effectiveness in claim process, they must look directly at implementing modern claims system; leveraging advanced fraud detection technologies and creating innovation around their self-service claim processing activities[26]. Improved control over the process with a view to managing and guaranteeing service levels; seamless integration across the end-to-end claims process; greater flexibility within the process to respond to market changes; and the capacity to deliver these across multiple distribution channels to their clients and partners are the goals of those involved in the management of claims[27].

Additionally, improvements in customer service, decreased indemnity costs, improved claims handling and administration, decreased allocated loss adjustment expenses, improved operational management, improved enterprise risk management, increased business agility, and core brand differentiation are listed as advantages of an effective claims management process. A good claim management process should be proactive in identifying and paying legitimate claims, accurately determining the reserve associated with each claim, reporting on a regular basis, minimizing unnecessary expenses, avoiding protracted legitimate disputes, treating claimants with care, and handling claims quickly. The claims manual was specifically created to offer helpful advice on insurance language to use in agency contracts with third-party suppliers, contractors, or lessees. As a result, it serves as a generalization and offers suggestions for limitations and coverage. Typically, the claim manual's insurance policy section provides a succinct overview of individual insurance and should not be regarded as a replacement for the pertinent policy documents[28].

Insurance fraud, which is defined as a purposeful act committed in violation of a law, rule, or policy with the intention of obtaining unlawful financial benefits, is correlated with the claim

management practices of insurerst[29,30,31,32,33,34,35]. The term "fraud" refers to an action or inaction that is done with the intent of gaining an unfair or dishonest advantage in business dealings. This can be done by misappropriating assets, abusing a position of trust or fiduciary responsibility, or willfully hiding, suppressing, or misrepresenting information that is relevant to financial decision-making transactions[36]. Fraudulently acquiring money from an insurer or insured by fabricating information or making fraudulent claims is known as insurance fraud. In order to address the rising impact of fraud on insurance costs, insurance fraud regulations are crucial[37] However, the studies of noted two distinct types of fraudulent claims as: opportunistic and planned/professional. The opportunistic fraud is categorized as the most prevalent insurance fraud within the insurance market[38]. Fraud affects every type of insurance, be it non-life, life and health insurance protection. The various types of fraud affecting insurance companies are: commission rebate, fake documentation, collusion between parties, and misspelling[39].

There are four classes of insurance fraud which include: internal fraud, intermediary fraud, policyholder fraud and insurer fraud. The true economic cost of insurance is near impossible to quantify and to this end, Chartered Global Management Accountant suggested that the effective anti-fraud strategy should include: prevention, detection, response and deterrence[40]. In the meanwhile, a mix of fraud prevention, detection, and response techniques can help to build a powerful fraud deterrent. For further submission, while a sound ethical culture and sound internal control systems are said to comprise a fraud prevention strategy, the key tools for detecting fraud include training and experience combined with the necessary mindset that fraud is always a possibility, and that the tactics to prevent insurance fraud must be integrated with insurers' operational activities to guarantee the following: ensuring secure information management; improving operational efficiency; and preventing the spread of information that could be used to commit fraud. The insurance companies are therefore guaranteed with the

following when using an assessment technique: fraud prevention at the time of policy submission; fraud prediction at the intake of claims; fraud identification during adjudication; fraud discovery by examining patterns in data; fraud investigation more efficiently by reducing false positives and accelerating the investigation process; and trend visualization to continuously improve antifraud efforts[41]. Claims payment cannot be said to be complete without considering value of: net claim, net premium, underwriting profit, loss adjustment expenses. Net claim payments are the value of Gross claims payments net of any associated reinsurance recoveries. This comprises reinsurance recoveries that have been paid out or are anticipated to be paid out solely in connection with claims that have already been compensated. It generally means a single net amount reflecting the aggregation of all amounts owed by us to the relevant counterparty and payable to us from the relevant counterparty[42].

A financial year for an insurance company is defined as the sum of the unpaid claims at the end of the year, the claims paid during the year, and the unpaid claims at the beginning of the year, each after deducting the claim amounts that the reinsurers are responsible for paying as their part. Also, net premium of an insurance industry is derived by calculating the expected present value (PV) of an insurance policy's benefits, minus the expected Present Value of future premiums. Net premium is a term that can have various meanings[43]. One, it refers to the portion of the premium needed to pay for future losses. Two, it also refers to the resulting amount after deducting the agent's commissions from the gross premium. Third, as used in actuarial valuation, it refers to the present expected value of the benefits from a policy minus the present expected value of all future premiums. Future costs related to keeping the insurance policy in force are not factored into the net premium calculation. An insurance firm uses net premiums and gross premiums to calculate its state tax liability[44].

The net premium value of an insurance policy is distinct from the policy's gross premium value, which does account for future costs. As net premium does not consider the expenses to

be incurred in its calculation, companies usually add them to the net premiums to arrive at the gross premium. These costs include salaries, taxes, settlement costs, commissions for the brokers who sold the insurance, and other administrative costs[45]. Companies typically combine fixed costs with an authorized proportion of flat loading to the net premium to determine their amount[46]. The predicted Present Value of expense loadings less the anticipated Present Value of future expenses is the computed difference between net premium and gross premium. Therefore, when the value of future expenses is lower than the Present Value (PV) of those expense loadings, a policy's gross value will be lower than its net value[47].

The net premium calculation, however, does not account for costs; businesses must decide how much additional cost they can incur without incurring a loss. Commissions paid to agents who sell the policies, legal costs related to settlements, salaries, taxes, secretarial costs, and other miscellaneous expenses are examples of the types of costs that a corporation must account for. A company can add a fixed number of costs to the net premium (known as flat loading), a percentage of the premium, or a mix of a fixed amount and a percentage of the premium to estimate permissible expenses[48].

As long as expenses do change by proportion to the premium, applying a constant sum will result in the same proportion of expenses to premiums when comparing policies with varying net premiums. The general and legal costs connected to the insurance, as they relate to commissions on the premium, will determine which approach to take. The majority of insurance calculations account for contingencies, such as the possibility that the money generated by investing the premiums would be less than anticipated. Determine how much an insurance firm owes in taxes by using net premiums and gross premiums. Insurance revenue is frequently taxed by state insurance authorities. Tax laws, however, can permit businesses to exclude expenses and unearned premiums from their gross premium. The claims manual was specifically created to offer helpful advice on insurance language to use in agency

contracts with third-party suppliers, contractors, or lessees. As a result, it serves as a generalization and offers suggestions for limitations and coverage. Typically, the claim manual's insurance policy section provides a succinct overview of individual insurance and should not be regarded as a replacement for the pertinent policy documents[2].

2.1.3 Technological Advancement in Insurance Claims Management

The insurance industry tends to be slow to adopt new technology for claims handling. Recently, the adoption of cloud technology has been high on the list of priorities for insurers. Cloud technology enables flexibility and scalability that is often required to advance with other technological advances. For example, to enable the insurance companies to adopt mobile portals for the creation of claims and audits, the claims management system must be integrated with a mobile solution[49]. And for brokers to realize developed points of effective and recuperating movement success, they might be found near executing current claims classification or improving their remaining assertions systems, leveraging innovative scheme detection machineries and inventing around self-service complete treating[50].

2.1.4 Planning and Controlling Claims Payment Process

The claims handling procedure might be assessed from two perspectives including operations and finance. Assessments of the amount and distribution of claims are made under the financing viewpoints. While practical aspects of a claims settlement procedure, such as processing speed, the number of claims, and the outstanding claims register, are evaluated. It is clear how crucial this analysis is for the efficient and successful administration and structure of the claims processing function. A tool for analysis and forecasting claims handling procedures is claims handling procedures[51]. In insurance industry, planning and controlling of claims are paramount roles to limit cost of claims in insurance companies. The above two tasks involve managing both human and material resources and organize the

process from filing the claim requests to the final settlement. That includes performing well all tasks involved at satisfaction of the customer and limiting costs to the company[52].

2.1.5 General Requirements for Claims Management

The Claims Management Guidelines requires each insurer to develop, document and implement claims management policies and procedures for all of its lines of business. These Guidelines take into consideration international standards and best practices and addresses three inter-related aspects of the claims management function viz:

a) Market conduct: the ways in which the insurer communicates and interacts with the consumers; and
b) Internal controls: the means to ensure that the preceding functions work effectively.

These Guidelines and the documented claims policies and procedures of an insurer will be taken into account in assessing unreasonable delay in the settlement of claims by such insurer for purposes of the Insurance Act 2003. An insurer shall include as part of its policies and procedures, settlement timelines for claims for all types of busineses and shall ensure that these timelines reflect the principles of good market conduct[23].

Claims Procedure

Every Insurance institution shall:

a) Ensure that claims settlement procedures are clearly defined and appropriately communicated to the insured.
b) Set out timelines in its policy and procedure manual within which to settle all admitted claims.
c) Have a fair and transparent claims handling and claims dispute resolution procedures in place.
d) Maintain written documentation on its claims handling process.

e) Inform claimants about procedures, formalities and common timeframes for claims settlement.

f) Provide claimants with information about the status of their claims in a timely manner.

g) Ensure that Assessors and Adjusters are given independence to operate.

h) Remind clients of their responsibility to promptly notify claims, give all relevant information, and provide updates as soon as possible.

i) Give prompt advise to the clients on any requirements concerning the claims

The insurer shall ensure that the claims settlement process is handled fairly, promptly and efficiently and in accordance with the terms of the insurance contract and company policy. In accordance with the terms of the insurance contract and company policy, the insurer, broker, or agent shall have internal rules and procedures that are recorded for the fair, prompt, and efficient treatment of claims. Such policies and procedures shall be approved by the Board of Directors and reviewed and updated periodically. The insurer, broker or agent shall ensure that staff are aware of and adhere to these procedures. Timely and accurate infonnation shall be provided to the policyholder or claimant at all times[9].

Claims Notification

The notification of the claims may be made in line with the policy conditions, provided that the claimant shall use any fast means of communication to the insurer, designated contact person or department or through the intermediary by:

a) Direct reporting

b) Telephone call

c) Text message

d) Email

e) Fax

f) Letter

g) Use of social site or website

h) Any other fonn of technology of wide usage.

Provided that where the mode of communications used lacks written evidence, the insurer shall infonn the claimant of the need to follow up such communications with a letter and/or completion ofthe appropriate claims form.

Where claims notification (or an incident that may give rise to claims) is received by an intennediary, such notification shall immediately but not later than 2 working days be transmitted to the insurer. When a policyholder or claimant reports a loss, the insurer, broker or agent shall make available an appropriate claims fonn for the class of business, with clear instructions as to how the fonn shall be completed. This shall be done within 2 working days of receiving notification of a claim[9].

When a loss is reported, the insurer, broker or agent shall advise the policyholder or claimant to co-operate in the investigation by providing the insurer with all relevant information to ensure timely processing ofthe transaction. If the insurance institution requires specific documents from policyholder or claimant when a claim is filed, such as copies of official documents regarding the loss or any other relevant form of evidence, the insurer, broker or agent shall provide a list of these requirements with the claims form. If a broker or agent is the initial contact for the policyholder, the broker or agent shall forward the completed claims form to the insurer within 2 working days from the date of receipt ofthe completed claims form. An insurer shall respond promptly to notification of a claim. The insurer shall acknowledge receipt of the claims form within 2 working days. The insurer shall indicate to the policyholder or claimant the relevant department or contact person to whom all information or enquiries must be channelled. The insurer's claims department, the broker or

agent shall be easily accessible. The insurer shall maintain a checklist for all relevant documents needed. This shall be completed and dated for all claims.

The insurer however, shall advise the policyholder of the consequences of submitting a false or incomplete statement (which could include criminal prosecution). If a claim involves more than one insurer on the risk, the lead insurer or broker, where applicable, shall contact the other insurer(s) within 2 working days of the initial notification. The insurer shall inform the policyholder or claimant if an independent adjuster will be engaged to conduct a survey and/or an assessment. Where the insurer uses claims adjusters or other intermediaries, the insurer must be satisfied as to their competence and qualifications and shall use only persons who are registered for these purposes. The insurer shall hire the adjuster within 2 working days from the date of receipt of the completed claims form accompanied by all relevant documentation.

The adjuster shall submit the assessment of damage report within ten (10) working days after receiving the instructionsfrom the insurer. In large and complex special risk losses, a specified extra grace period might be allowed; however, the claimant shall be formally notified of this exception and evidence of concurrence obtained. Within five (5) working days of receipt of the assessment report, the insurer shall notify the claimant as to its acceptance or rejection of the claims. In instances where the insurer does not engage the services of an adjuster, the nsurer shall conduct an investigation into the reported loss within five (5) working days of receipt of a Claims Form accompanied by all relevant documentation. An Insurance intermediary shall advise the client without delay of the insurer's decision or otherwise on a claim; and give all reasonable assistance to the client in pursuing his claims provided that, the intermediary shall not take up recovery assignment on a policy contract which has not been serviced through him or shall not work as a claims consultant for a policy

which has not been serviced through him. An insurer shall not settle an insurance claims in which it did not issue the policy or participate as co-insurer in an attempt to entice a policyholder whose claims was rejected. If an insurer has a genuine reason why such claims shall be paid, it shall be reported to the appropriate authorities.

Claims Processing

On receipt of a claim, the insurer shall establish a claims file which at a minimum shall contain the following information:

a) Policy number;
b) Name of policyholder or claimant;
c) Information on claimants;
d) Description ofthe loss;
e) Claim file number;
f) Claim form;
g) Checklist of all relevant documents;
h) Progress report schedule;
i) Date of loss or accident
j) Opening date of the file;
k) Initial value of the claim reserve and any subsequent changes;
l) Reporting date;
m) Request for an adjuster or investigator;
n) Date on which the adjuster's report is received;
o) Electronic and/or paper copy of the adjusters' and/or investigators' reports where applicable;
p) Dates and amounts of payments;
q) Date of denial, if applicable;

r) Reasons for denial or reduced settlement;

s) Name of broker ora gent, if applicable;

t) Documents recording contacts with the policyholder;

u) Documented evidence of agreements or settlements;

v) Claims discharge form and/or acceptance form;

w) Date offile closure;

x) A record of all communications whether formal or informal; and

y) Any other information pertinent to the claim.

The insurer shall update the claims file and document all actions taken as part of the claims management process in order to be able to address questions that may arise concerning the handling and settlement of the claims. If it is determined that the claims is not covered by the insurance policy ordenied, the insurer shall notify the policyholder or claimant in writing stating the policy provisions, conditions or exclusions on which the claim is being denied. This shall be done within a reasonable time/as quickly as possible. The insurer shall not dissuade policyholders or claimants from obtaining the services of a solicitor or adjuster given that the established claims processes have been followed but processes or decision not satisfactory[38].

The insurer shall not deny a claims without reasonable and comprehensive investigation. The insurer shall keep the policyholder or claimant informed of the status of the claims and shall provide explanations for any delay. The insurer shall inform the policyholder or claimant when it decides to appoint an independent expert (for example, loss adjusters, solicitors, surveyors) and explain the reasons and role of these persons in the settlement of the claims. The insurer shall implement a management reporting system to track the timeliness of claims settlement and other pertinent information. Management shall receive and review periodic reports which at a minimum shall include:

i. The age analysis of outstanding claims;

ii. Claims reported but not yet documented or adjusted;

iii. Claims reported, adjusted but not yet accepted;

iv. Claims accepted but not yet paid; and

v. Adequacy of claims reserving.

Claims Settlement

When an insurer makes an offer of settlement, the insurer shall disclose to the policyholder or claimant the basis used for the offer of settlement. The insurer shall not settle a claims for less than the amount to which the policyholder or claimant would be entitled to receive under the terms of the insurance contract. After acceptance of liability and an agreement has been reached between the insurer and the policyholder or claimant on the amount of the claims, the insurer shall cause a discharge voucher to be issued not later five (5) working days from the date of acceptance of liability. In the case of claims settlement procedures involving other insurers, the claims shall be settled with the policyholder or claimant within the appropriate period while potential disputes with respect to subrogation between insurers are being resolved. The insurer shall ensure that once an agreement has been reached and payment effected a copy of the release signed by the policyholder or claimant shall be retained in the policyholder's or claimant's file. Insurers are required to furnish the commission with data on paid claims (indicating nature of business such as direct, co-insurance and facultative reinsurance) and outstanding claims (indicating nature of business such as direct, co-insurance and facultative reinsurance), on quarterly basis. Such information shall be submitted on or before the 15 days from the end of the quarter[51].

Internal Controls for Claims Management

There shall be a complete record of each claims transaction which evidences adherence to this Guideline. An insurer shall have documented internal policies and procedures for the fair, prompt and efficient handling of claims. Such policies shall be approved by the Board of Directors and reviewed at periodic intervals. The insurer shall ensure that staff are aware of and adhere to these procedures. An officer of the insurer shall be responsible for the maintenance of the policies manual and procedures and shall ensure that the manual is up-to-date. Information to be detailed in the policies and procedures manual shall, at a minimum, include:

i. Clearly defined levels of authority;
ii. Claims settlement procedures, including loss estimation and investigation procedures;
iii. Procedure for rejecting claims;
iv. Dispute resolution procedures;
v. Method for monitoring compliance with claims management processes and procedures; and
vi. Segregation of duties in the claims department.
vii. Written internal policies and procedures for combating fraud associated with claims as considered appropriate for its level of exposure and vulnerabilities[14].

These procedures will serve to minimise the incidence of fraudulent claims and the resulting rise in premium. An insurer shall ensure that any of its staff involved in the claims handling process possess suitable qualifications and/or experience. The insurer, broker or agent shall provide training on an ongoing basis for its claims staff. An insurer shall ensure that the internal auditor's function covers review of the claims settlement process and reserving for claims. An insurer shall establish, implement and update a statistical database to track how long they take tosettle claims as well as the trends in settlements and expenses. The Senior Management shall receive periodic reports on the time taken to process claims and

appropriate action taken where necessary. The Board of Directors shall also receive reports on a Quarterly basis on claims management. An insurer shall ensure that members of staff in the claims department are aware of and follow the company's internal policies and procedures on fraud and are adequately trained to recognize the early warning indicators. An insurer shall ensure that periodic reviews are done on the claims assessment process. This shall include revisiting the valuation and assessment basis for certain types of claims on an ongoing basis and having the internal audit department conduct examinations on the process. An insurer shall establish procedures to detect and prevent the categories of fraud which shall include but not limited to:

i. Fraud against the insurer by policyholders
ii. Fraud by the Intermediaries against the Insurer and/or policyholder.
iii. Fraud against the Insurer by its director or employee on his or her own or in collusion with parties internal or external to the Insurer.

Complaints and Dispute Resolution

Each insurance institution shall establish well-documented policies, procedures and processes for complaint and dispute management to ensure, as far as possible, that such situations are resolved promptly and fairly. At a minimum, the procedures shall include:

a) Acknowledgement of recerpt of the complaint within 2 working days from the receipt of correspondence.
b) Details of how the complainants will be kept informed of the status of their compfaint,
c) Provisions forArbitration Clause in the policy document. It shall be noted that the Arbitrator shall not be:
    i. a former employee ofthe insurer/intermediary;
    ii. simultaneously perform other functions which could affect their independence; and

iii. Subjected to unnecessary influence or instruction from the insurers/i ntermed iaries.

d) Information to complainants on how and when to resort to the market's dispute resolution mechanism and ultimately the Commission's Complaints Bureau as an alternative dispute resolution mechanism or litigation; and

e) Establishment of the time line for sending a final response in writing to the complainant.

f) Keep record of each complaint received and the measures taken for its resolution[54] .

Insurance institutions shall ensure that letters of instructions, policies, renewal documents, contain the complaint handling procedures. Insurance institutions shall accept complaints whether intimated by phone or in writing. An Insurance Institution shall ensure that complaints are dealt with expeditiously. It shall be the responsibility of the Top Management to ensure the management of all complaints.

Payment of Claims Recoveries

An Insurer shall settle its proportion of the claim on co-insurance, facultative reinsurance or retrocession obligations not later than ten days from the receipt of the request for refund (payment) from the lead insurer/cedant where the lead/cedant had settled same. An Insurer shall submit to the Commission a quarterly return on all outstanding balances from other Insurer(s) and reinsurers during the preceding quarter, not later than 14 days from the end of the quarter in the prescribed form by the Commission. Insurer(s) shall settle its/their portion of a loss adjuster's fee not later than ten (10) days after submission of the adjuster's report to the underwriter(s). Where a lead Insurer pays the fee on behalf of the other co-insurers, the co-insurers shall reimburse the lead their respective proportion of the fee within five (5) working days of the settlement of the adjuster by the lead insurer[54].

2.1.6 Loss Adjusting, Claim Investigations and Administrations

Loss adjusters establish the insurance company's responsibility and the amount of the payout. Insurance companies frequently provide agents draft authority, enabling them to release payouts up to a predetermined amount, on occasion, when the volume of claims is not frequently high enough to warrant sending a special investigator. The claim can be quickly resolved by the agent, which lowers adjustment costs and builds goodwill among policyholders. The amount to be paid is proposed by adjusters after they have determined the insurers' liabilities and have investigated damages, although in some circumstances, the claim committee makes the final decision[31]. Payments are typically made from insurance reserves, which may have a significant negative impact on insurers' capital structures and profitability margin, therefore the proposed claims are extremely probabilistic and necessitate a great deal of deliberation and creativity. Actuarially, insurance companies typically calculate and compare the amount of net premium to the claim settlements because the latter influences the inflows (such as reserves and other revenues) and is anticipated to be closely watched[53]. The replacement cost plans give the money required to exchange a damaged item for one of comparable kind and quality without taking depreciation into account (the decrease in value due to age, wear and tear, and other factors). Actual cash value insurance covers the cost of replacing the item less depreciation[54].

2.1.6.1 Claim Settled or Denied

When presented with a claim, the insurance company either pays the claim or denies it. The majority of claims are paid, but a small number may be rejected for compelling reasons, including as that the loss did not actually occur or that it was not covered by the policy. A loss may not be covered because it was excluded, the policy lapsed, the loss was not within the scope of the insurance agreement, or the insured violated a policy condition[55]. There are

four main steps in processing a claim, which may vary, considering the class of insurance: notice of loss, investigation, proof of loss, and payment or denial of the claim. The steps are:

1st step: Notice of Loss

Naturally, notifying the insurance provider that a loss has occurred is the first step in filing a claim. Most insurance policies stipulate that the insured must notify the firm as soon as possible so that the company can preserve any relevant evidence for the investigation. The insurance policy may additionally stipulate that the insured take additional actions to compile or maintain proof of the loss, such as compiling the names and contact details of all parties involved in an accident.

2nd Step: Investigation of Loss

An investigation establishes the presence of a loss covered by the policy, the extent of the loss, and whether or not policy requirements were satisfied both before and after the loss event. A loss will only be covered by a policy if it happened within the policy period, was brought on by a covered peril, and complies with all other insurance contract requirements. If the insurance was recently purchased or lapsed, it will be crucial to know if the policy was in force when the loss happened.

3rd Step: Proof of Loss

The policyholder may be asked to submit a proof of loss in the third phase, which is a sworn statement of the loss's occurrence, its circumstances, whether it was covered by any other insurance, and its dollar amount.

4th Step: Reservation of Rights

Sometimes it's unclear whether to pay a claim or reject it. This might be the case if the insurance policy specifically states that deliberate losses are not covered. However, since it is unclear whether the insured caused the loss on purpose, the insurance company must wait for the outcome of the intentionality issue in court. However, in cases where the insured did not act willfully, the insurance company will frequently pay for the necessary legal defense because failing to do so may subject the insurance company to a greater liability. Since the insurer is unsure whether the damage is covered, it may go ahead and begin paying for the insured's defense but will provide the insured adequate notice of its reservation of rights, noting that coverage may be rejected if[55]. If the insurer began funding the insured's legal defense but later stopped, or tried to collect its payment, the court might find that the insurer acted in bad faith since it failed to give notice of its reserve of rights. A reserve of rights letter usually has the following clauses and must contain the words "reservation of rights" in order to be legally enforceable:

1. Identification of the policy at issue
2. The relevant policy provisions and any terms and conditions that may bar coverage
3. The relevant parts of the complaint
4. The claims that may not be covered, and

A clear explanation of: The insurer's basis for denying coverage How the defense will be conducted, and give notice:

1. That the insured has the right to hire his defense counsel
2. That the insurer has the right to withdraw from the defense and the right to assert other defenses that may become apparent during the investigation or the court process.
3. Of conflicts of interest between the insurer and the insured
4. Appealing a Claim Settlement or Denial.

2.1.7 Risk Management and Claim Payment Capacity

Risk management is considered as a process by which an organization identifies and analyses threats, examines alternatives and mitigate the threats before they obstruct activities of the organization for an improved profitability[56]. Risk management is the act of determining the loss exposures that an organization faces and choosing the best methods for effectively addressing these specific exposures. Risk is defined as an event that could have an impact on a company's ability to achieve its goals. It also contains opportunity and threat[10]. Risk can be defined as the likelihood that the actual return on investment will differ from the projected return. Risk measures the degree of uncertainty to which an event may be exposed[11]. Every organization places a high priority on risk since it illustrates the situation where there is a quantifiable dispersion in the potential outcomes from any operation[12]. Risk can be managed to minimize negative impacts and/or promote positive results.

The idea of risk management centers on the recognition, assessment, and prioritization of risks as well as the coordinated and prudent use of resources to reduce, monitor, and manage the likelihood and impact of inappropriate occurrences[13]. Risk management comprises detecting, analyzing, assessing, monitoring, and controlling risks, which improves the organization's decision-making process and increases short- and long-term profitability and competitive advantage[14]. However, in the insurance sector, methods for identifying risks are employed to maximize chances of discovering risks inherent in the systems, facilities, or goods. These methods are broadly categorized as inductive, deductive, or intuitive methods.

The insurers establish a premium that a client would pay in the future if he transferred it to the business and this is in many forms once they have developed the framework for risks identification and recognized the amount of risks involved[15]. Additionally, the amount of the risk transferred to the insurance company or the number of claims the insurance company has previously dealt with are partially reflected in the premiums paid by policyholders. The following factors should be considered when calculating insurance company premiums:

Expected claims and some loadings, including administrative expenses, agent fees, insurance earnings, claim settlement expenses, and the insurance company's risk-bearing expense in absorbing the insured person's uncertainty[16].

Due to extensive government regulation interference over a two-decade period, the net premiums earned in the industry were noticeably high. An insurer does face a wide range of risks when carrying out their core competencies, such as pricing, underwriting, claims handling, and reinsurance management. These risks are frequently interconnected and, if not properly managed, could endanger the institution's ability to achieve and sustain its viability. The effects of risk events can range from direct physical harm to indirect effects on people, ecosystems, or financial or physical assets, as well as effects on how society functions and how people think[56]. Insurance companies around the world are taking a global approach to all the risks they face.

Integrated risk management is considered as an ongoing process in which potential risks are assessed at all levels of the organization and all results are collated at the business level to improve decision making[8]. Traditional risk management through insurance provides individuals and corporate bodies with the security and certainty they need to operate in unbalanced and unfavorable environments. Because both the insured and the insurance companies are uncertain about the future, these risks ought to be carefully managed by the insurance firms if profitability and sustainability are to be reached[57]. The underwriting profit rates of different insurance businesses may be associated, and the profit from risk underwriting, risk-based capital, and investment activities are all random variables. This is so that insurance companies can establish a successful and secure business operation through a strong and efficient underwriting process.

Additionally, risk-based capital gauges an insurance company's level of financial stability and ensures that insurance and reinsurance obligations are met by determining the size of the

capital requirements necessary in relation to the level of risk the company faces in managing its assets and obligations. Besides Risk Based Capital, there are other indicators that need to be considered in the Premium (Net Premium Growth) and Loss adjustment expenses[58].

Moreover, the investment of long-term business' premium into the economy brings about economic multiplier effect into the economy, and yield investment income to the insurance companies, and invariably increases their profitability and market share within the financial institution[59]. If risk is not managed well, that could lead to collapse of industry. As a result, risk management should be the primary focus by being integrated into all business enterprises' processes, systems, and cultures. Finally, risk management is a proactive system that analyzes potential risks and establishes policies and procedures to improve an organization's capacity to avoid or lessen the effects of risk processes. The process through which an organization can recognize risks, assess them, and devise methods for minimizing or maintaining them is known as risk management[60].

Insurers have integrated the use of international standards into the field in order to attain the maximum performance possible in the sector. In order to improve profitability and boost profits, several insurers frequently use risk management practices in their plans. The types of insurance products that an insurance firm writes determines its risks. In comparison to other products, some have substantially reduced insurance risks, whereas others have far larger insurance risks. To improve performance and boost revenues, various publications and recommendations recommended that established risk management methods be followed continuously[61].

2.1.8 Insurance Solvency and Claim Payment Capacity

Solvency is the ability of a company to meet its long-term debts and financial obligations[45]. Solvency ratios measure a company‘s ability to survive over a long period of time. Current and potential investors (policyholders) will be interested in a company‘s financing arrangements and also its risk. A company that has borrowed money obviously has a commitment to pay future interest charges and make capital repayments. This can be a financial burden and possibly increase the risk of insolvency. The solvency margin is calculated as ratio of net assets to net written premiums and represents a key indicator of the insurer‘s financial stability[62]. Solvency can be an important measure of financial health, since it’s one way of demonstrating a company's ability to manage its operations into the foreseeable future and if premium is inadequate to cover the claims cost and increasing administrative and marketing expenses, then it may affect the Investment Fund and would result into liquidity risk to the insurer and same will affect future business growth insurer[63].

A minimum difference between an insurer's assets and liabilities known as the solvency margin is imposed by regulators. It is comparable to the capital adequacy standards for the insurance industry. The magnitude of an insurance company's capital in relation to all the risks it has taken is known as its solvency ratio[64]. Available Solvency Margin (ASM) is calculated as the excess of value of assets over that of liabilities. The solvency ratio is the ratio of the ASM amount to that of the required margin. The ratio will be dependent on the amount of premium collections and on net incurred claims. (Assets, Liabilities, and Solvency Margin of Insurers) both life and general insurance companies need to maintain solvency margins[65].

While all non-life insurers are required to follow, the regulations as expected are calculated at four per cent of the reserves (that is the liabilities the insurance company could face) plus 0.3

per cent of the sum at risk. As a result, composite insurance providers in Nigeria are expected to maintain a solvency ratio of 1.5(or a solvency margin of 150%)[66]. The solvency of an insurance company corresponds to its ability to pay claims. The Solvency ratio is also a way investors (policyholders) can measure the company‘s ability to meet its long term obligations. An insurer is insolvent if its assets are not adequate (over indebtedness) or cannot be disposed of in time to pay the claims arising. Solvency margin is one of the indicators of financial soundness[67].

The solvency margin is intended to deal with issues that are typically unanticipated. Additionally, it gives insurance company executives flexibility to maneuver so they may fix issues and take preventative actions. Ordinarily, an insurance company with the requisite solvency margin is not likely to fail[68]. However, insurance Business is risky in nature and there can be no absolute guarantee. Events such as the terrorist attack can create unexpected liabilities of intense difficulty to anticipate and cover. Solvency is demonstrated by showing that the assets exceed the liabilities and to a large degree the bases are chosen by the company[69]. For supervisory purposes it is not just a question of the assets exceeding the liabilities, the assets must normally exceed the liabilities by a specified margin[70].

An insurance company's ability to pay claims is directly related to its solvency. The ability of the corporation to fulfill its long-term obligations can also be gauged by investors (policyholders) using the Solvency ratio. An insurer is insolvent if its assets are not adequate (over indebtedness) or cannot be disposed of in time to pay the claims arising[71]. Solvency margin is one of the indicators of financial soundness. Insurance companies with higher solvency margin are considered to be sound financially. Financially sound insurance companies are better able to attract prospective policyholders and are better able to adhere to the specified underwriting guidelines. By adhering to these guidelines, the insurance companies can expect a better underwriting result. Therefore, it is expected that the

relationship between performance and solvency margin would be positive[72]. A positive linkage between this variable and the insurer‘s profitability is expected, since the insurer‘s financial stability is an important benchmark to potential customers[73]. The solvency margin is intended to deal with issues that are typically unanticipated. Additionally, it gives insurance company executives flexibility to maneuver so they may fix issues and take preventative actions. Ordinarily, an insurance company with the requisite solvency margin is not likely to fail[74].

2.1.9 Insurance Financial Liquidity and Claim Payment Capacity

Liquidity is the capacity of a firm to meet the immediate financial obligation, and it is expressed as current assets to current liabilities. Liquidity ratio is not found significant with returns of assets being proxy of short-term financial position of the firm[75]. There are many theoretical reasons for assuming that liquidity directly affects the profitability of the company. Liquidity for insurance companies shows the ability of insurers to pay current liabilities, which have the nature of operating expenses or payment of compensation in case of damage[51]. The insurer's main sources of liquidity include net premium cash flow, investment returns, and asset sales[76].

Most studies in this field treat liquidity as a factor affecting profitability, representing it by the current ratio (current assets / current liabilities). Regarding the relationship between liquidity and profitability of insurance companies, the results of different studies have been different[60]. Some studies have concluded that there is a statistically insignificant link between liquidity and profitability for insurance companies[77]. While other studies suggest that there are statistically significant negative links between liquidity and profitability of the insurer[78]. There are many theoretical reasons for assuming that liquidity directly affects the performance of the company. However, despite the large number of theoretical papers with predictions related to

liquidity effect on performance, empirical researchers have not made this relation the center of systematic empirical investigation[79].

Another causal mechanism through which liquidity may discipline management is identified in; if management's compensation is tied to current stock prices, then increased liquidity increases the cost of opportunism to managers by facilitating informed selling or dumping. The distinguishing characteristic of the causative agency theories is that they predict that the effect of liquidity on performance will be related to the extent of the agency conflict within the firm[80]. In contrast to the agency-based causative theories, it shows that liquidity can positively affect firm performance even when agency conflicts are absent[81]. In this setting, liquidity stimulates the entry of informed investors (policyholders) who make prices more informative to stakeholders[82]. This feedback effect improves operating performance and relaxes financial constraints. Both effects increase firm's performance[83]. Further, non-financial stakeholders` decision to stay or go, affects firm's cash flows[84]. This is especially helpful when there is a shaky connection between stakeholders and the company or when there is a lot of uncertainty surrounding the cash flow for ongoing projects[85]. This is because positive cascades (success or good news begets more success) will be most valuable in this setting. Feedback theories imply that the effect of liquidity is proportional to the sensitivity of firm operations to the information content of stock prices. The relation between liquidity and performance has received considerable attention in financial economics from a variety of perspectives[86].

2.1.10 Underwriting Practice' contributions to Claim Payment Capacity

Underwriting involves the process of examining the risk brought before the insurer, whether to accept, moderate before acceptance or reject the risk. If to accept, at what rate of premium to be accepted, or if to be accepted with moderate, the necessary risk control measures will be applicable. The procedure isn't complete until all required underwriting documents are

available for accurate risk documentation, such as medical records that demonstrate the proposer's overall health or, in the case of life insurance, invoices that demonstrate the worth of the insured property[87]. The underwriter can also examine historical relevant risk data that can offer pertinent details about the statistical likelihood of a particular type of risk.

Underwriting is the process of evaluating the risks connected with the insurance subject matter in order to decide whether the risk should be accepted or refused. Underwriting is the process by which underwriters evaluate, accept, or reject risks for insurance (reinsurance) businesses; this process also includes determining the insurance periods, terms, and conditions, as well as liability limits, and determining the premium rates[88]. Underwriters are skilled insurance experts who carefully approve applications with very low loss exposures to reduce the consequences of unfavorable risk selection, that are good risk for insurance coverage with the intention of charging premium that is accurately reflective of the loss exposures in the pool of fund, take proper care of the applications, and monitoring the risk account book carefully[89].

Underwriting, in general, is the process by which a person or an organization accepts financial risk in exchange for payment. The practice of having each risk-taker place their name next to the entire amount of risk they were willing to undertake for a certain premium gave rise to the term "underwriter." Insurers generate profits from underwriting and from investment income. Their chief business is insuring against risks for a profit, and one measure of success is whether there is money left after paying claims and expenses[90]. A expert who can comprehend the dangers that the underwritten object is exposed to before accepting it is known as an insurance underwriter. This skill can be acquired through the application of theoretical studies to the risk as well as through years of dealing with comparable hazards and paying claims on those exposures[91].

Underwriting profit is a term used in the insurance industry. It consists of the earned premium that is still present after administrative costs and loss payments have been made. It excludes any investment income generated on retained premiums, which is computed as the difference between earned premiums received by an insurance firm and expenses and claims[92]. An insurer's underwriting income, for instance, would be $10 million if it received $50 million in insurance premiums over the course of a year and spent $40 million on insurance claims and related costs. Profit provision is set so that the present value of the underwriting cash flows and investment income on investible equity less income tax payments is equal to the present value of the changes[93]. The actions conducted by an insurer to determine if a potential insured is insurable, the cost of insurance, and its financial benefits are referred to as underwriting operations. In all, the key variables highlighted in the definition of the underwriting function, which requires further explanations as used in this study, are insurance premium, which is technically referred to as gross written premium, and underwriting profit[94].

The insurance premium or gross written premium is the amount of money charged by the insurer or paid by the insured to secure the services of the insurance. For underwriters to arrive at a sound rate for an insured to pay as premium, the professional adopts a method known as risk assessment. When an insurance applicant submits the proposal form to the insurance company, the job of the underwriter is to access the information contained therein and make recommendations to the company whether to accept the risk or not[95]. Premium is the rate that is charged to the insured, according to his or her expectations of loss or risk. The underwriting profit is arrived at by adding together the underwriting premium and increment from investment, deducts income taxes, loading expenses, administrative expenses, and genuine claim incurred. Underwriting profit is the total net premium earned resulting from fewer claims expenses incurred by insurance companies[96]. Nigeria as a black nation has the potentially biggest insurance market in Africa, but weaknesses in the industry meant that most

of the large insurance businesses were managed by foreign companies. Now the domestic industry is poised not only to penetrate deeper in the local market but to expand to other regions of Africa[97].

Underwriting capacity is the combination of the retention strength of insurance companies and the treaty or facultative cover provided by reinsurance companies to support their businesses. In its No. 5 principle issued in the month of January, year 2017 on Capital Adequacy management and Solvency margin of insurance companies, the body seriously intensified the principle of adequate technical provisions as the bedrock of a sound and healthy capital adequacy and solvency regime in insurance business operations globally[98]. This approach indicates how the position of advocates of risk-based capital determining the adequacy in insurance companies, or otherwise of the existing levels of capital in the industry. Underwriting capacity of any insurance company is the financial ability of that company that determine the limit of risk its shouldering. Financial capital is of essence in any viable business but the peculiar nature of insurance business requires more capital in the context of underwriting capacity[99].

Insurance companies in Nigeria have witnessed positive transformation in recent years arising from the new reforms embarked upon by NAICOM. This is enough to say that these reforms were intended primarily to reinforce the Federal Government's Vision 2020 of deepening insurance penetration in the economy to become the insurance industry of choice among the emerging markets in Africa, in terms of capacity, safety, transparency and efficiency in addition. Nigeria would achieve rapid and sustained sound economic growth if it efficiently embraces its insurance penetration whereby more members of the population buy one or more of the available insurance policies[100].

However, the inadequate capital base, dearth of appropriate human capital, poor investment returns; poor structures of corporate governance; and the absence of risk management framework are other major problems that have been preventing the Nigerian insurance sector to impact positively on the economy[101]. This is so because an organization's risk-taking attitude has aroused numerous researcher's interests because it concerns the financial interests of various corporate stakeholders[102]. This is significantly important in the financial institutions where the protection of the customers is always of the utmost concern. This means that the insurance companies are bed rock to the survival of economy, therefore, when accepting the risks from insuring public, efficient underwriting measure needs to be applied so as to ascertain proper rate of premium and minimize volatility in their own business. This is so because, one of the significant roles of an insurance company is the underwriting process, including selecting, classifying, and pricing of risk for insurance coverage[103].

The Nigeria environment is very unstable and unfriendly for investment do to political imbalance and current recession, but insurance companies have to invest in the economy because they are the bedrock of the economy. Insurance companies are creators of national wealth and mobilizer of funds for economic growth. This means that it has become necessity for insurance companies to invest, but Nigeria investment environment is challenging for fixed income securities for insurance companies, with low yields factored by high rate of inflation, and exposure to mark-to-market losses when interest rates rise currently[104]. The term 'investing" could be attributed to different business activities, but the common target goal in these activities is to "employ" the money (funds) during the period of time, seeking to enhance the investor's wealth generation[105]. Obviously, both insurance and reinsurance business operators engage their assets in investment to support, and meet up their business liabilities, therefore, return on investment is all-time determinant factor of their business' profit generation. Both insurers and reinsurers companies need to efficiently manage their

investment risks, and balancing the need to maintain a prudent diversification of their investments, whose risk is appropriate to the risk profile of their business liabilities, with the need for adequate and robust investment incomes[106].

The insurance companies mobilize large amounts of financial resources from the premium paid by the insuring public and use part of the funds to invest after official expenses[107]. The investment officers of publicly manage insurance companies are usually battling with the question of how best to contribute to shareholders value in their companies[108]. The authors scholarly submitted that it is wise enough to manage the investments of the insurance companies' operations independently, as if they were a closed-end investment company that happens to be funded by insurance underwriting activities[109]. For insurance companies to survive and unravel the threat of competitive environment, it is imperative enough for them to invest their long-term business premium into the economy wisely. And that there is an operational problem of determining an efficient way of evaluating organizations' investment returns, and the compounded rate of cash inflows should be more than that of cash outflows for insurance companies to avoid generating capital at a costly amount[110]. It is further stressed that the amount of investible funds generated by insurance companies at times depends on external factors, for instance, the efficiency of the judicial system in processing settlement of claims[111].

In Nigeria, the Insurance Act of 2003 established in Section 25(1) that "an insurance company shall at all time in respect of the insurance business transacted by the company in Nigeria, invest and hold investments in Nigeria assets equivalent to not less than the amount of policyholders' funds in such accounts of the insurance company[112]. Therefore, it is better to invest the insuring public's funds primarily in defense of the firm's liabilities and thus support the investment operations of a company whose principal value derives from its insurance

activities[113]. And that the investment objectives of insurance companies among others are mainly future safety, liquidity and growth of their business[114]. It is utmost true that these objectives which form the basis of investment portfolio structure of insurance companies are based on their liabilities, their operational focus and guidelines of the industry's stakeholders which differ from one economy to another and that the insurance companies' investment policy should have two basic aims which are: to treat insurance reserves with a sound fixed-income portfolio; and earning "abnormal returns" on their surplus in "a responsible and disciplined" manner. They argued that net investment income ("NII") is the best indicator of a company's performance and that active efficient management and portfolio strategies that aim to generate an increasing but stable NII will increase market value. Insurance companies actively participate in government securities, loans, housing, and real estate development, among other sectors of the economy, as institutional investors (policyholders)[115]. But because these money are for long-term contracts and come from the life assurance market in particular, insurance companies are able to invest them into the economy[116].

Typically, insurance companies arrive at underwriting profit by adding together the sum of underwriting premium and investment gains, deducts income taxes, loading expenses, administrative expenses, and genuine claim incurred. In summary, underwriting profit is the total net premium earned less claims and expenses incurred by insurance companies. Before 1960s, a minimum 5% underwriting profit provision was allowed as appropriate for most lines of insurance companies notwithstanding inadequate theoretical justification. [117] Insurance companies should see underwriting profit as the utmost concern within the limitation of regulations, in both real and threatened situation. Insurance companies can continue to exist even in the absence of any underwriting profits and still perform better than those that are simply acting as investment trust companies[118]. Any insurance company operating in an

unfavorable business environment with constraints on its business operating policies, the constraints are arrived at through experiences and intuitions[119].

The total profit for an insurance company is roughly the sum of underwriting incomes plus investment gains less taxable income[120]. Accordingly, the shareholders fund and the premiums earned, another factor that adds to the profitability of the company is investment income. The investment income of an insurance company include the sum of interest, dividends realized, and real estate income plus capital gains realized[121]. The money earned from investment can be used for reinvestment, and adding more to the company's profit margin. Companies can make an overall profit with healthy investment, even if underwriting business is at negative[103]. Although, a certain percentage of it which depends on how much the investors (policyholders) contributed is distributed among the shareholders, and also, negative underwriting performance can lower income taxes by offsetting otherwise taxable investment gain[122, 123]. Therefore, it is worthy to know for the insurance companies that if the premiums realized to surplus ratio increases, then the investment gain on assets will be likely to reduce because, the percentage of un-invested assets emanating from the insurance business operations, such as cash flows and agents' balances, will tend to increase, and with a higher premium to surplus ratio the element of risk to the company's equity becomes more and this would have to be compensated for by a more conservative investment policies[124]. However, the negative effect of investment income on premiums of insurance companies is expected, which is attributed to the fact that the insurance may adjust the underwriting margin as the basis of premiums according to the gain/loss of their investment to reach a target rate of return on equity[125].

An insurance company can peacefully and safely write larger risks that would invariably increase premium volume if the company underwriting results are more attractive, and favorable. A rise in profit/interest rates produces greater returns on company's investment

assets, and this will increase the total returns of the company, provided the returns are not counteracted by lower underwriting incomes[126]. General insurance companies generate investible funds for two principal reasons; premiums paid in advance and time lag on payment of claims. The funds generating factors are separated from among lines of insurance business due to variation in claims payment lag time[127]. Under property insurance business, claims are settled relatively faster, thus loss reserves are comparatively slower, inherently settlement of claim delays under Liability lines of business, this permits the insurance company to hold and invest premium balances into the economy for longer period, for these lines of business, funds generating factors are higher compared to property lines of business[128].

2.1.11 Asset Tangibility and financial Performance of Insurance Industry

Many literatures presented a positive relationship between asset tangibility and performance. It is also considered to be the major determinant of a firm‘s performance. The most prevalent defense states that a company's decision to take on debt was made more likely by its high asset base proportion of plant and equipment (tangible assets), which also affects the firm's performance. A company that maintains significant investments in tangible assets may experience financial crisis at a lower cost than a company that relies heavily on intangible assets[129].

It is anticipated that there will be a favorable correlation between asset tangibility and firm performance. Prior research points to the importance of intangible assets on firm value it is natural to expect that firms with greater intangible assets operate more efficiently ceteris paribus and thus, have better operating performance[110]. Little is known however about the effect of intangible assets specifically on insurers. Insurers’ intangible assets would include brand name, personnel, renewable business, and expertise in claim service and underwriting. Given the importance of brand loyalty and reputational effects for a financial security product

like insurance, it would be expected that insurers with greater franchise value would have a competitive edge[130].

Literature has shown that growth rate has several explanations for the positive association between growth and firm's performance. Growth facilitates all the way to the implied opportunities for investments in new equipment and technologies that upgrade the production process as a whole[131]. He also uses geometric mean of annual percentage increase in assets as a surrogate for growth rate. In addition, an asset's growth rate between two price points can be calculated using the following formula:

$GRT = ATP_2 – ATP_1 / ATP_1$.

Where:

GRT = Growth rate

AT = Asset Tangibility

P1 = the early price point

P2 = the later price point

Similarly, when managing finances from year to year, a company can calculate the growth of its assets both as a raw number and as a percentage. Calculating the growth of assets as a percentage allows firms to put gains in the context of how much money have to be invested to achieve that growth. It can either calculate as the total asset growth, or calculate the growth of particular assets to determine which of the assets are performing best. This study indicates that short term and long term leverage including tax and tangibility have negative correlation with firm's performance while growth, size, risk, liquidity and non-debt tax shield have positive correlation with firm's performance[132]. It is critical to understand how that asset can be expected to behave in the future. A high, stable growth rate is the obvious desired outcome. Calculating an asset's historical growth rate over a lengthy period of time is one method of

estimating expected growth. The historical growth rate is a solid predictor of the future growth rate since an asset may be expected to behave consistently[133].

2.1.12 Insurance Industry and the Nigerian Economy

The channels through which insurance can positively impact on the economic growth have been identified in many literatures by different contributors. These include utilizing domestic savings, managing various risks more effectively, minimizing losses, allocating domestic capital more effectively, and fostering financial stability[134].

Numerous studies have tried to pinpoint the numerous ways that insurance might influence economic expansion. There are three schools of thinking on the nature of the connection between insurance and economic growth in the literature. The first school of thought postulates that insurance leads to economic growth while in contrast, the second school of thought argues that economic growth leads to the development of insurance sector[135]. The third school of thought suggests directional relationship between insurance development and economic performance[136]. The available empirical evidence on the insurance-growth relationship has produced mixed results. Therefore, a study on the causal relationship between insurance and economic growth in Nigeria (1986-2018) uses Vector Error Correction model (VECM)[137].

In the study the co-integration test shows that GDP, premium, inflation and interest rate are co-integrated when GDP is the endogenous variable. The Granger causality test reveals that there is no causality between economic growth and premium in short run while premium, inflation and interest rate Granger cause GDP in the long run which means there is a non-directional causality running from premium, inflation and interest rate to GDP. This means the insurance industry contributes to the economic growth in Nigeria as they provide the necessary long-term funds for investment and while also absorbing risks.[138] The study

examines the impact of insurance practice on the growth of Nigerian economy. Insurance premium income, total insurance investment and income of insurance development was used as determinants of insurance practice. The study employed unit root tests, Johansen co-integration test and error correction model in data analysis and to determine the short and long run effect of the model. The study also observed that the insurance premium capital has significantly impacted on economic growth in Nigeria; that the level of total insurance investment has significantly impacted on the economic growth in Nigeria; and that there is causal relationship between insurance sector development and economic growth in Nigeria[139]. The practice of insurance sector in Nigeria has played a crucial role in the development of the economy and in managing the risks of households and firms through the issuance of insurance policies and mobilizing and transferring funds to the deficit unit for financing real sector investment. Similarly, insurance companies affect economic growth by providing protection for the insured through the channels of marginal productivity of capital, technological innovation and savings rate[140,141,142].

Furthermore, in the research work which assessed the insurance market activities in Nigeria with the view to determining its impact on economic growth within the period of the study, the use of insurance density was measured (premium per capita) as a measure for insurance market activity and real GDP for economic growth[143]. In addition, it used savings rate and inflation as other growth-related control variables. The Johansen co-integration and vector error correction approach was used to estimate the relationship between the variables. All the variables used were stationary at first difference and the result showed a long-term relationship existing among the variables. The hallmark finding of this study is that the insurance sector did not reveal any positive and significant effect on economic growth in Nigeria within the period of study. The outcome demonstrates that Nigeria's insurance market

is underactive and that, despite the sector's relevance to the country's economic development, Nigerians have not completely embraced it[144].

A study was conducted to analyze both the long and short run relationship between insurance development and economic growth in Nigeria over the period 1986 to 2018. The study used Error Correction Model (ECM), and found that insurance development co-integrated with economic growth in Nigeria. That is there is long run relationship between insurance development and economic growth in Nigeria. The results also show that physical capital and interest rate both at contemporary and one lagged value has significant positive effect on economic growth in Nigeria while physical capital and inflation has negative long run relationship with economic growth. The results of this study indicated significant contribution of the insurance sector to economic growth in Nigeria[145]. The insurance industry has continued to play a notable role both in the private and public sectors of the Nigerian economy through risk bearing, employment of labour, payment of tax and other financial investment services. In addition, insurance industry facilitates innovation within an economy by offering to underwrite new risks. Productive initiatives are developed through the coverage of insurance policies[146]. Further, the insurance services are capable of risk transfer services, increase productivity and investment within the economy. Different participants in insurance business/ classes of insurance normally pay their consideration/ premium. These insurers raise the money, which they then use to cover damages. A portion of these cash is typically placed in other uncertain firms or corporations. For instance, the cash could be used to invest in blue-chip stocks, bringing yearly dividends to the insurance business[147]. Insurance companies encourage business owners to invest in, grow, and diversify their numerous enterprises. By doing this, they support the country's overall industrial, commercial, and economic development[148].

Recently, several interesting lines of research have begun to map the specific contributions of insurance to the economic growth processes as well as to the well-being of the poor. In particular, several studies have focused on the relationship between insurance and economic growth. However, no consensus has emerged on the impact of insurance development and economic growth[149,150,151]. A study found evidence of bi-directional relationship between insurance and economic growth while a handful provided evidence of neutrality of insurance and economic growth[152]. In view of the literatures reviewed above, it can be deduced that the role of insurance in the growth and development of our economy is crucial. This is due to the sector's significance in the chain of financial intermediation and its availability as a rapid source of long-term finance for infrastructure projects[153]. The role of Insurance to the Nigerian economy is very important, since it facilitates firms' capacity to operate under a greater degree of security without the need to set aside capital in highly liquid contingency funds[154]. It is important to note that the availability of insurance means that funds can be invested in the various sectors of the economy to stimulate a higher level of economic activity and aid to economic development[155].

The role of insurance sector in mitigating sudden and devastating occurrences thereby stimulating economic growth cannot be over emphasized. Both in developed and developing countries, insurance sector contributes to economic growth of a nation. Since the insurance sector has links to sectors such as industrial, transportation, agriculture, mining, petroleum and trade both locally and internationally, its relevance to general human activities has continued to grow for all ages as all categories of risks increase[156].

2.1.13 Brief Historical Development of the Insurance Industry in Nigeria

In Nigeria, insurance business behavior can be traced back to the actions of British merchants in 1874. These British merchants began their insurance business as agents for British

insurance companies, with marine insurance being their main focus. These Nigerian agents packaged and organized insurance coverage for imported and exported goods[166]. European traders introduced the modern insurance business into West Africa in the early twentieth century to provide financial and economic protection for their businesses. While the headquarters office was in Europe, all underwriting was done at the metropolitan head office. Local agents were then appointed to represent their interests in the country. The Royal Exchange Assurance opened the first branch office in Nigeria in 1921, followed by other British companies. The growth of the insurance industry in the country was initially slow, particularly between 1921 and 1949. This can be attributed to the negative impact of World War II on trading activities in both the United Kingdom and Nigeria. As soon as the war ended, business activities gradually resumed, and Nigeria's insurance industry began to show remarkable growth[157].

The African General Insurance Company Limited, the first indigenous insurance company, was founded in 1958. Only four (4) of the twenty-five (25) firms in existence at the time of independence were indigenous. Following this development, the country saw the establishment of more insurance companies. As a result, the report of the J.C. Obande Commission of 1961, which resulted in the establishment of the Department of Insurance in the Federal Ministry of Trade and later transferred to the Ministry of Finance, was the first major step in regulating the activities of the insurance business in Nigeria. The report also resulted in the passage of the Insurance Companies Act 1961, which went into effect on May 4, 1967. The 1961 Act, which was primarily concerned with the activities of direct insurers, included provisions for registration and record keeping[158].

Furthermore, Insurance Companies Regulations were implemented in 2017 to facilitate the implementation of Insurance Act 2003, which classified insurance businesses into different

classes for registration purposes and relevant forms for record keeping. The 2005 NAICOM regulation was put in place to shore up the minimum share capital passed by the Act 2003 which was considered to be on the lower side to facilitate the financial strength of the insurance companies in the country[159]. The 2003 Act set a meager N150,000,000 and N200,000,000 as the minimum capital requirements for life insurance companies and general insurance companies, respectively. Indigenous Nigerian insurers, such as NICON, which was founded in 1977, soon followed[160].

However, the Insurance Decree No. 59 of 1976 was enacted, combining the provisions of the various laws. Among the provisions of the 1976 Decree were the following: condition for authorization of insurers, mode of operation, amalgamation and transfer, administration and enforcement, and penalties. The Insurance Decree No. 59 of 1976 was Nigeria's first comprehensive law governing and supervising the insurance industry. By 1976, the number of indigenous firms had far outnumbered that of foreign firms. In 1977, the Indigenous Nigerian Reinsurance Corporation was established. However, all these provisions have been modified as contained in the Insurance Act 2003[161].

The National Insurance Commission (NAICOM) was established in the year 1997 and saddled with the responsibility of regulating and supervising the insurance business in Nigeria. It took over from the previous regulatory body, the Nigerian Insurance Supervisory Board. The Federal Ministry of Finance issued licenses and oversaw insurance companies before to 1992. Because of historical concerns over the life insurance industry, Decree 40 of 1988 was passed, which included provisions for named beneficiaries on life insurance policy documents and the assignment of life insurance policies. The Agricultural Insurance Scheme was started on November 15, 1987. The Nigerian Agricultural Insurance Company Limited, which was later created in June 1988 but later changed to a Corporation in 2005 by the enabling Act 37 of

2005, was initially responsible for carrying out the Scheme. The Nigerian Agricultural Insurance Corporation is thus a wholly owned Federal Government of Nigeria insurance company established specifically to provide agricultural risk insurance coverage to Nigerian farmers[162].

The National Pension Commission (PenCom) was established by the Pension Reform Act of 2004 as the body responsible for regulating, supervising, and ensuring the effective administration of pension matters in Nigeria. The key principles governing the pension reform program are sustainability, benefit safety and security, transparency, accountability, equity, flexibility, inclusivity, uniformity, and practicability. The most recent Pension Act repeals the Pension Reform Act No.2, 2004 and enacts the Pension Reform Act, 2014 to continue to govern and regulate the administration of the Uniform Contributory Pension Scheme in Nigeria for both the public and private sectors[163]. The most recent Act was the Nigerian Insurance Act of 2003, which recapitalized the country's insurance companies. The goal of insurance sector reforms is to achieve consolidation, which will result in companies capable of meeting claims obligations and competing on a continental and global scale. The Insurance Act of 2003 required insurance companies to increase their capital bases, with February 2004 designated as the compliance month. Following the recapitalization period, the number of companies was reduced from 117 to 103[164].

Insurance companies were also required to increase their capital bases on September 5, 2005, and they were given a maximum of 18 months to comply with the 2005 recapitalization requirements (From 5th September, 2005 to 28th February, 2007). Following the completion of the 2019/6 recapitalization exercise, which included a number of consolidations, the number of insurance companies fell from 103 to 49 as of December 31, 2007. As a result of a lack of trained manpower, intense competition from superior foreign companies, and a lack of

adequate and sufficient capital base on the part of indigenous insurance companies, poor infrastructural development, and the poverty of the Nigerian capital market, indigenous Nigerian insurance companies were not profoundly entrepreneurial at an earlier stage[165].

The early indigenous Nigerian insurance companies were owned and operated by regional governments, and their patronage came primarily from the governments that owned them. The relatively good performance of these regional insurance companies, combined with the liberalized regime of the day's governments regarding industry regulations, resulted in the proliferation of insurance companies. Because of this proliferation, insurance companies have been tasked with developing and implementing efficient and effective marketing strategies, in addition to other strategies, in order to meet organizational goals and objectives[166].

The Nigerian insurance market currently consists of buyers and sellers of insurance, as well as intermediaries (agents) who connect the two. Additionally, the market needs regulators, representing bodies or groups, consultants, and technical advisers[167]. The buyers of insurance can be segmented as follows: Individuals and families, governments (federal, state, and local) and their agencies, parastatals, multinationals, conglomerates, manufacturing industrial concerns, small and medium-sized industries, banking industry, health institutions, tourism and hospitality industries, hotels, transportation industry, other corporate bodies, educational institutions, oil and energy industry. Buyers can be further segmented for marketing purposes to suit the insurer's or insurance agent's strategy. Insurance brokers and agents are the most common types of intermediaries[168].

The Nigerian insurance market has been described as a brokers market because brokers currently control over 90% of premium income, leaving less than 10% for insurance agents and even direct marketing channels used by insurers. In contrast, the banking industry has emerged as a formidable channel for distributing insurance services, not necessarily as

intermediaries, but by facilitating a form of direct marketing by insurers. When insurance is viewed from various forms of its classification, it is always easy to appreciate the social and economic importance of insurance[169].

2.1.14 The Role of Insurance Industry

A Risk Transfer and Loss Sharing Mechanism: In this regard, the function of insurance is in two fold. One is that it is a mechanism for transferring a risk from one individual to a group. The other involves all group members sharing losses on a known equitable basis. It is a method of economic organization that transfers money from the many who bear a particular risk to the few who are impacted by the risk's occurrence. It makes the financial consequences of the risk fall lightly on many than falling heavily on few.

A Social and Welfare Device: By compensating a victim of an accidental misfortune, the insurance industry is promoting individual and corporate happiness and a healthy society.

It encourages Business Pursuit and Stability: Insurance has been described as the "handmaiden of commerce and industry" and the only business which exist in order to ensure the survival of all other business. Purchase of insurance product promotes confidence and eliminates insecurity and fear of loss. Without the protection offered by insurance to other businesses, the modern economic system, which we operate today, would almost certainly grind to a halt; reduction of the risk of business venture ensures a better psychological frame of mind to enable the entrepreneur concentrate and devote his skill to the improvement of his business for the benefit of the whole economy.

Insurance Offers Indemnification against Unexpected Loss: Insurance stands as a guaranteed source of funds when the availability of other sources fails as a result of the loss. Adequately protected, business need not to face the grim prospects of liquidation, following a

loss. Also a business entity can be continued without interruption even though the key person or sole proprietor dies.

Insurance Helps to Mobilize Idle Capital for Investment in the Economy: On the fear of losing their investments, many investors tie up a substantial amount of capital in idle reserve. The effect of insurance in this regard is to mobilize these funds and release them for the development of trade and industry which would probably not have place in the absence of insurance. Scholars from all over the world have attempted to define insurance based on their personal experiences. Insurance is intended to protect an individual's, companies, or other entity's financial well-being in the event of an unexpected loss[170]. According to him, some types of insurance are required by law, while others are optional. By agreeing to the terms of an insurance policy and paying the premium, the insurer and the insured form a contract. Insurance is a complex subject that involves economic and social devices for dealing with risks to life and property. It is social in nature because it represents the collaboration of various individuals for mutual benefit by collaborating to reduce the consequences of similar risks. As every new area of risks, and since new insurance package is mounted to take care of more and more areas of risks, the insurance industry flourishes[171].

Furthermore, insurance is a financial institution that, through a two-party contract, allows the transfer of financial risk from an individual to a pooled group of risks. For a smaller but certain payment, the insured party obtains a specified amount of coverage against an uncertain event.[11] Similarly, insurance is defined as the identification of a purchaser of an insurance contract against losses that may occur as a result of the occurrence of specified types of events following the payment of a consideration known as premium[172]. Insurance also refers to a contract between an insurer/assurer and an insured/assured in which one party agrees to assume the risk of another in exchange for a sum of money known as a premium. Insurance is defined as the business of pooling resources to compensate the insured or

assured (i.e. the policy holder) in the event of a specified event in exchange for a periodic consideration known as premium.

Insurance is a mechanism for reducing an individual's or organization's uncertainty by exchanging or transferring specific risks to the insurer, who provides a form of economic restoration, albeit partial, to the insured for losses incurred. Insurance is a financial tool used to transfer or shift risk from an individual or entity to a large group of people who face a similar risk. This is accomplished through a contract with an insurance company, known as an insurance policy. Under this arrangement, the individual, along with other insured, pays a premium to the insurance company, and the insurance company agrees to pay the individual a sum of money (indemnity) if the events described in the policy occur. It should be noted that an insurance contract is typically evidenced by a document known as an insurance policy, which is typically signed by the insurer or assurer or his agent[173].

In exchange for a steady stream of premiums, the insurance industry assists buyers in organizing their risk. Insurance companies offer to pay conditioners an additional sum of money in the event of a predetermined event, such as a natural disaster. To put it another way, insurance companies create value by pooling and redistributing various types of risk. It accomplishes this by collecting liabilities (i.e. premiums) from every person it insures and distributing them to the few who truly require them. Theoretically, insurance companies make money in two ways: To begin, they will have to pay enough premiums to cover the expected payouts over the life of the principle. Secondly, the use of collected premiums to earn investment returns (the float). Insurance is used to compensate or restore a policyholder to his or her pre-loss condition[174].

In exchange for a large, uncertain financial loss, the individual accepts a known cost, the premium. According to the Nigerian Insurance Act 2003, there are two types of insurance

businesses in Nigeria: life insurance and non-life (general) insurance. Under Nigerian law, an insurance company may engage in both activities. As a result, the general insurance business can be divided into several categories, including fire, accident, oil and gas, contractors all risks, and engineering risks; marine and aviation, credit insurance, bond, and surety ship, among others. Life insurance is the second type of insurance business in Nigeria, and it includes individual life insurance, group life insurance and pension business, health insurance business, and annuities and that actuarial literature distinguishes three types of life insurance policies: (a) whole life insurance, which provides coverage for a lifetime; (b) term life insurance, which provides coverage for a set number of years; and (c) endowment life insurance, which is a term life insurance with a savings component[175].

In general, life insurance is a risk management tool and a means of saving for consumers. The idea behind insurance is that a group of people who are exposed to similar risks band together and contribute to the formation of a pool of funds. If a person suffers a loss as a result of such risk, he is compensated from the same pool of funds. As a result, contributions to the pool are made by a group of people who share common risks, and premiums are collected by insurance companies. Furthermore, risk contains an element of uncertainty. Human life is threatened by the risk of death and disability as a result of natural or unnatural causes, diseases, and hazards. Moreover, loss or damage can happen at any time, and losses can be mitigated with insurance. As a result, any introduction to insurance must begin with a firm grasp of the concept of risk. Many insurance professionals use the term risk to refer to an insured, a prospect for insurance, or the peril being insured in this context. They will state whether a specific person or property is a good risk or a bad risk, indicating that they have evaluated the underwriting characteristics of that person or property for a specific insurance policy[176].

2.2 Theoretical Framework

2.2.1 Innovations Theory of Profits

The Innovation Theory of Profit was proposed by Joseph. A. Schumpeter, who believed that an entrepreneur could earn economic profits by introducing successful innovations. In other words, the innovation theory of profit proposes that an entrepreneur's primary responsibility is to develop innovations, and profit is provided as compensation for his efforts. Innovation refers to any new policy that an entrepreneur undertakes to reduce the overall cost of production or increase the demand for his products. Thus, innovation can be classified into two categories; the first category includes all those activities which reduce the overall cost of production such as the introduction of a new method or technique of production, the introduction of new machinery, innovative methods of organizing the industry, etc.[177].

The introduction of a new good or service, the emergence or opening of a new market, the discovery of new raw material sources, the development of a new variety or design of the product, etc. are all considered to fall under the second category of innovation. According to the innovation theory of profit, an entrepreneur makes money if his innovation is successful in lowering the total cost of manufacturing or raising demand for his product. Profits are frequently obtained for a shorter period of time since competitors copy the innovation, which makes it no longer be fresh or inexperienced[178].

Earlier, the entrepreneur was enjoying a monopoly position in the market as innovation was confined to himself and was earning larger profits. But after some time, with the others imitating the innovation, the profits started disappearing. An entrepreneur can earn larger profits for a longer duration if the law allows him to patent his innovation. Such as a design of a product is patented to discourage others to imitate it. The cost of manufacturing tends to rise as a result of rising factor prices over time, even though the supply of those factors remains

constant. On the other hand, with the firms adopting innovations the supply of goods and services increases and their prices fall. Thus, on one hand the output per unit cost increases while on the other hand the per unit revenue decreases[179].

The following reasons have led to criticism of the innovation theory of profits:

1. It ignores the element of uncertainty.
2. In addition to innovations, there are many other factors which give rise to profits.
3. In modern enterprises, it is the entrepreneur who bears the risk, not the capitalist as Professor Schumpeter believes.

The innovation theory does not take into consideration the element of uncertainty as an important factor giving rise to profits. Since the entrepreneur would be able to make money even in the absence of innovations provided he can predict the future with a reasonable degree of accuracy insofar as the changes in the demand and supply conditions are concerned, the major focus should be on uncertainty rather than innovation.. Besides innovations, there are several other factors which give rise to profits, for example, existence of monopoly, chance profits etc[180].

The theory also does not consider profits as the reward for risk taking. According to Prof. Schumpeter, "The entrepreneur is never the risk bearer. The one who gives credit comes to grief if the undertaking fails." This, however, is not correct, for we know that in the modern industrial organization, it is the entrepreneur and not the capitalist who bears the entire risk of business. – Lastly, it has also been said that the function of the entrepreneur is not only to introduce innovations but also to organize the business in the most efficient manner by coordinating the activities of the various factors of production. As such, profits are not

exclusively due to innovations but also due to the superior organizational ability of the entrepreneur[181].

2.2.2 Risk Management Theory

In order to reduce, monitor, and control the likelihood and/or impact of unfortunate events or to maximize the realization of possibilities, risk management entails the identification, assessment, and prioritization of risks. Effective risk management may have a significant positive impact on all firms, regardless of size or industry[182]. A closer internal focus on doing the right things, more efficient use of resources, reduced waste and fraud, and better value for money, improved innovation, and better management of contingent and maintenance labor are some of these advantages. They also include superior financial performance, a better basis for strategy setting, improved service delivery, greater competitive advantage, less time spent fighting fires and fewer unpleasant surprises, increased likelihood that change initiatives will succeed, and less time spent on firefighting[183].

By developing a strategy based on clearly defined risk management techniques and then integrating them, the theory assures that a business uses risk management in a cost-effective manner. These risk management techniques include enterprise risk management, financial risk management, operational risk management, and strategic risk management techniques[184].

Technology has disrupted the entire business world and the field of risk management is no exception. All across the world, companies have been spending millions of dollars in order to upgrade themselves and use technology in a manner that helps them minimize risks. There are several advantages to this approach, however, there are also some disadvantages related to risk management information systems.

The first drawback of automated risk management information systems is that not all businesses will find them useful. These technologies are only helpful for businesses that fit a specific profile. Following are a few characteristics of these businesses:

Companies that have a large number of risks to track benefit from using risk management information systems. Hence, if a company does not own a lot of movable and immovable property and does not use several different risk management products, the integrated system may have limited utility.

If a company does not have to deal with a large number of third party vendors with each transaction having its own different terms and conditions, the risk management information system may not be very useful.

If a company does not have its business interests located across different geographical areas and hence is forced to use different currencies and languages, the risk management system may be unnecessary.

If the company does not need automated actions to be taken based on certain pre-defined business rules then risk management information systems may not add value to the business proposition of the company

The bottom line is that risk management information systems are valuable only for companies which have a wide variety of complex business interest that span various geographical areas. For small and medium-sized companies, using simple spreadsheets to manage the risk seems like the best alternative.

Information systems for risk management can be very expensive. They are frequently offered for sale as stand-alone programs or as programs that may be connected with the main enterprise resource planning program. In either case, designing and implementing these

systems can be time- and money-consuming. To make matters worse, the implementation of information systems is not a one-time activity. These systems need to be updated every few months and hence there are significant maintenance costs associated with their purchase. Also, access to risk management software is often restricted to higher-level employees. Hence, business stoppages have been reported since employees have to wait for their managers before performing certain tasks. These business stoppages also cost money and add to the expense of the software.

Risk management software can be complicated to use and this is one of the reasons employees have to be trained to use them. Also, if employees leave the organizations, their replacements have to be trained, this training takes time and also costs money. Hence, productivity goes down and expenses go up. As mentioned earlier, this makes the cost of implementing risk management information systems prohibitive for smaller and medium-sized companies.

Employees must gather data from many organisational departments in the absence of automation. This aids in connection building and the discovery of behaviors that increase risk exposure for the organization. The entire data collection and processing procedure is automated in a risk management information system. In some cases, systems are being programmed to make decisions based on available data using artificial intelligence. However, as more and more tasks become automated, employees interact less with the processes and thus have a lesser understanding of the systems and processes. This is the reason why the gains from automation often end up being offset by the losses arising due to lower process knowledge.

Lastly, risk management information systems collate all of the organization's important data in one place which creates data security risks. Important data may be compromised if the risk

management information system is breached, which could cause serious harm to the business. Details regarding the assets, employee personal data, financial data are all part of the risk management information system. Centralization of data brings advantages in the data processing. However, it also creates a situation wherein the data security of the organization is jeopardized. The end result is that organizations have to spend large sums of money in order to protect sensitive data. This ends up adding to the overall cost of having a risk management information system.

The bottom line is that it is not feasible for every company to have an integrated risk management information system in place. Since the costs are so high, companies need to have large-scale operations before they can afford these systems. In the absence of large-scale systems, it would be better to use spreadsheet-based or lesser sophisticated systems rather than incurring cost overruns because of investing in the more sophisticated ones.

2.2.3 Multivariate Theory

The multivariate theory examines two or more factors concurrently and then takes into account how they interact to anticipate losses in the insurance sector. In order to anticipate the trends or correlations of balance sheet and profit or loss account items, commercial enterprises utilize advanced regression and time series models. This allows them to foresee the likely future course of events. The ability of insurers to predict future activity is crucial[185]. This estimation aids them in avoiding adverse selection, which occurs when people who purchase insurance are those who have a high likelihood of experiencing serious risks that result in claims that are higher than the amount of premiums paid[186].

Previously, insurers calculated premiums using univariate analysis, which only included one element, such as the insured's age. However, with the development of technology, multivariate analysis, which takes into account numerous parameters, is now employed to

obtain the premium. Predictive analytics are now being utilized to decide what additional information is necessary to receive the premium as a result of this. The outcomes of predictive analytics demonstrate likely occurrences, with the majority of outcomes indicating a higher likelihood of the event occurring[187].

The researcher used the multivariate theory as the main underpinning theory in this research work. As it is the examination of two or more factors concurrently to predict losses, the most common factors used in the insurance companies are the controllable and uncontrollable factors. Uncontrollable factors like flood, earthquake as well as controllable factors such as the claims handling strategies put in place by claims managers are constantly under examination and are thus good predictors of loss. Upon prediction of imminent loss or losses adequate steps are taken to minimize them.

2.3 Review of Empirical Studies

This section evidently provides the related past works, the methodology adopted, the techniques, and conclusion as well as recommendation. These could be employed to verify the data regarding how claim payment impacts financial performance.

A study evaluated the relationship of insurance sector development with the growth of Nigerian economy between 2003 and 2020. The study analyzed the time series data by employing the Autoregressive Distributed Lag Model. Thus, findings indicated that insurance sector productivity was a statistically significant determinant of economic growth with coefficient 0.8092 (p-value = 0.02500.05) while insurance sector total asset was indicated as a weak and negative predictor of the Nigerian economy with coefficient -0.0919(p-value = 0.4180<0.05). Accordingly, the study concluded that the development that took place in the insurance sector during the scope of this study significantly promoted growth in the Nigerian economy and consequently recommended that the Nigerian government should consider

insurance sector as one of those sectors that are critical to Nigerian economic growth, and should be so treated by according it same attention with banking sector and other critical sectors of the economy[188].

A study investigated the connection or nexus between insurance penetration and economic growth in Nigeria. Ex-post facto research design is adopted for the study. Secondary data were sourced from Central Bank of Nigeria (CBN) Statistical Bulletin, National Insurance Statistics and Directory, National Bureau of Statistics, World Bank database, Nigeria Insurance Digest, and CIA World Fact Book, for the period of fourteen years (2004 - 2017). Data analysis was undertaken using Ordinary Least Square (OLS) method. The findings of the study suggested that insurance (life and non-life) penetration and claims settlement impact on economic growth in Nigeria during the period considered (2004 - 2017); and insurance (life and non-life) penetration impact positively on the economic growth in Nigeria during the period. The results revealed that non-life insurance penetration and insurance density had a negative impact on economic growth in Nigeria. Nonetheless, life insurance penetration and claims settlement had no significant impacts on economic growth in Nigeria. The study findings suggested amongst others that intense effort is essential to entrench the knowledge and importance of insurance to promote economic growth and growth of the insurance industry through local media, social media, development of new products to meet the insuring public needs, and improved customer service strategy[189].

A study explored the impact of non-life insurance industry performance on economic growth in Nigeria. Insurance penetration is measured through five diverse proxies such as non-life insurance, savings, expenditures, investment and profits of the insurance industry with their time-series statistics covering the period 1988 and 2012. The ex-post facto research strategy and purposive (judgemental) sampling technique were discovered appropriate for the study as effectively utilised by several intellectuals in the past. Data were analysed using regression.

The ordinary least square regression was adopted for the testing of the hypotheses. The outcomes of the study showed that non-life insurance penetration had a substantially positive effect on the economic growth in Nigeria during the period. Profit and investment are found to have a positive effect on the economy but statistically insignificant while Savings and government expenditure have an adverse effect on the economy. The study recommends an improved modification in insurance products, especially in non-life businesses to availing clients the chance of choosing from a diversity of products. The study, therefore, recommends an increase in the awareness of non-life insurance services for its impact to be felt at all levels and to encourage participation[190]. A study reviewed the effects of claims management on profitability of insurance firms in Nigeria with a view to examine the effect of net claim, expense ratio and loss ratio on the return on asset of listed insurance firms in Nigeria from 2010 to 2018. Time series annual data were collated from financial statement of account of insurance companies. The data were analysed via regression analysis which involved ordinary least square estimation technique. The study found that net loss has direct and significant effect on return on asset, expense ratio has positive with an insignificant effect on return on asset and loss ratio has an indirect with an insignificant effect on return on asset of quoted insurance firms in Nigeria. It was concluded that, claims management promote positive influence to insurance companies' profitability in Nigeria. Thus, insurance companies in a bid to make profit should not forget the main reason for their existence which is bringing the insured back to his/her pre-loss position by paying genuine claims. Therefore, all efforts should be made to pay genuine claims promptly as this increase the confidence of the general public in insurance and the industry as a whole[20].

A study assessed insurance premium and Nigeria's economic performance. It aimed at finding out the relationship insurance premium, investment and assets have with Nigeria's GDP. Descriptive statistics, Augmented Dickey Fuller Unit Root Test, Johansen

cointegration, OLS regression, variance decomposition and granger causality tests were adopted. Findings revealed that all the series are significant and but not normally distributed. The correlation matrix shows that there is high and positive correlation between the independent variables. The results of the unit root tests using Augmented Dickey-Fuller test show that all the variables do not have unit roots (that is, are stationary) at 5% in their first differences. The Johansen co-integration result confirms that there is long run relationship between insurance activities and economic growth in Nigeria. The OLS result suggests that 93.11 percent of the total variation found in GDP is explained by the presence of total assets, investments and premium of the insurance industry sector while the F-Statistics has a value of 163.1080 which is highly significant at 5% confidence level implying that insurance industry play significant role in development of the Nigerian economy. The Variance Decomposition for 10 period indicates that Insurance sector investment is more significant than premium for most of the periods. However, since premium represents revenue for the insurance industry it has positive impact on GDP for all the periods while GDP responds positively. This granger causality result shows that there is granger causality relationship between insurance premium, investment and assets have granger causality with GDP. From the findings, it recommends that insurance business authorities should review its reform policy and ensure that policies that will strengthen premium mobilization in Nigeria are put in place. Insurance companies need to invest more of their funds in productive sectors of the economy[191].

A study investigated the relationship between insurance sector development and economic growth in Nigeria using data from 2001 to 2017. The study adopted gross domestic product (GDP) as proxy for economic growth and the response variable, while total insurance investment (INV), total insurance premium (PRE), and total insurance claims (CLA) were used as proxies for insurance sector development and the predictive variables. Secondary time series data for the variables were sourced from annual reports of Central Bank of

Nigeria (CBN) Statistical Bulletins and the Nigerian Insurance Digest covering the period 2001 to 2017. The study employed descriptive statistics and multiple regression technique based on the E-views 9.0 software as methods of data analysis. The empirical results showed that total insurance investment, total insurance premium and total insurance claims had positive effect on gross domestic product, proxy for economic growth (total insurance investment and total insurance premium were significant at 5% level, while total insurance claims, at 19% level, was not significant). This study has established that the insurance sector development contributed meaningfully to economic growth in Nigeria. Based on the findings this study recommended that insurance policies be made mandatory for individuals and business organizations to encourage and protect investors as well as ensure sustained economic growth. Besides, the regulatory authorities should put in place policies to enforce transparent and efficient management of funds by insurers; while the latter should diversify their portfolio of investments to boost returns and their ability in claims payment[192].

A study was undertaken to establish the impact of insurance receivables on economic growth using life premium, non-life premium and insurance investment as the proxy for insurance receivables. The insurance industry is one which has strived in the face of economic crisis and is still striving to grow, with so many claims to settle, the insurance industry tends to invest their premium from life and non-life insurance policies so to offset claims, gain income and also contribute to the economy. This study hence conducted a research to know the extent to which these premiums and investment have impacted on the Nigerian economic growth. The study used the panel data between the periods of 2008-2017 among six insurance companies. The panel OLS was used to analyze the data and the hausman test was used to adopt the random effect result used to interpret the data. The result of the study showed that the life premium was positively insignificant to economic growth; the non-life premium was negatively insignificant to economic growth while the insurance investment was positively

insignificant. This insinuates that the insurance industry has very little impact on the Nigerian economic growth. Further studies should be carried out by increasing the number of years for the data, the number of insurance companies and more variables can be added[193].

An empirical analysis was carried out on insurance investment funds and economic growth in Nigeria within the period of 2000 – 2015. Insurance is a financial contract and risk transfer mechanism suitable for managing consequences of insurable risks associated with personal and business activities. Insurance plays a vital role in the growth of an economy. The study assessed the contribution of insurance investment funds to economic growth in Nigeria, using 16-years (2000 – 2015) total insurance investment and Gross Domestic Product (GDP) data. Insurance investments have been considered by researchers, academics and analysts due to its importance and consequences on countries' economic growth. However, the impact of total insurance investment on economic growth in Nigeria using annual data from 2000 to 2015 has not been undertaken. Hence, there is a knowledge gap; and this study filled this knowledge gap. Secondary data, sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin and Nigeria Insurers Digest are used for the study. Pearson's movement correlation coefficient and ordinary least square (OLS) method were used for data analysis and hypothesis testing respectively. The findings indicated that there is a strong positive relationship between Nigeria"s economic growth and total insurance investment; and there is a positive correlation between total insurance investment and GDP in Nigeria. It was recommended that regulation of the Nigeria insurance sector should be enhanced to improve the sector's performance and ensure increased total insurance investment in Nigeria economy. The implication for practice is that formulation of economic policies that enhance insurance practices and deepening insurance penetration by the government will increase insurance investment fund[194].

A study examined the dynamics of insurance development and economic growth in Nigeria for the period 1996–2014. Specifically, the study addressed two important issues: the impact of insurance development on economic growth and the causal nexus between insurance development and economic growth. The study utilised two techniques: ordinary least squares (OLS) and causality. The OLS regression estimate revealed that insurance development had an insignificant effect on economic growth, while the causality estimate showed a one-way causation from economic growth to insurance development. The study recommended that the government should put in place appropriate policies and regulations which would bring about sound development of the insurance sector. This would enhance the contribution of the insurance industry to the growth of the Nigerian economy[195].

A study explored the effect of insurance industry performance on economic growth in Nigeria. Insurance is a cover from financial loss. The study sought out to examine the impact of non-life insurance penetration on the economic growth of Nigeria. The ex-post facto study design was adopted for this study. Time series data for the period 1988-2014 were collated from the Central Bank of Nigeria (CBN) Statistical bulletin. Data were analysed using regression. The ARDL bound test was adopted in the testing of hypotheses formulated for the study. The findings of the study revealed that non-life insurance penetration had a positive and substantial effect on the economic growth in Nigeria during the period. The study recommends among others that life insurance companies come up with life products mainly designed for the low-paid earners as the target which will enhance penetration and deepen the market, more awareness is created to improve the participation of product industry and firms as this will intensify the activities of the insurance industry in Nigeria. Furthermore, it is recommended that an increased diversification of insurance products mostly in non-life businesses be embarked upon. For insurance industry in Nigeria to exert a significant and positive influence on the Nigeria economy, government insurance policies covering

compulsory insurance for all Nigerian, mainly non-life and, health insurance cover should be strictly enforced and implemented[196].

The impact of insurance on economic growth in Nigeria was assessed. Insurance is one of the major non banking financial institutions that mobilize fund for investment for the wellbeing of an economy. The relationship between and economic growth has been relatively widely research but with divergent findings. This study is interested in the gap created by divergent results of the existing studies on the relationship between life and non-life insurance premium and economic growth in Nigeria. The study used secondary data obtained from the different sources including publications Central Bank of Nigeria. The Ordinary Least Square Regression was used by the study for data analysis. The study found that there is a statistical evidence of positive relationship but not significant between non-life insurance economic growth and negative relationship but also significant between life insurance and the economic growth. The study concludes that the changes in non-life insurance positively influence the economic growth positively while life insurance has negative influence on the economic growth[197].

An empirical study of non-life insurance business in Nigeria with interactions between capital and demand for reinsurance was carried out. Inverse business cycle nature of insurance business necessitates insurance companies to form expectations about the future before risk can be accepted. In the expectation, gap between premium payment and claims settlement is created. This gap however, may be further widening the interactions between adequate capital and availability of reinsurance. When an insurer cedes risks to a reinsurer, it simultaneously reduces the variability of its cash flows and its financial leverage. Hence, demand for reinsurance can be seen as both risk management mechanism and a capital structure decision. This among other issues provides a need to investigate the nexus between capital and demand for reinsurance by non-life insurance companies in Nigeria. This study employed longitudinal

descriptive research design using stratified sampling technique. The study used Return on Asset (ROA) as surrogate for capital while product diversification and reinsurance price were used to denote demand for reinsurance. The study adopted structural equation mode using panel vector autoregressive framework and Granger causality test. The results demonstrate that demand for reinsurance by non-life insurance companies in Nigeria is highly dependent on their availability of capital. This study recommends that non-life insurance companies in Nigeria must take into cognisance availability of adequacy of capital before assuming risks[198].

2.4 Conceptual Framework

Different empirical evidences suggested that claim payment can be linked with financial performance of insurance companies. Hence, this study used Net Claim; Net premium; Loss adjustment expenses; Risk based capital; and Expenses Ratio as independent variable while Return on Asset is the parameter used for dependent variable.

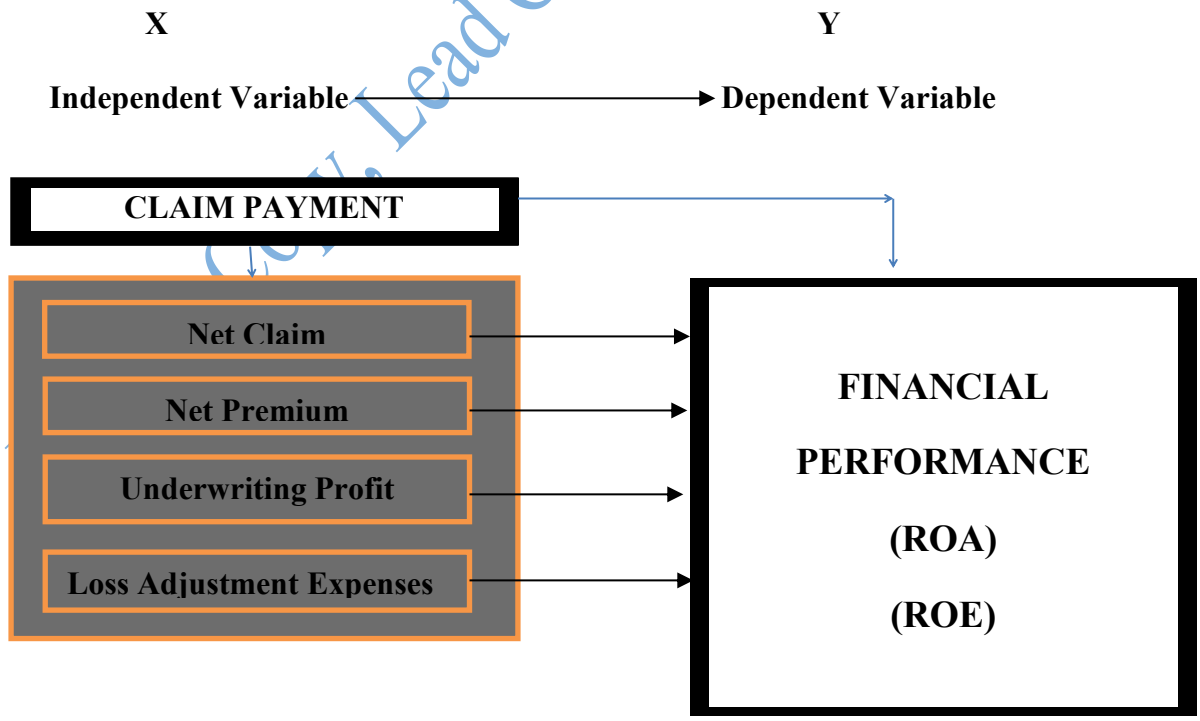


Figure 2.1: Claims Payment, Loss Adjustment and Financial Performance

Source**:** Researcher (2022)

2.5 Summary of Gaps in Literature Reviewed

This chapter comprises of existing literature which are similar to the present research work. As outlined in the review of empirical studies, this research has shown that several authors have studied and addressed the financial performance of of listed insurance companies in Nigeria generally. For example, studies have been carried out to assess insurance premium and economic performance in Nigeria[191]. This present study tended to focus mainly on claims payment, loss adjustment and financial performance.

Similarly, a study carried out an empirical study of non-life insurance business in Nigeria with interactions between capital and demand for reinsurance. The study used Return on Asset (ROA) as surrogate for capital while product diversification and reinsurance price were used to denote demand for reinsurance[198]. This study, therefore, is dissimilar because it assessed the functional relationship between derived claims ratio and financial performance of listed insurance companies in Nigeria.

The study adopted adopt *ex-post-facto* research design to fill the gap of methodology which is not used in other previous studies.

Endnotes

1. M.I., Ibrahim, T. Nyor & L. O. Mustapha, *Financial Risk and Financial Performance of listed Insurance Companies in Nigeria*. **European Journal of Business and Management**, 12(12), 2020, 143-153.

2. M., Pjanić, N. B. Milenkovic, B. Kalaš & V. Mirović *Profitability Determinants of Non-life Insurance Companies in Serbia*. **Ekonomika Preduzeca**, 66(5-6), 2018, 333-345.

3. I., Eugene, *Insurance Industry Performance and the Selected Regulatory Instruments in Nigeria*. **Journal of Economics and Finance**, 9(6), 2018, 67-77.

4. M. G. Ajao & E. Ogieriakhi, *Firm Specific Factors and Performance of Insurance Firms in Nigeria*. **Amity Journal of Finance**, 3(1), 2018, 14-28.

5. O. O. Banmore, A. D. Adefulu & G. O. Makinde, *Claims Management and Firm Performance of Insurance Companies in Nigeria: Moderating Effect of Marketing Factors*. **Journal of Economics, Finance and Management Studies**, 6(6), 2023, 2974-2984.

6. T.O. Yusuf, & S. S. Ajemunigbohun, *Effectiveness, Efficiency and Promptness of Claims Handling Process in the Nigerian Insurance Industry*. **European Journal of Business and Economics**, 10(2) 2015.

7. G.A. Adegbite, H. O. Olusesi, J. A. Akomolafe & S. Owotutu, *Accounting Ratios Information: An Instrument for a Business Performance Analysis*. **International Journal of Trend in Scientific Research and Development**, 2(5), 2018, 683-688.

8. I.L. Akidi, S. K. Wamala, & B. Mugonola, *Determinants of Smallholder Indigenous Chicken Farmers Market Participation Decisions and Value of Sales in Gulu District*. **Journal of Development and Agricultural Economics,** 10(8), 2018, 271-278.

9. K., Amber, *Importance of Claims Management in the Insurance Sector*. Unpublished Thesis, 2017.

10. E.O. Oyerogba & A. S. Gbolagade, *The Influence of Risk Management on the Financial Performance of listed Insurance Companies in Nigeria*. **Research Application of Thermal Engineering**, 6(1), 2023, 12-23.

11. O., Tarsono, P. A. Ardheta & R. Amriyami, *The Influence of Net Premium Growth, Loss Adjustment Expenses and Risk-Based Capital on the Financial Performance of Life Insurance Companies*. Proceedings of the Annual International Conference on Accounting Research, 127, 2020.

12. O.T., Oluwaleye, O. S. Shoyemi & D. G. Edewusi, *Effects of Claims Management on Profitability of Insurance Companies in Nigeria.* **British Journal of Management and Marketing Studies**, 3(4), 2020, 106-114.

13. S.A., Taofeek, *Effect of Claims Payments on Profitability in the Nigerian Insurance Industry*. **Advances in Social Sciences Research Journal**. 5(4), 2018.

14. G.E., Oyedokun & F. G. Gabriel, *Effects of Claims Management on Profitability of Listed Insurance Companies in Nigeria*. **American Journal of Management**, 18(5), 2018, 37-45.

15. S.S., Ajemunigbohun, O. A. Isimoya, & P. M. Ipigansi, *Insurance Claims Fraud in Homeowner's Insurance: Empirical Evidence from the Nigerian Insurance Industry.* **Facta Universitatis: Economics and Organization,** 16(1), 2019, 103 – 116.

16. L., Etale, *Insurance Sector Development and Economic Growth in Nigeria: An Empirical Analysis.* **International Journal of Development and Economic Sustainability,** 7(4), 2019, 34-48.

17. S.S., Ajemunigbohun, O. A. Isimoya & P. M. Ipigansi, *Insurance Claims Fraud in Homeowner's Insurance: Empirical Evidence from the Nigerian Insurance Industry*. **Facta Universitatis: Economics and Organization**, 16(1), 2019, 103-116.

18. Association of Insurance and Risk Managers in Industry and Commerce, *Delivery Excellence in Insurance Claims Handling: Guide to Best Practice.* London: AIRMIC, 2009.

19. CBN. *Central Bank of Nigeria Statistical Bulletin*. Online Publication, 2018.

20. K.O., Onyele & F. Ariwa *Risk Transfer and Growth of Nigeria's Insurance Industry: An Empirical Analysis.* **Amity Journal of Finance**, 4(2), 2019, 53-69.

21. M., Skalska, *The Relationship between Insurance Development and Economic Growth: The Motor Third Party Liability Insurance in the Czech Republic*. The 12th International Days of Statistics and Economics, Prague, 2018.

22. O.A., Abass, & M. A. Obalola, *Reinsurance Utilisation and Performance of Non- Life Business in the Nigerian Insurance Industry: A Mixed Methods Approach.* **The Journal of Risk Management and Insurance,** 22 (2), 2018, pp. 18-32

23. G.E., Oyedokun & E. O. Amafa *Claims Payment, Risk Management and Financial Performance of Selected Insurance Companies in Nigeria.* **Journal of Insurance and Financial Management,** 6(3), 2022, 81-115.

24. O.A., Abass *Reinsurance Utilisation and Performance of Non-Life Business in the Nigerian Insurance Industry: A Mixed Methods Approach*. **The Journal of Risk Management and Insurance,** 22(2), 2018.

25. E., Nwoji *Nigeria's Insurance Sector Total Premium Reached N508 Billion In 2021 As Claims on Endsars Protest Hits N11 Billion.* This Day, https://www.allafrica.com, 2022.

26. B., Chowdhry, S.W., Davies, & B., Waters. *Investing for Impact*. **The Review of Financial Studies,** 32(3), 2019, pp.864-904.

27. C.A., O'sullivan, G.D., Bonnett, C.L., McIntyre, Z., Hochman, & A.P., Wasson. *Strategies to Improve the Productivity, Product Diversity and Profitability of Urban Agriculture.* **Agricultural Systems,** 174, 2019, pp.133-144.

28. D.M., Nuti. *Codetermination, Profit Sharing and Full Employment.* In Collected Works of Domenico Mario Nuti, Volume II: Economic Systems, Democracy and Integration. Cham: Springer International Publishing. 2023, pp. 317-334.

29. S., Dehm. *Outsourcing, Responsibility and Refugee Claim-Making in Australia's Offshore Detention Regime.* Profit and Protest in the Asylum Industry (PM Press, Forthcoming), 2019.

30. A., Cappiello. *The Digital (r) Evolution of Insurance Business Models.* **American Journal of Economics and Business Administration,** 12(1), 2020, pp.1-13.

31. S., Grima, J., Spiteri, & I., Romānova. *A Steep Framework Analysis of the Key Factors Impacting the Use of Blockchain Technology in the Insurance Industry.* **The Geneva Papers on Risk and Insurance-Issues and Practice,** 45, 2020, pp.398-425.

32. B., Nayak, S.S., Bhattacharyya, & B., Krishnamoorthy. *Explicating the Role of Emerging Technologies and Firm Capabilities towards Attainment of Competitive Advantage in Health Insurance Service Firms.* **Technological Forecasting and Social Change,** 170, 2021, p.120892.

33. P., Fraga-Lamas, & T.M., Fernández-Caramés. *A Review on Blockchain Technologies for an Advanced and Cyber-Resilient Automotive Industry.* IEEE access, 7, 2019, pp.17578-17598.

34. D.T., Otley, & A.J., Berry. *Control, Organisation and Accounting.* In Management Control Theory. Routledge, 2019, pp. 101-114.

35. C.T., Kaya, M., Türkyılmaz, & B., Birol. *Impact of RPA Technologies on Accounting Systems.* **Muhasebe ve Finansman Dergisi,** 82, 2019.

36. A.B., Malali, & S., Gopalakrishnan. *Application of Artificial Intelligence and its Powered Technologies in the Indian Banking and Financial Industry: An Overview.* **IOSR Journal Of Humanities and Social Science,** 25(4), 2020, pp.55-60.

37. M., Ronghangpi, & N.D., Roy. *Dispute Settlement Mechanism about Claims under Life Insurance: A Legal Study.* **Int'l JL Mgmt. & Human**. Issue 5, 3, 2020, p.25.

38. H., Ostrowski. *Out-of-Court Settlement of Consumer Sales Claims.* Kwartalnik Prawa Międzynarodowego, 2(II), 2020, pp.77-95.

39. H., Chen, D., Yang, J.H., Zhang, & H., Zhou. *Internal Controls, Risk Management, and cash holdings.* **Journal of Corporate Finance,** 64, 2010, p.101695.

40. P., Gao, & G., Zhang. *Accounting Manipulation, Peer Pressure, and Internal Control.* **The Accounting Review,** 94(1), 2019, pp.127-151.

41. P.P., Ridanti, & D.H., Suryaningrum. *The Effect of Financial Distress, Internal Control, And Debt Structure on Earnings Management in Companies Registered in Indonesia Stock Exchange*. **JASa (Jurnal Akuntansi, Audit dan Sistem Informasi Akuntansi),** 5(3), 2021, pp.458-472.

42. Y., Li, X., Li, E., Xiang, & H.G., Djajadikerta. *Financial Distress, Internal Control, and* Earnings Management: Evidence from China. **Journal of Contemporary Accounting & Economics,** 16 (3), 2020, p.100210.

43. P., Saeidi, S.P., Saeidi, S., Sofian, S.P., Saeidi, M., Nilashi, & A., Mardani. *The Impact of Enterprise Risk Management on Competitive Advantage by Moderating Role of Information Technology.* **Computer Standards & Interfaces,** 63, 2019, pp.67-82.

44. F., Greenwood, E.L., Nelson, & P.G., Greenough. *Flying into the Hurricane: A Case Study of UAV use in Damage Assessment during the 2017 Hurricanes in Texas and Florida.* PLoS one, 15(2), 2020, p.e0227808.

45. R.P., Battaglio Jr, P., Belardinelli, N., Bellé, & P., Cantarelli. *Behavioral Public Administration Adfontes: A Synthesis of Research on Bounded Rationality, Cognitive Biases, and Nudging in Public Organizations.* **Public Administration Review,** 79(3), 2019, pp.304-320.

46. E., Zwick. *The Costs of Corporate Tax Complexity.* **American Economic Journal: Economic Policy,** 13(2), 2021, pp.467-500.

47. R.R., Gallati. *Risk Management and Capital Adequacy.* McGraw-Hill, 2022.

48. D.W., Hubbard. *The Failure of Risk Management: Why it's Broken and How to Fix it.* John Wiley & Sons, 2020.

49. H., Kemshall, & M., Maguire. *Public Protection, Partnership and Risk Penality: The Multi-Agency Risk Management of Sexual and Violent Offenders.* **In Governing Risks,** 2021, pp. 319-346.

50. M., Abdel-Basset, W., Ding, R., Mohamed, & N., Metawa. *An Integrated Plithogenic MCDM Approach for Financial Performance Evaluation of Manufacturing Industries.* **Risk Management**, 22, 2020, pp.192-218.

51. P., Saeidi, S.P., Saeidi, S., Sofian, S.P., Saeidi, M., Nilashi, & A., Mardani. *The Impact of Enterprise Risk Management on Competitive Advantage by Moderating Role of Information Technology.* **Computer Standards & Interfaces**, 63, 2019, pp.67-82.

52. D.M., Chance, & R., Brooks. *An Introduction to Derivatives and Risk Management.* South-Western, Cengage Learning, 2021.

53. M., Markonah, M., Silalahi, & I., Selliamanik. *Claim Paying and Reinsurance on Company's Financial Health.* **International Journal of Applied Management and Business,** 1(1), 2023, pp.9-25.

54. J.J.W., Euphasio, & J.V.F., Carvalho. *Reinsurance and Solvency Capital: Mitigating Insurance companies' Ruin Probability.* **Revista de Administração Contemporânea,** 26, 2021.

55. S.H., Jaaman, & O.C., Xinn. *Solvency Analysis by Business Classifications of General Insurance Industry in Malaysia.* **International Journal of Sciences: Basic and Applied Research,** 48(5), 2019, pp.24-32.

56. G., Dionne, & D., Desjardins. *A Re-examination of the US Insurance Market's Capacity to Pay Catastrophe Losses.* **Risk Management and Insurance Review,** 25(4), 2022, pp.515-549.

57. Y.A.L.A., Jawad, & I., Ayyash. *Determinants of the Solvency of Insurance Companies in Palestine.* **International Journal of Financial Research,** 10(6), 2019, pp.188-195.

58. S., Wu, & Y., Li. *Impact of the Business Structure on Solvency of Property-Liability Insurance Companies and its Mediating Effect*. **Discrete Dynamics in Nature and Society,** 2021, pp.1-17.

59. C., Munari, S., Weber, & L., Wilhelmy. *Capital Requirements and Claims Recovery: A New Perspective on Solvency Regulation.* **Journal of Risk and Insurance,** 90(2), 2023, pp.329-380.

60. J.D., Cummins, G., Dionne, R., Gagné, & A., Nouira. *The Costs and Benefits of Reinsurance.* The Geneva Papers on Risk and Insurance-Issues and Practice, 46, 2021, pp.177-199.

61. J., Alokla, A., Daynes, P., Pagas, & P., Tzouvanas. *Solvency Determinants: Evidence from the Takaful Insurance Industry.* The Geneva Papers on Risk and Insurance-Issues and Practice, 2022, pp.1-25.

62. G.E., Oyedokun & O. A. Falade, *Loss Adjusters and Insurance Customers Retention in the Nigeria Insurance Industry*. **International Journal of Economics, Commerce and Management**. 10(3), 2022, 43-65.

63. A., Waleed, *Exploring the Impact of Liquidity on Profitability: Evidence from banking Sector of Pakistan*. **Journal of Internet Banking and Commerce**, 21(3), 2019.

64. O.J., Abere & S. T. Saka, *The Financial Performance of Nigerian Manufacturing Firms and Risk Management Practices*. **International Business & Economic Studies**, 5(2), 2023, 138-150.

65. G.E., Oyedokun, & F. G. Gabriel, *Effects of Claims Management on Profitability of Listed Insurance Companies in Nigeria.* **American Journal of Management,** 18(5), 2018, 37-45.

66. A., Ntwali, A. Kituyi & A. O. Kengere, *Claims Management and Financial Performance of Insurance Companies in Rwanda: A Case of SONARWA General Insurance Company Ltd*. **Journal of Financial Risk Management**, 9(3), 2020.

67. O.S., Fadun, *Analysis of the Impacts of Insurance Claims Settlement on Economic Growth: The Case of Nigeria*. **International Journal of Business Ecosystem and Strategy**, 5(3), 2023, 51-59.

68. R., Bashir & A. A. Azeez, *Risk Management Practices of Islamic and Conventional Banks of Pakistan: A Comparative Study*. **International Journal of Banking and Finance**, 17(2), 2022, 57-90.

69. U.I., Ironkwe & A. S. Osaat, *Risk Asset Management and Financial Performance of Insurance Companies in Nigeria*. **International Journal of Advanced Academic Research and Accounting Practice**, 5(4), 2019, 18-46.

70. N., Wadesango, C. Mhaka C., & Shava F. *Effectiveness of Risk Management Systems on Financial Performance in a Public Setting.* **Academy of Accounting and Financial Studies Journal,** 22(4), 2018.

71. U.N., Kaya & N. O. Beser *The Effect of Insurance Premium on Economic Growth in European Union Countries: Panel Data Analysis.* **Journal of Academic Researches and Studies**. 12(23), 2020, 442-451.

72. T., Ono, A. A. Preztika, & A. Rininda, *The Influence of Net Premium Growth, Claim Ratio and Risk-based Capital on the Financial Performance of Life Insurance Companies.* **Advances in Economics, Business and Management Research,** 12(7), 2019.

73. O., Ogbeide, T. O. Adu, F.M. Fapohunda & J. Obadeyi *Insurance Sector Development and Economic Growth: Empirical Analysis from Nigeria.* **Asian Journal of Economics, Business and Accounting,** 22(17), 2022, 55-72.

74. A.M., Epetimehin, *Cross-border Insurance Marketing and the Corporate Implications.* **European Scientific Journal**, 9(1), 2013, 152-162.

75. F. Daniel, *Insurance Penetration Fast-track Nigeria's Economic Growth* Vanguard News Paper, Nigeria. 2013.

76. G., Zhou, Y., Sun, S., Luo, & J., Liao. *Corporate Social Responsibility and Bank Financial Performance in China: The Moderating Role of Green Credit.* Energy Economics, 97, 2021, p.105190.

77. N., Nirino, G., Santoro, N., Miglietta, & R., Quaglia. *Corporate Controversies and Company's Financial Performance: Exploring the Moderating Role of ESG Practices.* **Technological Forecasting and Social Change,** 162, 2021, p.120341.

78. J., Xu, & B., Wang. *Intellectual Capital, Financial Performance and Companies' Sustainable Growth: Evidence from the Korean Manufacturing Industry.* **Sustainability**, 10(12), 2018, p.4651.

79. M.C., Vu, T.T., Phan, & N.T., Le. *Relationship between Board Ownership Structure and Firm Financial Performance in Transitional Economy: The Case of Vietnam.* **Research in International Business and Finance,** 45, 2018, pp.512-528.

80. S., Suhadak, K., Kurniaty, S.R., Handayani, & S.M., Rahayu. *Stock Return and Financial Performance as Moderation Variable in Influence of Good Corporate Governance towards Corporate Value.* **Asian Journal of Accounting Research,** 4(1), 2018, pp.18-34.

81. N., Soewarno, & B., Tjahjadi. *Measures that Matter: An Empirical Investigation of Intellectual Capital and Financial Performance of Banking Firms in Indonesia.* **Journal of Intellectual Capital,** 21(6), 2020, pp.1085-1106.

82. N., Sunardi, & F., Tatariyanto. *The Impact of the Covid-19 Pandemic and Fintech Adoption on Financial Performance moderating by Capital Adequacy.* **International Journal of Islamic Business and Management Review,** 3(1), 2023, pp.102-118.

83. Y., Liu, S., Saleem, R., Shabbir, M.S., Shabbir, A., Irshad, & S., Khan. *The Relationship between Corporate Social Responsibility and Financial Performance: A Moderate Role of Fintech Technology.* **Environmental Science and Pollution Research,** 28, 2021, pp.20174-20187.

84. A., Salman, & H., Nawaz. *Islamic Financial System and Conventional Banking: A Comparison.* **Arab Economic and Business Journal,** 13(2), 2018, pp.155-167.

85. A., Ajibola, O., Wisdom, & O.L., Qudus. *Capital Structure and Financial Performance of Listed Manufacturing Firms in Nigeria.* **Journal of Research in International Business and Management,** 5(1), 2018, pp.81-89.

86. A., Ullah, C., Pinglu, S., Ullah, M., Zaman, & S.H., Hashmi. *The Nexus between Capital Structure, Firm-Specific Factors, Macroeconomic Factors and Financial Performance in the Textile Sector of Pakistan.* Heliyon, 6(8), 2020.

87. A.H., Al-Dmour, M., Abbod, & N.S., Al-Balqa. *The Impact of the Quality of Financial Reporting on Non-Financial Business Performance and the Role of Organizations Demographic' Attributes (Type, Size and Experience),* 2018.

88. R., Ang, Z., Shao, C., Liu, C., Yang, & Q., Zheng. *The Relationship between CSR and Financial Performance and the Moderating Effect of Ownership Structure: Evidence from Chinese Heavily Polluting Listed Enterprises.* **Sustainable Production and Consumption,** 30, 2022, pp.117-129.

89. T.N.L., Nguyen, & V.C., Nguyen. *The Determinants of Profitability in Listed Enterprises: A Study from Vietnamese Stock Exchange.* **Journal of Asian Finance, Economics and Business,** 7(1), 2020, pp.47-58.

90. B.K., Agyei-Mensah. *Impact of Corporate Governance Attributes and Financial Reporting Lag on Corporate Financial Performance.* **African Journal of Economic and Management Studies,** 9(3), 2018, pp.349-366.

91. A., Alshehhi, H., Nobanee, & N., Khare. *The Impact of Sustainability Practices on Corporate Financial Performance: Literature Trends and Future Research Potential.* Sustainability, 10(2), 2018, p.494.

92. R.I., Omondi, & A., Jagongo. *Microfinance Services and Financial Performance of Small and Medium Enterprises of Youth SMEs in Kisumu County, Kenya.* **International Academic Journal of Economics and Finance,** 3(1), 2018, pp.24-43.

93. G., Mojambo, J.E., Tulung, & R.T., Saerang. *The influence of Top Management Team (TMT) Characteristics toward Indonesian Banks Performance during the Digital Era (2014–2018),* 2020.

94. L., Fujianti, & I., Satria. *Firm Size, Profitability, Leverage as Determinants of Audit Report Lag: Evidence from Indonesia.* **International Journal of Financial Research,** 11(2), 2020, pp.61-67.

95. Y., Jin, X., Gao, & M., Wang. *The Financing Efficiency of Listed Energy Conservation and Environmental Protection Firms: Evidence and Implications for Green Finance in China.* Energy Policy, 153, 2021, p.112254.

96. N., Iqbal, M.S., Tufail, M., Mohsin, & M.A., Sandhu. *Assessing Social and Financial Efficiency: The Evidence from Microfinance Institutions in Pakistan.* **Pakistan Journal of Social Sciences,** 39(1), 2019, pp.149-161.

97. L.A.M., Chowdhury, T., Rana, M., Akter, & M., Hoque. *Impact of Intellectual Capital on Financial Performance: Evidence from the Bangladeshi Textile Sector.* **Journal of Accounting & Organizational Change,** 14(4), 2018, pp.429-454.

98. N., Nirino, A., Ferraris, N., Miglietta, & A.C., Invernizzi. *Intellectual Capital: The Missing Link in the Corporate Social Responsibility–Financial Performance Relationship.* **Journal of Intellectual Capital,** 23(2), 2020, pp.420-438.

99. M., Mushafiq, M.I., Sindhu, & M.K., Sohail. *Financial Performance under Influence of Credit Risk in Non-Financial Firms: Evidence from Pakistan.* **Journal of Economic and Administrative Sciences,** 39(1), 2023, pp.25-42.

100. C., Beck, G., Frost, & S., Jones. *CSR Disclosure and Financial Performance Revisited: A Cross-Country Analysis.* **Australian Journal of Management,** 43(4), 2018, pp.517-537.

101. C., Lv, C., Shao, & C.C., Lee. *Green Technology Innovation and Financial Development: Do Environmental Regulation and Innovation Output Matter?*. Energy Economics, 98, 2021, p.105237.

102. F., Gangi, A., Meles, E., D'Angelo, & L.M., Daniele. *Sustainable Development and Corporate Governance in the Financial System: Are Environmentally Friendly Banks Less Risky?*. **Corporate Social Responsibility and Environmental Management,** 26(3), 2019, pp.529-547.

103. J., Cherian, M., Umar, P.A., Thu, T., Nguyen-Trang, M.S., Sial, & N.V., Khuong. *Does Corporate Social Responsibility affect the Financial Performance of the Manufacturing Sector? Evidence from an Emerging Economy.* **Sustainability**, 11(4), 2019, p.1182.

104. S., Wang, H., Wang, J., Wang, & F., Yang. *Does Environmental Information Disclosure contribute to Improve Firm Financial Performance? An Examination of the Underlying Mechanism.* **Science of the Total Environment,** 714, 2020, p.136855.

105. Etale L.M. & Edoumiekumo A.R. *Financial Sector Policies and Economic Growth: Evidence from Insurance Sector in Nigeria.* **Research in Business and Social Sciences,** 10(9), 2020.

106. D., Osinuga, *The Challenges of Nigeria Insurance Industry*. Article on Linkedin 2016.

107. C., Priest, *Measuring Underwriting Results Under Changing Reinsurance Conditions IBM Business Consulting Services*. Property and casualty underwriting – the possible, 2003.

108. K.A., Banjo & F. A. Oloyede, *Risk Management Practices and the Financial Performance of Manufacturing Firms in Nigeria.* **International Journal of Management Studies and Social Science Research**, 3(5), 2021, 350 - 358.

109. A.E., Omankhanlen & A. T. Nwani *Insurance Receivables and Economic Growth: The Case of Nigeria.* International Conference on Engineering for Sustainable World Journal of Physics: Conference Series 1378, 2019.

110. T., Ono, A. A. Preztika, & A. Rininda, *The Influence of Net Premium Growth, Claim Ratio and Risk-based Capital on the Financial Performance of Life Insurance Companies.* **Advances in economics, Business and Management Research,** 12(7), 2019.

111. R., Sawadogo, S. Guerineau & L. M. Ouedraogo, *Life Insurance Development and Economic Growth: Evidence from Developing Countries.* **Journal of Economic Development.** 43(2), 2018, 1-28.

112. R., Iwunze, *Insurance GDP Bounces Back to Growth, posts 15.7% Yr-on-Yr Rise.* Vanguard, 2021. https://www.vanguardngr.com/2021/09/insurance-gdp-bounces-back-togrowth-posts-15-7-yr-on-yr-rise-2/amp/.

113. M., Mardiana, E. P. Puji & W. A. D. Ayyu, *The Effect of Risk Management on Financial Performance with Good Corporate Governance as a Moderation Variable.* **Management and Economics Journal,** 2(3), 2018, 257-268.

114. T., Samreena, *A Study of Customer Preference on Private Life Insurance Company with special reference to Srinagar City.* **International Journal of Management, Technology and Engineering,** 8(8), 2018, 162-175.

115. M.O., Oke, *Insurance Sector Development and Economic Growth in Nigeria*. **African Journal of Business Management**, 6(23), 2012, 7016-7023.

116. O., Olajumoke, *The Determinants of the Profitability of Insurance Companies in Nigeria*. University of Bath. Nigeria 2012.

117. I.M., Pandy, *Financial Management. Vikas Publishing House.* PVT LTD. Janpura, New Delhi- 110014**.** India. Tenth edition. 2010.

118. G.E., Redja, *Principles of Risk Management and Insurance* (10th Ed) Pearson education, New York. 2008.

119. Y.A., Soye, & D. L. Adeyemo, *Underwriting Capacity and Income of Insurance Companies: A case of Nigeria.* **International Journal of Innovative Science and Research Technology**, 12(15), 2018, 136-145.

120. W., Kenton, *Accelerator Theory.* Investopedia, 2018. https://www.investopedia.com/terms/a/acceleratortheory.asp.

121. S.P., Sare, *Risk Management Practices among Commercial Banks in Ghana.* **European Journal of Business and Management**, 5(20), 2013, 1-8.

122. B., Kajwang, *Contribution of Fire Insurance to the Growth of Businesses in Kenya.* **Afro Asian Journal of Social Sciences**, IX (I) 2022.

123. V., Peleckiene, K. Peleckis, G. Dudzeviciute, & K. K. Peleckis, *The Relationship between Insurance and Economic Growth: Evidence from the European Union Countries.* **Economic Research – Ekonomska Istrazivanja,** 32(1), 2019, 1138-1151.

124. I.V. Okonkwo & E. A. Eche, *Insurance Penetration Rate and Economic Growth in Nigeria*. **International Journal of Social Sciences and Management Review,** 2(1), 2019, 22-45.

125. J.A. Oloyede, A. Folorunsho & O. F. Ogamen, *The Impact of Insurance on Economic Growth in Nigeria.* **Nigerian Journal of Banking and Financial Issues**, 9(1), 2023, 1-8.

126. D., Khambata & R. Bagdi, *Off-Balance-Sheet Credit Risk of The Top 20 Manufacturing Firms.* **Journal of International Banking Regulation,** 5(1), 2020, 57 - 71.

127. A., Samitas & E. Kampouris, *Financial Illness and Political Virus: The Case of Contagious Crises in the Eurozone*. **International Review of Applied Economics, Taylor and Francis Group**, 2017.

128. M.O., Fashagba *The Impact of Insurance on Economic Growth in Nigeria*. **Afro Asian Journal of Social Sciences**, 9(1), 2018, 1-10.

129. K., Ogunlami *The Effect of Claim Settlement on Profit Maximization in the Insurance Industry*. **International Journal of Social Relevance & Concern,** 9(9), 2021.

130. S., Agubata & A. C. Odubiasi, *Effect of Exchange Rate Fluctuation on the Financial Performance of Manufacturing Companies in Nigeria.* **International Journal of Commerce and Management**, 4(4), 2018, 56-61.

131. E. Iheanacho *Insurance Industry Performance and the Selected Regulatory Instruments in Nigeria.* **IOSR Journal of Economics and Finance,** 9(6), 2018, 67-77.

132. N.A., M Zaid, W. M. F. W. Ibrahim & N. S. Zulqernain, *The Determinants of Profitability: Evidence from Malaysian Construction Companies*. Proceedings of fifth Asia-Pacific Business Research Conference, Kuala Lumpur, Malaysia. 2017.

133. S.O., Ewan, E., Esang, A.E., & J.U., Bassey. *Appraisal of Capital Market Efficiency on Economic Growth in Nigeria.* **Journal of Business and Management,** 4(12), 2009, 219 - 288.

134. D. Fatihudin & M. Mochklas *How Measuring Financial Performance.* **International Journal of Civil Engineering and Technology,** 9(6), 2018.

135. O. A. Abass, & R. K. Ojikutu, *Interaction between Capital and Demand for Reinsurance; an Empirical Study of Non-Life Insurance Business in Nigeria.* **LASU Journal of Management Sciences,** 5(1), 2019, 42-53.

136. J. Abdul-Hafiz, *The Impact of Intangible Assets and Economic Profit on Mergers and Acquisitions in the Communication Services Industry*. International Conference on Excellence in Business, Sharjah United Arab Emirates. 2012.

137. L. A. Akintayo, *Introduction to General Insurance Underwriting*. CSS Bookshops Limited, 2004.

138. M. Esa, F. S. Ibrahim, S. S. M. Ishak & S. R. M. Razi, *Impact of Enterprise Risk Management on Organizational Performance.* **Journal of Advanced Research in Dynamical and Control System**, 10(6), 2018, 190-197.

139. A.L. Adetunji, E. C. Nwude & S. N. UdeH, *Interface of Insurance and Economic Growth: Nigerian Experience.* **International Journal of Economics and Financial Issues**, 8(4), 2018, 16-26.

140. A.R. Amoroso, *Driving Operational Excellence in Loss Adjustment*. Deloitte, 2019. http://www.deloitte.com.

141. O. Tarsono, P. A. Ardheta & R. Amriyani. *The Influence of Net Premium Growth, Claim Ratio and Risk-Based Capital on the Financial Performance of Life Insurance Companies.* Annual International Conference on Accounting Research, 127, 2019.

142. A.A. Ajayi, *Element and scope of insurance*. Akure: Hybrid Publishers Limited, 2000.

143. N. Doytch, & M. Uctum, *Does The Worldwide Shift of FDI from Manufacturing to Services Accelerate Economic Growth? A GMM Estimation Study*. **Journal of International Money and Finance**, 30(3), 2011, 410-427.

144. A.E. Ebaid, *The Impact of Capital Structure Choice on Firm Performance: Empirical Evidence from Egypt.* **Journal of Risk Finance**, 10(5), 2018, 477- 487.

145. E. Elsiefy, *Determinants of Profitability of Commercial Banks in Qatar: Comparative Overview between Domestic Conventional and Islamic Banks during the Period 2006-2011.* **International Journal of Economics and Management Sciences**, 2(11), 2013, 108-142.

146. A.I. Enekwe, I. M. Okwo & M. M. Ordu, *Financial Ratio Analysis as a Determinant of Profitability in Nigerian Pharmaceutical industry*. **International Journal of Business and Management**, 8(8), 2013, 107-117.

147. T. Shiferaw & T. Gujral, *Determinants of Insurance Companies Profitability in Ethiopia.* **Journal of Positive School Psychology**, 6(2), 2022.

148. J. C. Hull, *Risk Management and Financial Institutions (6th ed.).* Wiley Finance Series, 2023.

149. O. T. Olarinre, O. S. Shoyemi & D. G. Edewusi, *Effects of Claims Management on Profitability of Insurance Companies in Nigeria.* **British Journal of Management and Marketing Studies**, 3(4), 2020, 106-114.

150. F. P. H. Angga, S. Isfenti, & M. Iskandar. *The Effect of Claim Ratio, Operational Ratio and Retention Ratio on Profitability Performance of Insurance Companies in Indonesia Stock Exchange.* **International Journal of Research and Review**, 7(3), 2020.

151. B.Y. Iyodo, S.E. Samuel & S.J. Inyada. *Effect of Insurance Industry Performance on Economic Growth in Nigeria.* **International Journal Business Finance and Management Research**, 6, 2018, 22- 33.

152. B. Charumathi, *On the Determinants of Profitability of Indian Life - An Empirical Study.* Proceedings of the World Congress on Engineering, 1, 2012.

153. S. Nzotta, *Money, Banking and Finance.* Owerri: Hudson-Jude Nigeria Publishers, 2004.

154. P. Haynes, & K. Senneseth, *A Panel Study of Firm Growth among SMEs in Networks*. **Small Business Economics**, 16(4), 2001, 293-302.

155. V. C. Okpara. *Impact of Insurance Investments on Nigerian Capital Market.* **International Journal of Advanced Research in ISSN: 2278-6236 Management and Social Sciences,** 2018.

156. S. Lazar, *Determinants of Firm Performance: Evidence from Romanian Listed Companies*. **Review of Economics and Business Studies**, 9(1), 2016, 53-69.

157. Lee, *Does Size Matter in Firm Performance? Evidence from US Public Firms*. **International Journal of the Economics of Business**, 16(2), 2009, 189-203.

158. P. Rose & M. Marquis, *Money and Capital Market.* Mcgraw Hill Professional; 10th Edition, 2008.

159. B. W. Mazviona, M. Dube, & T. Sakahuhwa, *An Analysis of Factors Affecting the Performance of Insurance Companies in Zimbabwe*. **Journal of Finance and Investment Analysis**, 6, 2017, 11-30.

160. B. Onyebuchi, S. P. Nwankwo, O. I. Onuka, *Insurance Sub-Sector Development: An Emerging Pillar for Economic Growth and Sustainability in Nigeria*. **International Journal of Economics and Financial Management**, 1(1), 2017, 76-85.

161. Ostroff, & N. Schmitt, *Configuration of Organizational Effectiveness and Efficiency,* **Academy of Management Journal**, 36(6), 1993, 1345-1361.

162. H. Malik, *Determinants of Insurance Companies Profitability: An Analysis of Insurance Sector of Pakistan*. **Academic Research International**, 1(3), 2011, 315-321.

163. H. Al-Tamimi, *Risk Management and Performance of Manufacturing Firms in UAE.* **Journal of Financial Regulation and Compliance,** 16(1), 2021, 173 - 187.

164. O. A. Abass & T. J. Olubusade. *Effects of Reinsurance Utilisation on the Capital Adequacy of Non-life Insurance Companies in Nigeria.* **Acta Universitatis Danubius,** 19(2), 2023.

165. O. Abass, A. *Empirical Analysis of Reinsurance Dependence on the Profitability of General Insurance Business in Nigeria.* **Academic Journal of Economic Studies,** 5(4), 2019, 136–43.

166. S. O. Ogbeide, T. I. Adu, F. M. Fapohunda & J. Obadeyi, *Insurance Sector Development and Economic Growth: Empirical Analysis from Nigeria*. **Asiuan Journal of Economics, Business and Accounting**, 22(17), 2022, 55-72.

167. O. S. Fadun, *Nexus between Insurance Penetration and Economic Growth: Evidence from Nigeria*. **Nigeria Journal of Risk and Insurance**, 11(1), 2021, 20-36.

168. B. Y. Iyodo, S. E. Samuel, C. Adewole & P. O. Ola, *Impact of Non-life Insurance Penetration on the Economic Growth of Nigeria*. **Research Journal of Finance and Accounting**, 11(2), 2020, 40-50.

169. P. C. Uruakpa, *Insurance Premium and Economic Performance in Nigeria: A Variance Decomposition Approach*. **Archives of Business Research**, 7(SP), 2019, 16-33.

170. L. M. Etale, *Insurance Sector Development and Economic Growth in Nigeria: An Empirical Analysis*. **International Journal of Development and Economic Sustainability**, 7(4), 2019, 34-48.

171. A.T. Nwani & A. E. Omankhanlen, *Insurance Receivables and Economic Growth: The Case of Nigeria*. Journal of Physics: Conference Series, International Conference on Engineering for Sustainable World, 1378, 2019, 1-15.

172. O. S. Fadun & O. S. Shoyemi, *Insurance Investment Funds and Economic Growth in Nigeria*. **International Journal of Development and Management Review**, 13(1), 2018, 73-88.

173. P. I. Nwosa & Z. B. Mustapha, *The Dynamics of Insurance Development and Economic Growth in Nigeria*. **The Indian Economic Journal**, 65(1-4), 2017, 37-44.

174. B. Y. Iyodo, S. E. Samuel & S. J. Inyada, *Effect of Insurance Industry Performance on Economic Growth in Nigeria*. **International Journal of Business and Finance Management Research**, 6, 2018, 22-33.

175. G. K. Ezu, N.J. Okoye, & O.S. Ogbogu, *Effect of Consolidation of the Nigerian Insurance Industry on the Growth of the Nigerian Economy (1996-2018).* **IOSR Journal of Economics and Finance,** 11(2), 2020, 22-32.

176. O. A. Abass, & R. K. Ojikutu, *Interactions between Capital And Demand For Reinsurance; An Empirical Study Of Non-Life Insurance Business In Nigeria*. **LASU Journal of Management Sciences**, 5(1), 2019, 42-53.

177. A., Bunyaminu, S., Bashiru, I.N., Yakubu, E., Aggrey, A., Appiah, & S.A., Tuffour. *Claim Management of Non-Life Insurance Companies in Ghana: Does It Impact on Profitability.* **Journal of Applied Economic Sciences,** 2(74), 2022, pp.97-106.

178. N., Pantić, K., Mikulič, & M., Leković. *The Influence of Claims Payments on the Investment Portfolio of Insurance Companies.* Oditor, 8(3), 2022, pp.42-71.

179. G.E., Oyedokun, & E.O., Amafa. *Claims Payment, Risk Management and Financial Performance of Selected Insurance Companies in Nigeria.* **Journal of Insurance and Financial Management,** 6(3), 2022, pp.81-115.

180. T., Abdoush, K., Hussainey, & K., Albitar. *Corporate Governance and Performance in the Uk Insurance Industry Pre, During and Post the Global Financial Crisis.* **International Journal of Accounting & Information Management,** 30(5), 2022, pp.617-640.

181. O.E., Oladunni, & I.V., Okonkwo. *Impact of Risk Retention on Claims Management of Insurance Companies in Nigeria.* **Fuoye Journal of Finance and Contemporary Issues,** 3(1), 2022.

182. T.S., Msomi. *Macroeconomic and Firm-Specific Determinants of Financial Performance: Evidence from Non-Life Insurance Companies in Africa.* Cogent Business & Management, 10(1), 2023, p.2190312.

183. Y., Ja'afar, B.M., Isah, & N.T., Alhassan. *Corporate Physiognomies and Profitability of Quoted Insurance Companies: Evidence from Emerging Markets.* **African Journal of Management and Business Research,** 6(1), 2022, pp.151-168.

184. R., Al Omari, R.S., Alkhawaldeh, & J.J., Jaber. *Artificial Neural Network for Classifying Financial Performance in Jordanian Insurance Sector.* Economies, 11(4), 2023, p.106.

185. W., Bashaija. *Effect of Financial Risk on Financial Performance of Insurance Companies in Rwanda.* **Journal of Finance and Accounting,** 10(5), 2022.

186. B.A., Zelalem, A.A., Abebe, & S.W., Bezabih. *Corporate Governance and Financial Performance in the Emerging Economy: The Case of Ethiopian Insurance Companies.* **Cogent Economics & Finance,** 10(1), 2022, p.2117117.

187. C.G., Marzen. *The Actions of Crop Insurance Bad Faith.* **Bus. Entrepreneurship & Tax L. Rev.,** 6, 2022, p.17.

188. A., Shaddady. *Business Environment, Political Risk, Governance, Shariah Compliance and Efficiency in Insurance Companies in the Mena Region.* **The Geneva Papers on Risk and Insurance-Issues and Practice,** 47(4), 2022, pp.861-904.

189. S., Sølvsten, & B., Kaiser. *Do Insurers Adjust Prices for the Adoption of Loss Prevention Technologies? Evidence from Danish Municipal Contracts.* **Risk Management and Insurance Review,** 26(1), 2023, pp.57-82.

190. J., Shim. *Are Mergers and Acquisitions Beneficial to Consumers*? Evidence from the Property-Liability Insurance Industry. **Financial Review,** 58(3), 2023, pp.629-652.

191. P.A., Aseinimieyeofori. *Non-Current Assets Investment and Financial Performance of Listed Insurance Companies in Nigeria.* **BW Academic Journal,** 2022, pp.17-17.

192. S.A., Bala, M.Y., Salisu, & I.D.R.I.S., Sani. *Corporate Liquidity and Performance of Listed Insurance Companies in Nigeria.* **UMYU Journal of Accounting and Finance Research,** 3(1), 2022, pp.118-133.

193. F.S., Barakat, J., Hussein, O.A., Mahmoud, & M., Bayyoud. *Analysis of the Factors affecting the Financial Performance of Insurance Companies Listed on the Palestine Stock Exchange.* **Indian Journal of Finance and Banking,** 9(1), 2022, pp.213-229.

194. J.O., Irukwu, *Fundamental of Insurance*. British Library Cataloguing in publication data. 2007.

195. O.T., Yusuf & O.A., Abass, *Investigating the Roles of Claims Manager in Claims Handling Process in the Nigeria Insurance Industry*. **Journal of Business Finance** 1(2), 2013, 69-74.

196. L.A., Akintayo. *Fundamentals of Insurance Claims* (3rd edition). CSS Bookshop Limited. 2002.

197. B.W., Mazviona, M., Dube & T., Sakahuhwa, *An Analysis of Factors Affecting the Performance of Insurance Companies in Zimbabwe*. **Journal of Finance and Investment Analysis**, 6(1), 2017, 1-2.

198. G.E. Oyedokun, & F.G. Gabriel, *Effects of Claims Management on Profitability of Listed Insurance Companies in Nigeria*. **American Journal of Management**, 18(5), 2018.

Chapter Three

Methodology

3.1 Research Design

The study adopted *ex-post-facto* research design. *Ex-post facto* study or after-the-fact research is a category of research design in which the investigation starts after the fact that has occurred previously without interference from the researcher. Since the variables of the study are found in historical data obtainable from the financial reports of listed Nigerian Insurance companies, the design is considered appropriate because the interest of the researcher is to investigate the relationship between claim payment and financial performance of the Nigerian insurance industry. It also suits the paradigm of the study which has positivist approach thus requiring a qualitative data to test the hypotheses. Panel data design was chosen because of the nature of the data to be used for this study, which is simply the audited annual report and accounts of selected insurance firms from the floor of the Nigerian Stock Exchange. Justifiably; it is not only being considered as a powerful and strong research instrument, but also most recent and efficient analytical methods in handling econometric data of this nature[1].

3.2 Population of the Study

Population of the study comprised of twenty-three (23) listed insurance firms, registered and licensed by the NAICOM and on the floor of the Nigerian Stock Exchange (NSE) as specified on its official website as at January, 2022. Most of these insurers have also been in existence over the entire ten (10) year study period (2011-2020)[2].

3.3 Sample and Sampling Techniques

In arriving at the sample size for this study, a simple random sampling technique was

employed after segregating insurers into either "old or new" generation criteria based on their years of existence and according to National Insurance Commission registration. A simple random sampling technique is the one that allows all the members of the entire population to have equal chances of being selected since they all possess factually the same characteristics.

Out of the twenty three (23) listed insurance companies on the floor of the stock exchange, only thirteen (13) made up of seven (7) out of the old generation and six (6) out of the new generation companies have all their complete data/information sent to and captured in the Digest of the Nigerian Insurers Association for the period under review, while also having their annual report and accounts readily accessible for the study period (2011 - 2020)

3.4 Administration of Research Instruments and Methods of Data Collection

The study used panel data mainly from secondary sources of data, which was extracted from audited annual financial reports of selected listed insurance firms on Nigerian Stock Exchange as represented in the Nigerian Insurers Association (NIA) Digest for the period 2011-2020 for the independent variables. Secondary data was considered more appropriate, since the variables of the study can be best measured using insurers available in the financial report of the selected insurers.

3.5 Method of Data Analysis

Model was adopted in the study so as to establish the relationship between claim payment and financial performance of Listed Nigerian Insurance Industry, using Net Claim (NC); Net Premium (NP); Derived Claims (DC) and Expenses Ratio (ER) the independent variable in the study while Return on Equity (ROE) and Return on Asset (ROA) are the dependent variables. Specifically, Pearson Product Moment Correlation Coefficient (PPMCC) was used to analyze the nature of the relationship between variables. General least square (GLS)

multiple regression analyses shall be used to dissect the panel data based on random effect model utilizing E-view 9.0. The random effect is shown up from the result of Durbin-Wu-Hausman test which settled on it conceivable to settle on a decision between the fixed effects model and random effects model[3].

Apart from GLS, other supportive analyses was carried out like descriptive statistics which will provide information on mean, standard deviation and minimum and maximum values in the set of data analysed. Also, the correlation matrix results was produced in order to understand the interrelationship between variables. Moreover, the Breusch-Pagan/Cook-Weisberg tests for heteroskedasticity and multi-collinearity test for auto correlation was also carried out to ensure the fitness of the model.

3.6 Model Specification

The model applied was adopted from a previous study[4]. It is modified to suite this study. The models are as follows:

$ROA = \alpha_0 + \alpha_1(LR) + \alpha_2(ER) + \alpha_3(NC) + \varepsilon$ ……(i)

$LR = \alpha_0 + \alpha_1(NP) + \alpha_2(NC) + \varepsilon$ ……..(ii)

Where:

ROA = Return On Asset

LR = Loss Ratio

ER = Expense Ratio

NP = Net Premium

α_1- α_3 = Regression Parameters

ε = error

The model for this investigation is prefaced on the principle objective and tied down on the sub-objective. The functional relationship between Claims payment, Loss adjustment and financial performance of listed Nigeria insurance companies are expressed thus:

$ROA = \alpha + \beta_{it}(NC) + \beta_{it}(NP) + \beta_{it}(DC) + \beta_{it}(LAE) + \mu_{it}$ 1

$ROE = \alpha + \beta_{it}(NC) + \beta_{it}(NP) + \beta_{it}(DC) + \beta_{it}(LAE) + \mu_{it}$ 2

Where;

$\mathbf{x_1}$ = Net Claim (NC)

$\mathbf{x_2}$ = Net Premium (NP)

$\mathbf{x_3}$ = Derived Claims (DC)

$\mathbf{x_4}$ = Loss Adjustment Expenses (LAE)

Where; ROA and ROE are the dependent variables and X_1 to X_4 are the independent variables

β_{01} = constant term β_1- β = $\mu_1$parameters to be estimated.

Endnotes

1. N. Asika, *Research Methodology: A Practical Approach.* Lagos, Mukugamu & Brothers Enterprises, 2004.

2. Nigerian Info, *List of Companies in the Nigerian Stock Exchange*. Nigerian Info, 2021. https://www.thenigerianinfo.com/nigerian-stock-exchange-listed-companies/

3. R. Nau, *Statistical Forecasting: Notes on Regression and Time Series Analysis*. 2016. https://people.duke.edu/~r nau/411home.htm.

4. T. S. Afolabi, *Effect of Claims Payments on Profitability in the Nigerian Insurance Industry*. **Advances in Social Sciences Research Journal**, 4, 2018.

Chapter Four

Results and Discussion of Findings

This chapter discusses the results obtained from the analysis of the data gathered and the discussion of findings – the justification of the results obtained in the study with the similar results from past related: literature(s), empirical evidences. With this, the researcher can confirm the trend of his analysis, whether it is still relevant with the past literatures. But if not relevant, he can further verify the causes of their differences and establish that in the suggestions for future studies.

4.1 Presentation of Data

This aspect of the chapter shows the presentation of the data collected to establish the relationship between Claims Payment, Loss Adjustment and Financial Performance of Listed Insurance Companies in Nigeria but due to research standardization, please refer to appendix I for the data presentation table.

Pure time series or cross-sectional data cannot detect or measure statistical effects that panel data could. Panel data can help to reduce estimation biases that can occur when groups are combined into a single time series. The data extracted from Nigerian Insurance Digest was analyzed using panel data analysis. Four hypotheses were tested using regression model adopted in the previous chapter. The results would be justified with the results obtained from the past related studies, to verify if the results are still inline or on the same trend with the past. And if not, what are the possible factors behind it after proper examinations have been done on the source(s) and the data inputted during data collection process and analysis.

Descriptive Statistics

This table shows descriptive analytical relationship among the variables measured: Return on Assets; Return on Equity; Net Claim; Net Premium; Underwriting Profit; Loss Adjusting Expenses.

Table 4.1: Descriptive Statistics

	ROA	ROE	Net_Cl	Net_P	Underw_P	Loss_Adj
Mean	0.021306	0.046731	2421566.	5548936.	1328750.	0.370183
Median	0.032700	0.071684	1225156.	3392157.	1195823.	0.331100
Maximum	0.207600	1.421790	30776073	52137873	27481185	1.255100
Minimum	-0.395300	-5.025283	0.000000	0.000000	-36272055	0.000000
Std. Dev.	0.077124	0.538351	4483862.	7882838.	4305762.	0.199833
Skewness	-2.035779	-6.867521	4.256183	3.560452	-3.485426	1.443694
Kurtosis	11.25071	65.37390	22.69912	17.43080	57.45475	6.467286
Jarque-Bera	447.9493	21585.53	2436.895	1370.305	15948.62	107.7335
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	2.705800	5.934823	3.08E+08	7.05E+08	1.69E+08	47.01320
Sum Sq. Dev.	0.749464	36.51753	2.53E+15	7.83E+15	2.34E+15	5.031571
Observations	127	127	127	127	127	127

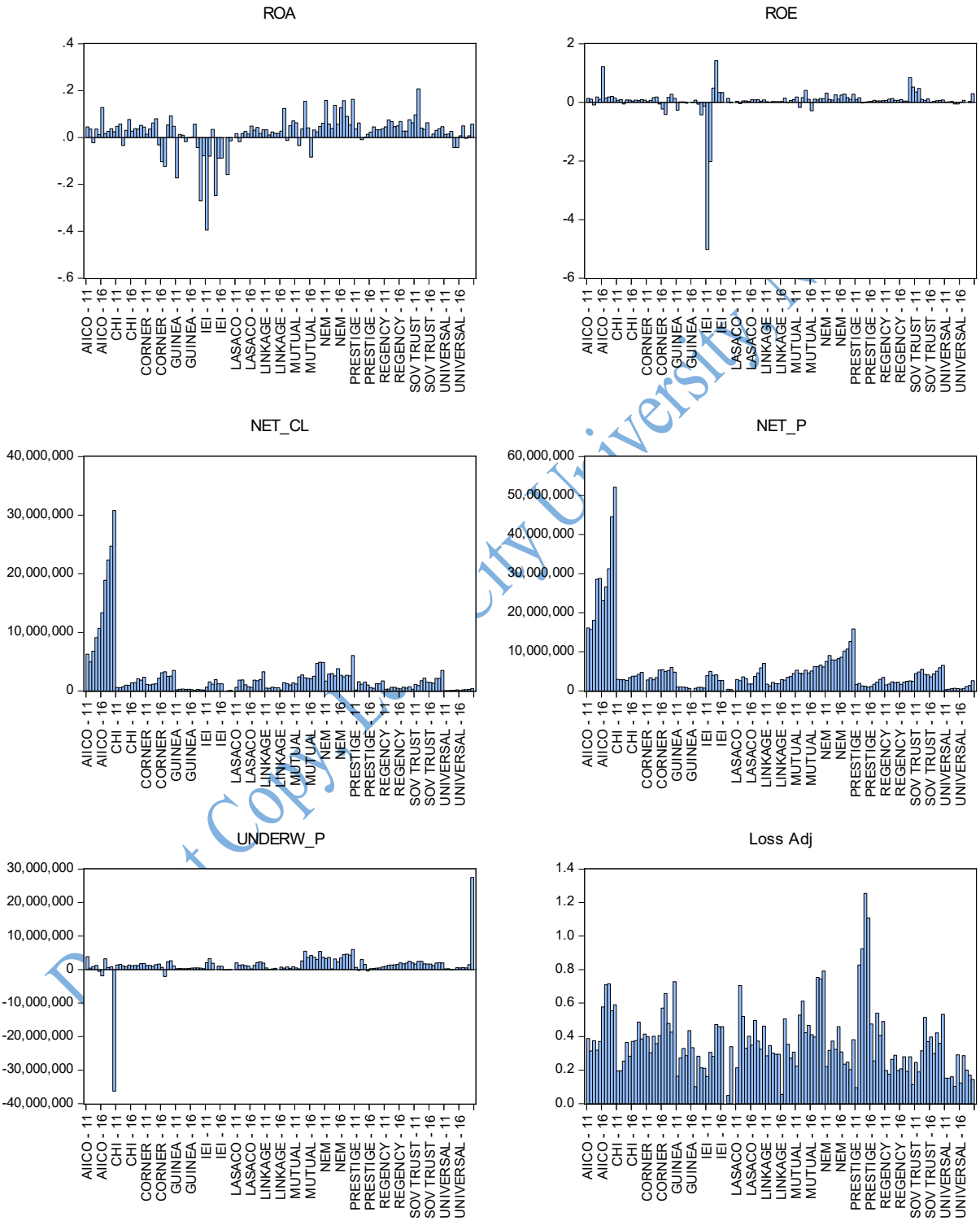
Source: E-view 9.0

Analysis Result, 2022

From table 4.1, the descriptive analysis results on the relationship that exists between Claims Payment, Loss Adjustment and Financial Performance of Listed Nigerian Insurance Companies for the periods of 2011–2020 were analyzed using e-view. Several variables were measured, making return on assets and return on equity the independent variables as discussed in the previous chapter (i.e, the subheading: 3.6). Each of these variables captured independently their respective variables (net claim, net premium, underwriting profit, and

loss adjustment expenses). The table 4.1 above defined the mean (average), the maximum and the minimum values, as well as their respective standard deviations for each variable.

Figure 4.1: Graphical Illustration of the Descriptive Statistics



Source: E-view 9.0

Analysis Result, 2022

At First, it was observed that the Return on Asset (ROA) had a positive mean (average) of return on assets of 0.021306 and the median value which shows the value in the middle of a data set was observed on return on asset to have 0.032700 with the minimum and maximum value of -0.395300 and 0.207600 respectively. The variable (ROA) according to the table deviated with 0.077124 from the total distribution and negatively skewed with the value of -2.035779 which showed that return on asset has a long left-tail and the kurtosis is Leptokurtic distribution in nature, simply because the return on assets exhibited the value of 11.25071 > 3. This showed that the variable has a wider or flatter shape with fatter tails resulting in a greater chance of extreme positive or negative events.

In insurance business, the value of 11.25071 indicated that the insurers experienced occasional extreme returns (either positive or negative), more extreme than the usual + or - three standard deviations from the mean that is predicted by the normal distribution of returns on assets over the years understudied. However, the figure 4.1 depicted value of return on assets on the Jarque-Bera test which is a measure of goodness-of-fit test to determine whether or not sample data have skewness and kurtosis that matches the normal distribution. The value of Jarque-Bera: 447.9493 was observed for ROA which implied that the variable had a good fit in the distribution and also confirmed that the return on assets was statically significant as the p-value < the table value (i.e, 0.0000 < 0.05).

The table also depicted variable on return on equity with respect to the dependent variables such as: net claim, net premium, underwriting profit, and loss adjustment expenses. An average value of return on equity was 0.046731 and the median value of 0.071684 with the minimum and maximum value of: -5.025283 and 1.421790 respectively.

The variable (ROE) according to the table deviates with 0.538351 from its mean value and negatively skewed with the value of -6.867521 which showed that return on equity has a long left-tail and the kurtosis is Leptokurtic in nature, simply because the return on assets

exhibited the value of 65.37390 > 3. This implied that the variable had a flatter shape with fatter tails resulting in a greater chance of extreme positive or negative events. However, the value of 65.37390 indicated that the insurers experienced occasional extreme returns (either positive or negative), more extreme than the usual + or – 3 (three) standard deviation from the mean that is predicted by the normal distribution of returns on assets over the years understudied. Further, the value of Jarque-Bera: 21585.53 was observed for ROE which implied that the variable had a good fit in the distribution and also confirmed that the return on equity was statistically significant as the p-value < the table value (i.e, 0.0000 < 0.05).

The table as well related Net claim of the selected insurers with return on assets and return on equity. The distribution depicted that an average value of net claim was N2,421,566billion which indicated that the accumulated contribution of the average on return on assets and return on equity in the industry was about N2,421,566,000 (Two billion Four Hundred and Twenty One Million Five Hundred and Sixty Six Thousand Naira Only) for the 10 years under review. The table further confirmed that variable had a median value of N1,225,156,000 (One billion Two Hundred and Twenty Five Million One Hundred and Fifty Six Thousand Naira Only) with the minimum and maximum value of 0.000000 and N30,776,073,000 (Thirty billion Seven Hundred and Seventy Six Million Seventy Three Thousand Naira Only). The variable (Net Claim) according to the table deviates with N4,483,862,000 (Four Billion Four Hundred and Eighty Three Million Eight Hundred and Sixty Two Thousand Naira Only) from its mean value and positively skewed with the value of 4.256183 which showed that net claim has a long right-tail and the kurtosis is Leptokurtic in nature, simply because the return on assets exhibited the value of 22.69912> 3. This implied that the variable had a flatter shape with fatter tails resulting in a greater chance of extreme positive or negative events. However, the value of 22.69912 indicated that the insurers experienced occasional extreme returns (either positive or negative), more extreme

than the usual + or – 3 (three) standard deviations from the mean that is predicted by the normal distribution of returns on assets over the years understudied. Further, the value of Jarque-Bera: 2436.895 was observed for net claim which implied that the variable had a good fit in the distribution and also confirmed that the return on equity was statistically significant as the p-value < the table value (i.e, 0.0000 < 0.05).

In addition, the table 4.1 as well depicted values on net premium, which was measured in respect to the return on assets and return on equity of the selected insurers over the period. The distribution depicted an average value of net premium for N5,548,936,000 billion which showed that the accumulated contribution average of net premium on return on assets and return on equity in the industry was about N 5,548,936,000 billion for the period under review. The table further confirmed that the variable had a median value of N3,392,157,000 billion with the minimum and maximum value of 0.000000 and 52,137,873,000 billion respectively.

Furthermore, the variable according to the table deviates with N7,882,838,000 billion from its mean value and positively skewed with the value of 3.560452 which showed that the net premium has a long right-tail and the kurtosis is Leptokurtic in nature, simply because the return on assets exhibited the value of 17.43080 > 3. This implied that the variable had a flatter shape with fatter tails resulting in a greater chance of extreme positive or negative events. However, the value of 17.43080 indicated that the insurers experienced occasional extreme returns (either positive or negative), more extreme than the usual + or - three standard deviations from the mean that is predicted by the normal distribution of returns on assets and return on equity over the years understudied. However, the value of Jarque-Bera of 1370.305 was recorded for net premium which implied that the variable had a good fit in the distribution and also confirmed that the variable was statically significant as the p-value < the table value (i.e, 0.0000 < 0.05).

According to the table, the selected insurers in the industry were said to experience underwriting profit estimated at a mean value of N1,328,750,000 billion naira and the median value of N1,195,823,000 billion naira over the years under review. It was further observed that, since the inception of NAICOM, the industry has been experiencing a perfect shape of underwriting practices which staged the minimum and maximum value of the variable at -36272055 and 27481185 respectively.

The variable according to the table deviates with N4,305,762,000 billion from its mean value and negatively skewed with the value of -3.485426 which showed that the underwriting profit had a long left-tail and the kurtosis is Leptokurtic in nature, simply because the returns exhibited the value of 57.45475> 3. This implied that the variable had a flatter shape with fatter tails resulting in a greater chance of extreme positive or negative events. However, the value of 57.45475 indicated that the insurers experienced occasional extreme returns (either positive or negative), more extreme than the usual + or - three standard deviations from the mean that is predicted by the normal distribution of returns on assets and return on equity over the years understudied. however, the value of Jarque-Bera of 15948.62 was recorded for the variable which implied that the variable had a good fit in the distribution and also confirmed that the underwriting profit cost was statically significant as the p-value < the table value (i.e, 0.0000 < 0.05).

Finally, the selected insurers had a loss adjustment expenses staged at an average value of N0.370183billion and the Median value of N0.331100billion. The table further confirmed that the variable had a minimum and maximum value of -7579125 and N1.255100billion respectively. The variable according to the table deviates with 0.199833 from its mean value and positively skewed with the value of N1.443694billion which showed that the net premium has a long right-tail and the kurtosis is Leptokurtic in nature, simply because the return on assets exhibited the value of 6.467286>3. This implied that the variable had a flatter

shape with fatter tails resulting in a greater chance of extreme positive or negative events. However, the value of 6.467286 indicated that the insurers experienced occasional extreme returns (either positive or negative), more extreme than the usual + or - three standard deviations from the mean that is predicted by the normal distribution of returns on assets and return on equity over the years understudied. However, the value of Jarque-Bera of 107.7335 recorded for the variable which implied that the variable had a good fit in the distribution and also confirmed that the loss adjustment expenses was statically significant as the p-value < the table value (i.e, 0.0000 < 0.05). The above results showed that the selected insurers had effective financial performances as shown in the previous distribution illustrations.

Diagnostic Test (Panel Data)

Panel Unit Root Test: Summary

The panel unit root tests are established here to validate the stationarity of the data set used in the thesis. It has been established that if the variables in a panel data set are non-stationary, the regression results in the panel data will lead to erroneous and misleading conclusions. To overcome this issue, the researcher used Levin, Lin, and Chu (2002), Breitung (2000), Im, Pesaran, and Shin (2003), Maddala and Wu (1999), and Choi (2001) (ADF - Fisher Chi-square), PP - Fisher Chi-square). These tests are used to determine whether or not the variables used in this study have a unit root. The results are organized around null hypotheses, which can be accepted or rejected based on the probability and significance values. Below are the results obtained from testing each of the variables one after the other.

Return on Assets (ROA)

Panel unit root test: Summary
Series: ROA
Date: 03/06/23 Time: 17:58
Sample: 2011 2020
Exogenous variables: Individual effects; Individual effects, individual linear trends; none
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 1
Newey-West automatic bandwidth selection and Bartlett kernel

Table 4.2: Return on Assets (ROA)

		Chi-square (p-value) at Level	Chi-square (p-value) at 1st difference	Chi-square (p-value) at 2nd difference	P=0.05
Levin, Lin & Chu t*	Individual Intercept	-9.55229 (0.0000)	-12.4221 (0.0000)	-18.5981 (0.0000)	I(0)
	Individual Intercept and trend	-10.4326 (0.0000)	-17.9353 (0.0000)	-18.4364 (0.0000)	I(0)
	None	167.920 (0.0000)	-15.8495 (0.0000)	-19.0458 (0.0000)	I(0)
Breitung t-stat	Individual Intercept				I(0)
	Individual Intercept and trend	-2.39903 (0.0000)	-3.20602 (0.0007)	-1.09181 (0.1375)	I(1)
	None				I(0)
Im, Pesaran and Shin W-stat	Individual Intercept	-4.10106 (0.0000)	-6.13193 (0.0000)	-7.32584 (0.0000)	I(0)
	Individual Intercept and trend	-1.69458 (0.0083)	-2.79428 (0.0026)	-1.59273 (0.0556)	I(1)
	None				
ADF - Fisher Chi-square	Individual Intercept	67.7865 (0.0000)	93.1326 (0.0000)	99.1067 (0.0000)	I(0)
	Individual Intercept and trend	167.920 (0.0000)	75.4992 (0.0000)	54.3264 (0.0009)	I(0)
	None	167.920 (0.0000)	192.397 (0.0000)	170.023 (0.0000)	I(0)
PP - Fisher Chi-square	Individual Intercept	72.7299 (0.0000)	154.446 (0.0000)	165.672 (0.0000)	I(0)
	Individual Intercept and trend	86.0942 (0.0000)	120.990 (0.0000)	121.939 (0.0000)	I(0)
	None	66.6709 (0.0000)	206.732 (0.0000)	209.317 (0.0000)	I(0)
At I.I	** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.				

At I.I and T	** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.
None	** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality

Source: E-view 9.0

Analysis Result, 2022

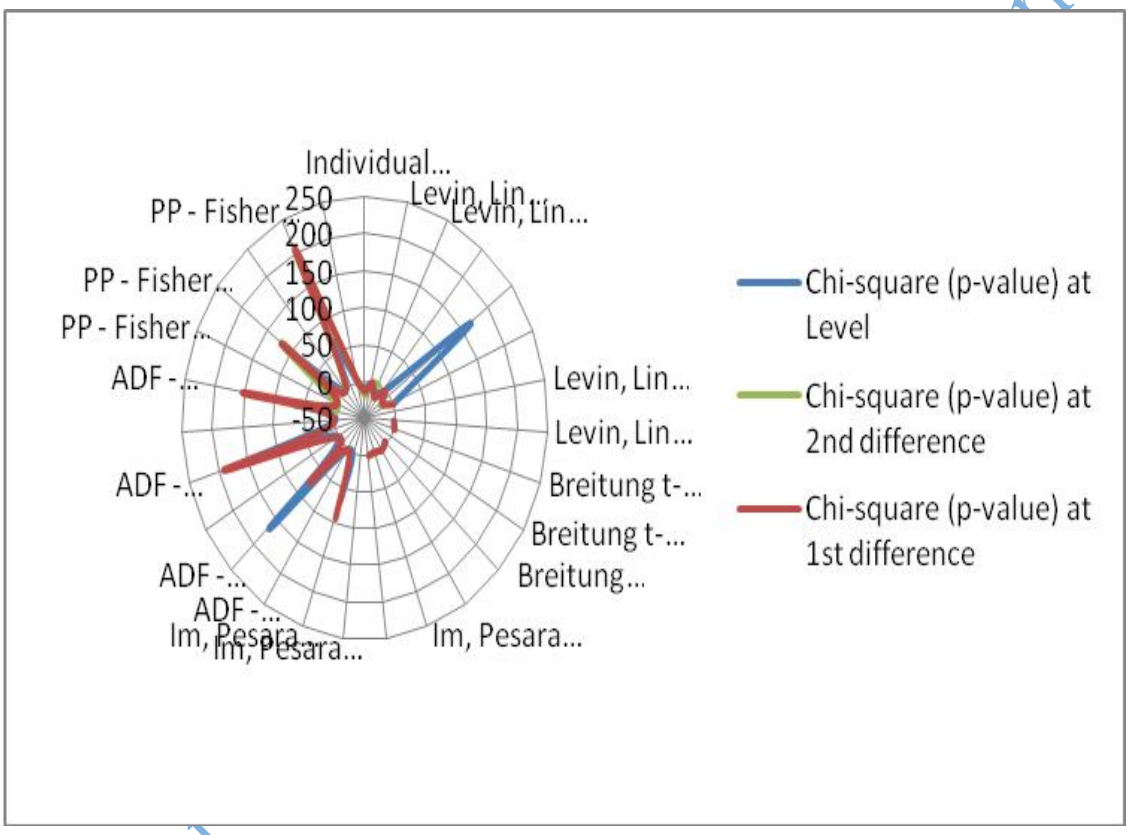


Figure 4.2: Return on Assets (ROA)

Source: Microsoft Excel, 10.0

From the table 4.2, the test is assumed to have null hypothesis as Ho: return on assets has unit root, Ha: return on assets has no unit root. The results are compared with P-value of 0.05. At level, the Levin, Lin & Chu t*read 0.0000 < 0.05, Im, Pesaran and Shin W-stat had 0.0000 < 0.05; and ADF - Fisher Chi-square recorded 0.0000 < 0.05 as well as PP - Fisher Chi-square with 0.0000<0.05. These implied that at level, the null hypothesis is rejected and alternative

hypothesis is accepted which means that return variable on asset has no unit root (non-stationary)

At Individual effects, individual linear trends, the test are assumed to have null hypothesis as Ho: return on assets has unit root, Ha: return on assets has no unit root. The results are compared with P-value of 0.05. The Levin, Lin & Chu t* read a chi-square value of -10.4326 and the p-value of 0.0000 < 0.05, Breitung t-stat had a chi-square value of -2.39903 and the p-value of 0.0000 < 0.05. However, Im, Pesaran and Shin W-stat and ADF - Fisher Chi-square as well as PP - Fisher Chi-square had the statistical chi-square values of: (-1.69458 and 0.0083); (167.920 and 0.0000) and (86.0942 and 0.0000) respectively. These implied that at individual linear trends, the null hypothesis is rejected and alternative hypothesis is accepted which means that return variable on asset has no unit root (non-stationary)

At none, the test is also assumed to have null hypothesis as Ho: return on assets has unit root, and Ha: return on assets has no unit root. The Levin, Lin & Chu t* read a chi-square value of -167.920 and the p-value of 0.0000 < 0.05. Here, no Breitung t-stat and Im, Pesaran and Shin W-stat are considered. ADF - Fisher Chi-square as well as PP - Fisher Chi-square had the statistical chi-square values of: (167.920 and 0.0000) and (66.6709 and 0.0000) respectively. These implied that at none, the null hypothesis is rejected and alternative hypothesis is accepted which means that return variable on asset has no unit root (non-stationary)

The test here also assumed to have null hypothesis as Ho: return on assets has unit root, Ha: return on assets has no unit root. The results read that, at 1st difference, the Levin, Lin & Chu t* recorded a chi-square and probability values of 14.9920(0.0000 < 0.05), Im, Pesaran and Shin W-stat valued at -6.13193(0.0000 < 0.05); and ADF - Fisher Chi-square with 93.1326 (0.0000 < 0.05) as well as PP - Fisher Chi-square with 154.446 (0.0000 < 0.05). These

implied that 1st difference, the null hypothesis is rejected and alternative hypothesis is accepted which means that return variable on asset has no unit root (non-stationary).

At individual linear trends, the test assumed to have null hypothesis as Ho: return on assets has unit root, Ha: return on assets has no unit root. The Levin, Lin & Chu t* read a chi-square and probability values: -17.9353(0.0000 < 0.05), Breitung t-stat had a chi-square and p-value of -3.20602 (0.0007 < 0.05). However, Im, Pesaran and Shin W-stat and ADF - Fisher Chi-square as well as PP - Fisher Chi-square had the statistical chi-square values and p-values of: (-2.79428 and 0.0026); (75.4992 and 0.0000) and (120.990 and 0.0000) respectively. These implied that at individual linear trends / 1st difference, the null hypothesis is rejected and alternative hypothesis is accepted which means that return variable on asset has no unit root (non-stationary).

At none under the 1st difference, the test as well assumes to have null hypothesis as Ho: return on assets has unit root, and Ha: return on assets has no unit root. The Levin, Lin & Chu t* read a chi-square and probability values of -15.8495(0.0000 <0.05). ADF - Fisher Chi-square and PP - Fisher Chi-square had the statistical chi-square and p-values of: (192.397 and (0.0000 < 0.05) and (206.732 and (0.0000 <0.05)) respectively. These implied that at none, the null hypothesis is rejected and alternative hypothesis is accepted which means that return variable on asset has no unit root (non-stationary)

In order to authenticate the stationarity of the data obtained on ROA, panel unit root test underwent the second difference stage. The test here also assumed to have null hypothesis as Ho: return on assets has unit root, Ha: return on assets has no unit root. The results read that, at 2nd difference, the Levin, Lin & Chu t* recorded a chi-square and probability values of -19.4593 (0.0000 < 0.05), Im, Pesaran and Shin W-stat valued at -9.36286(0.0000 < 0.05); and ADF - Fisher Chi-square with 121.189 (0.0000 < 0.05) as well as PP - Fisher Chi-square with

165.672 (0.0000 < 0.05). These implied that at 2nd difference, the null hypothesis is rejected and alternative hypothesis is accepted which means that return variable on asset has no unit root (non-stationary).

At individual linear trends under the 2nd difference, the test assumed to have null hypothesis as Ho: return on assets has unit root, Ha: return on assets has no unit root. The Levin, Lin & Chu t* read chi-square and probability values: -17.0280 (0.0000 < 0.05), Breitung t-stat had chi-square and p-value of -2.96076 (0.0015< 0.05). However, Im, Pesaran and Shin W-stat and ADF - Fisher Chi-square as well as PP - Fisher Chi-square had the statistical chi-square values and p-values of: (-2.33377 (0.0098 < 0.05)); (70.3225(0.0000< 0.05) and (121.939 (0.0000< 0.05)) respectively. These implied that at individual linear trends / 2nd difference, the null hypothesis is rejected and alternative hypothesis is accepted which means that return variable on asset has no unit root (non-stationary).

At none under the 2nd difference, the test assumed to have null hypothesis as Ho: return on assets has unit root, and Ha: return on assets has no unit root. The Levin, Lin & Chu t* read a chi-square and probability values of --19.0458 (0.0000 <0.05). ADF - Fisher Chi-square and PP - Fisher Chi-square had the statistical chi-square and p-values of: (193.324 and (0.0000 < 0.05) and (209.317 and (0.0000 <0.05)) respectively. These implied that at none, the null hypothesis is rejected and alternative hypothesis is accepted which means that return variable on asset has no unit root (non-stationary)

Variable 2: Return on Equity (ROE)

Panel unit root test: Summary
Series: ROE
03/06/23 Time: 18:10
Sample: 2011 2020
Exogenous variables: Individual effects; Individual effects, individual linear trends; none
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 1
Newey-West automatic bandwidth selection and Bartlett kernel

Table 4.3: Return on Equity (ROE)

		Chi-square (p-value) at Level	Chi-square (p-value) at 1st difference	Chi-square (p-value) at 2nd difference	P=0.05
Levin, Lin & Chu t*	Individual Intercept	-8.53577 (0.0000)	-12.6086 (0.0000)	-13.4459 (0.0000)	I(0)
	Individual Intercept and trend	-12.1090 (0.0000)	-13.7643 (0.0000)	-22.5652 (0.0000)	I(0)
	None	-8.10940 (0.0000)	-12.2095 (0.0000)	-16.4904 (0.0000)	I(0)
Breitung t-stat	Individual Intercept				
	Individual Intercept and trend	0.60924 (0.7288)	0.09253 (0.5369)	-0.23681 (0.4064)	I(3)
	None				
Im, Pesaran and Shin W-stat	Individual Intercept	-4.05662 (0.0000)	-5.57774 (0.0000)	-5.91315 (0.0000)	I(0)
	Individual Intercept and trend	-1.53989 (0.0618)	-2.12064 (0.0170)	-1.89928 (0.0288)	I(2)
	None				
ADF - Fisher Chi-square	Individual Intercept	67.3438 (0.0000)	79.6351 (0.0000)	81.4171 (0.0000)	I(0)
	Individual Intercept and trend	50.0221 (0.0014)	61.7271 (0.0000)	50.8037 (0.0011)	I(3)
	None	68.8437 (0.0000)	158.588 (0.0000)	142.474 (0.0000)	I(0)
PP - Fisher Chi-square	Individual Intercept	67.6997 (0.0000)	128.949 (0.0000)	156.322 (0.0000)	I(0)
	Individual Intercept and trend	67.2140 (0.0000)	119.718 (0.0000)	130.186 (0.0000)	I(0)
	None	75.4034 (0.0000)	187.830 (0.0000)	192.455 (0.0000)	I(0)
At I.I	** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.				
At I.I and T	** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.				
None	** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality				

Source: E-view 9.0

Analysis Result, 2022

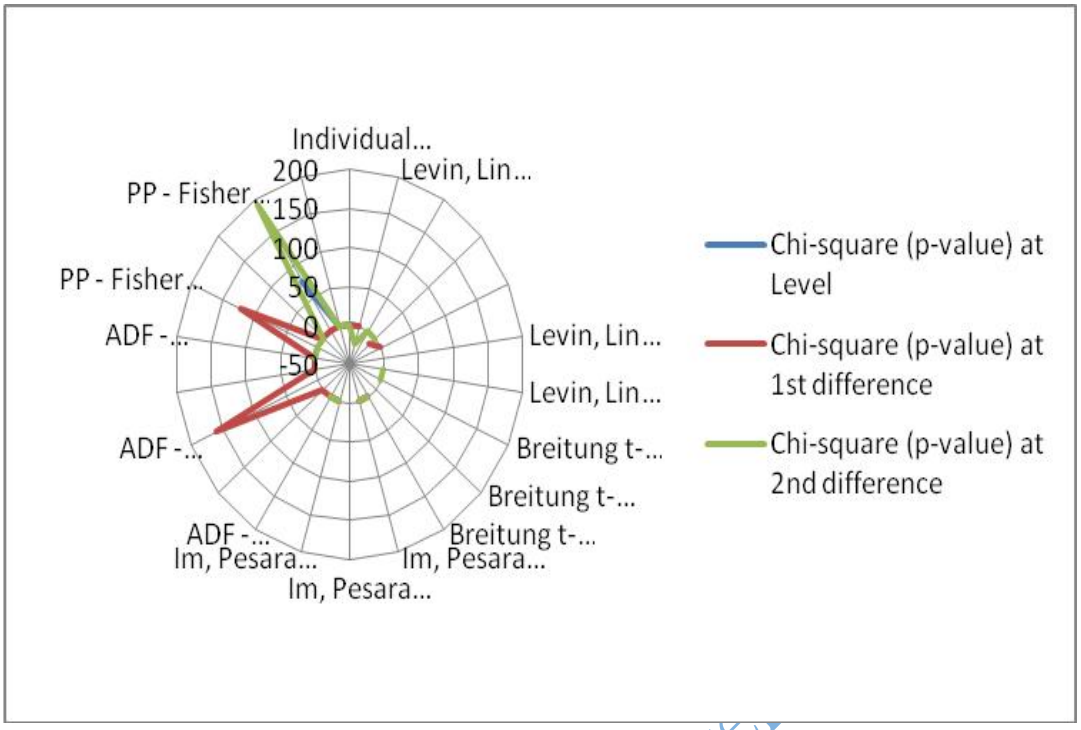


Figure 4.3: Return on Equity (ROE)

Source: Microsoft Excel, 10.0

From the table 4.3, the test is assumed to have null hypothesis as Ho: return on equity has unit root, Ha: return on equity has no unit root. The results obtained are compared with P-value of 0.05. At level, the Levin, Lin & Chu t* a chi-square and probability value of: --8.53577 (0.0000 < 0.05), Im, Pesaran and Shin W-stat had -4.05662(0.0000 < 0.05); and ADF - Fisher Chi-square recorded 67.3438 (0.0000 < 0.05) as well as PP - Fisher Chi-square with 67.6997(0.0000<0.05). These implied that at level under Individual Intercept, the null hypothesis is rejected which means that return variable on equity has no unit root (non-stationary).

At individual linear trends, the test is assumed to have null hypothesis as Ho: return on equity has unit root, Ha: return on equity has no unit root. The Levin, Lin & Chu t* read a chi-square and probability value of -12.1090 (0.0000 < 0.05), Breitung t-stat had a chi-square and the p-value of 0.60924 (0.7288> 0.05). However, Im, Pesaran and Shin W-stat and ADF -

Fisher Chi-square as well as PP - Fisher Chi-square had the statistical chi-square values of: (--1.53989 (0.0618>0.05)); (50.0221 (0.0014 <0.05)) and (67.2140 (0.0000 < 0.05)) respectively. These implied that at individual linear trends, the null hypothesis is rejected which means that return on equity has no unit root (non-stationary).

At none, the test is also assumed to have null hypothesis as Ho: return on equity has unit root, and Ha: return on equity has no unit root. The Levin, Lin & Chu t* read a chi-square and probability values of -8.10940 (0.0000 < 0.05). Here, no Breitung t-stat and Im, Pesaran and Shin W-stat are considered. ADF - Fisher Chi-square and PP - Fisher Chi-square had the statistical chi-square and p-values of: (68.8437 (0.0000< 0.05)) and (75.4034(0.0000<0.05) respectively. These implied that at none, the null hypothesis is rejected and alternative hypothesis is accepted which means that return on equity has no unit root (non-stationary).

The test here also assumed to have null hypothesis as Ho: return on equity has unit root, Ha: return on equity has no unit root. The results read that, at 1st difference, the Levin, Lin & Chu t* recorded a chi-square and probability values of -12.6086 (0.0000 < 0.05), Im, Pesaran and Shin W-stat valued at -5.57774 (0.0000 < 0.05); and ADF - Fisher Chi-square with 79.6351 (0.0000 < 0.05) as well as PP - Fisher Chi-square with 128.949(0.0000 < 0.05). These implied that 1st difference, the null hypothesis is rejected and alternative hypothesis is accepted which means that return on equity has no unit root (non-stationary).

At individual linear trends, the test assumed to have null hypothesis as Ho: return on equity has unit root, Ha: return on equity has no unit root. The Levin, Lin & Chu t* read a chi-square and probability values: -13.7643 (0.0000 < 0.05), Breitung t-stat had a chi-square and p-value of 0.09253(0.5369< 0.05). However, Im, Pesaran and Shin W-stat and ADF - Fisher Chi-square as well as PP - Fisher Chi- square had the statistical chi-square values and p-values of: (-2.12064(0.0170<0.05); (61.7271(0.0000<0.05) and (119.718(0.0000< 0.05))

respectively. These implied that at individual linear trends / 1st difference, the null hypothesis is rejected and alternative hypothesis is accepted which means that return on equity has no unit root (non-stationary).

At none under the 1st difference, the test as well assumes to have null hypothesis as Ho: return on equity has unit root, and Ha: return on equity has no unit root. The Levin, Lin & Chu t* read a chi-square and probability values of -12.2095 (0.0000 <0.05). ADF - Fisher Chi-square and PP - Fisher Chi-square had the statistical chi-square and p-values of: (158.588 and (0.0000 < 0.05) and (187.830and (0.0000 <0.05)) respectively. These implied that at none, the null hypothesis is rejected and alternative hypothesis is accepted which means that return on equity has no unit root (non-stationary).

The panel unit root test undergone the second difference stage and the test also assumed to have null hypothesis as Ho: return on equity has unit root, Ha: return on equity has no unit root. The results read that, at 2nd difference, the Levin, Lin & Chu t* recorded a chi-square and probability values of -13.4459(0.0000 < 0.05), Im, Pesaran and Shin W-stat valued at -- 5.91315 (0.0000 < 0.05); and ADF - Fisher Chi-square with 81.4171 (0.0000 < 0.05) as well as PP - Fisher Chi-square with 156.322 (0.0000 < 0.05). These implied that at 2nd difference, the null hypothesis is rejected and alternative hypothesis is accepted which means that return on equity has no unit root (non-stationary)

At individual linear trends under the 2nd difference, The Levin, Lin & Chu t* read chi-square and probability values: -22.5652 (0.0000 < 0.05), Breitung t-stat had chi-square and p-value of -0.23681 (0.4064> 0.05). However, Im, Pesaran and Shin W-stat and ADF - Fisher Chi-square as well as PP - Fisher Chi-square had the statistical chi-square values and p-values of: (-1.89928 (0.0288> 0.05)); (50.8037 (0.0011< 0.05) and (130.186 (0.0000 < 0.05)) respectively. These implied that at individual linear trends / 2nd difference, the null hypothesis

is rejected and alternative hypothesis is accepted which means that return on equity has no unit root (non-stationary).

At none under the 2nd difference, the test assumed to have null hypothesis and the Levin, Lin & Chu t* read a chi-square and probability values of -16.4904 (0.0000 <0.05). ADF - Fisher Chi-square and PP - Fisher Chi-square had the statistical chi-square and p-values of: (142.474 and (0.0000 < 0.05) and (192.455 and (0.0000 <0.05)) respectively. These implied that at none, the null hypothesis is rejected and alternative hypothesis is accepted which means that return on equity has no unit root (non-stationary)

Net Claim (Net_C)

Panel unit root test: Summary
Series: **Net_C**
Date: 03/06/23 Time: 18:10
Sample: 2011-2020
Exogenous variables: Individual effects; Individual effects, individual linear trends; none
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 1
Newey-West automatic bandwidth selection and Bartlett kernel

Table 4.4: Net Claim

		Chi-square (p-value) at Level	Chi-square (p-value) at 1st difference	Chi-square (p-value) at 2nd difference	P=0.05
Levin, Lin & Chu t*	Individual Intercept	3.30552 (0.9995)	-1.48319 (0.0690)	-4.45803 (0.0000)	I(2)
	Individual Intercept and trend	-2.67266 (0.0038)	-4.33304 (0.0000)	-50.7183 (0.0000)	I(0)
	None	4.54987 (1.0000)	-4.71410 (0.0000)	-11.2013 (0.0000)	I(1)
Breitung t-stat	Individual Intercept				
	Individual Intercept and trend	0.86087 (0.8053)	0.12189 (0.5485)	0.54202 (0.7061)	I(3)
	None				
Im, Pesaran	Individual Intercept	2.42141 (0.9923)	-1.07405 (0.1414)	-2.56102 (0.0052)	I(2)

and Shin W-stat	Individual Intercept and trend None	0.64959 (0.7420)	0.17173 (0.5682)	-4.07202 (0.0000)	I(2)
ADF - Fisher Chi-square	Individual Intercept	12.3349 (0.9891)	33.9061 (0.1374)	51.1747 (0.0023)	I(2)
	Individual Intercept and trend	19.2363 (0.8263)	26.5072 (0.4355)	45.9769 (0.0092)	I(2)
	None	9.32089 (0.9989)	61.0589 (0.0001)	106.305 (0.0000)	I(1)
PP - Fisher Chi-square	Individual Intercept	25.1061 (0.5130)	102.666 (0.0000)	157.432 (0.0000)	I(1)
	Individual Intercept and trend	45.7271 (0.0098)	105.398 (0.0000)	136.506 (0.0000)	I(0)
	None	7.56866 (0.9998)	129.864 (0.0000)	195.222 (0.0000)	I(1)
At I.I	** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.				
At I.I and T	** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.				
None	** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality				

Source: E-view 9.0

Analysis Result, 2022

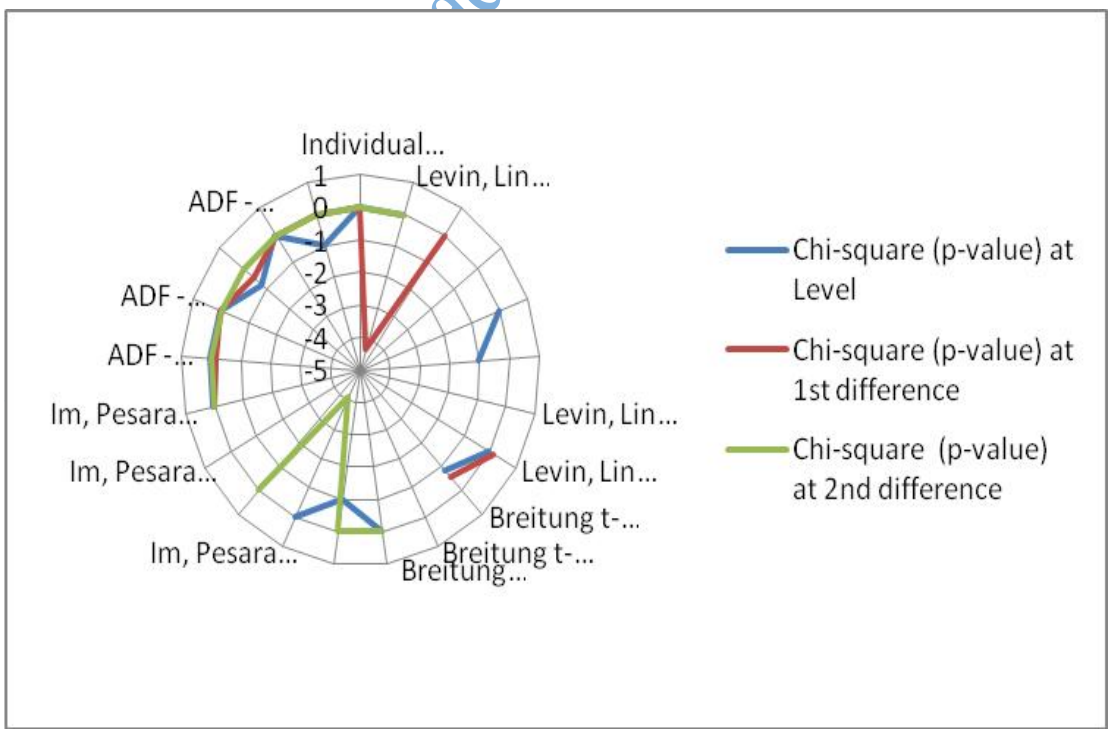


Figure: 4.4: Net Claim
Source: Microsoft Excel 10.0

From the table 4.4, the test is assumed to have null hypothesis as Ho: Net claim has unit root, Ha: Net claim has no unit root. At level, the Levin, Lin & Chu t* had a chi-square and probability value of 3.30552 (0.9995>0.05), Im, Pesaran and Shin W-stat had 2.42141 (0.9923>0.05); and ADF - Fisher Chi-square recorded 12.3349 (0.9891> 0.05) as well as PP - Fisher Chi-square with 25.1061 (0.5130 > 0.05). These implied that at level under Individual Intercept, the null hypothesis which says, net claim has unit root is accepted. That is data on net claim is stationary at level.

At individual linear trends, the test assumed to have null hypothesis as Ho: Net claim has unit root, Ha: Net claim has no unit root. The Levin, Lin & Chu t* read a chi-square and probability value of -2.67266 (0.0038< 0.05), Breitung t-stat had a chi-square and the p-value of 0.86087 (0.8053> 0.05). However, Im, Pesaran and Shin W-stat and ADF - Fisher Chi-square as well as PP - Fisher Chi-square had the statistical chi-square values of: (0.64959(0.5130>0.05)); (38.1220 (0.0590>0.05)) and (45.7271 (0.0098> 0.05)) respectively. Based on the majority of the tests, the p-value results, at individual linear trends, the null hypothesis are accepted which means that net claim has unit root (stationary).

At none, the test is also assumed to have null hypothesis as Ho: Net claim has unit root, and Ha: Net claim has no unit root. The Levin, Lin & Chu t* read a chi-square and probability values of 0.7420 (1.0000 > 0.05). ADF - Fisher Chi-square and PP - Fisher Chi-square had the statistical chi-square and p-values of: (9.32089 (0.9989> 0.05) and [7.56866 (0.9998 > 0.05)] respectively. The results implied that at none, the null hypothesis is accepted which means that net claim has unit root (stationary).

The test here also assumed to have null hypothesis and the results read that, at 1st difference, the Levin, Lin & Chu t* recorded a chi-square and probability values of -1.48319 (0.0690>0.05), Im, Pesaran and Shin W-stat valued at -1.07405 (0.1414>0.05); and ADF -

Fisher Chi-square with 33.9061 (0.1374< 0.05) as well as PP - Fisher Chi-square with 102.666 (0.0000 < 0.05). These implied that 1st difference, the null hypothesis is rejected which means that net claim has no unit root (non-stationary).

At individual linear trends, the test assumed to have null hypothesis and the Levin, Lin & Chu t* read a chi-square and probability values: -4.33304(0.0000 < 0.05), Breitung t-stat had a chi-square and p-value of 0.12189 (0.5485> 0.05). However, Im, Pesaran and Shin W-stat and ADF - Fisher Chi-square as well as PP - Fisher Chi-square had the statistical chi-square values and p-values of: (0.17173 (0.5682>0.05); (26.5072 (0.4355>0.05) and (105.398 (0.0000 < 0.05)) respectively. These implied that at individual linear trends / 1st difference, the null hypothesis is accepted which means that net claim has unit root (non-stationary).

At none under the 1st difference, the test as well assumes to have null hypothesis as Ho: Net Claim has unit root, and Ha: Net Claim has no unit root. The Levin, Lin & Chu t* read a chi-square and probability values of -8.13868 (0.0000 <0.05). ADF - Fisher Chi-square and PP - Fisher Chi-square had the statistical chi-square and p-values of: (104.283 and (0.0000 < 0.05) and (129.864 (0.0000 <0.05)) respectively. These implied that at none, the null hypothesis is rejected which means that net claim has no unit root (non-stationary).

The second difference stage of the panel unit root test also assumed to have null hypothesis as Ho: Net claim has unit root, Ha: Net claim has no unit root. The results read that, at 2nd difference, the Levin, Lin & Chu t* recorded a chi-square and probability values of -4.45803 (0.0000 < 0.05), Im, Pesaran and Shin W-stat valued at -2.56102(0.0052 < 0.05); and ADF - Fisher Chi-square with 51.1747 (0.0023<0.05) as well as PP - Fisher Chi-square with 157.432 (0.0000 < 0.05). These implied that at 2nd difference, the null hypothesis is rejected which means that net claim has no unit root (non-stationary).

At individual linear trends under the 2nd difference, The Levin, Lin & Chu t* read chi-square and probability values: -50.7183 (0.0000 < 0.05), Breitung t-stat had chi-square and p-value of 0.54202 (0.0009> 0.05). However, Im, Pesaran and Shin W-stat and ADF - Fisher Chi-square as well as PP - Fisher Chi-square had the statistical chi-square values and p-values of: (-4.07202(0.0029 > 0.05)); (45.9769 (0.0092< 0.05) and (136.506 (0.0000 < 0.05)) respectively. These implied that at individual linear trends / 2nd difference, the null hypothesis is rejected which means that loss adjustment expenses has no unit root (non-stationary).

At none under the 2nd difference, the test assumed to have null hypothesis and the Levin, Lin & Chu t* read a chi-square and probability values of -11.2013 (0.0000 <0.05). ADF - Fisher Chi-square and PP - Fisher Chi-square had the statistical chi-square and p-values of: (106.305 and (0.0000 < 0.05) and (195.222 and (0.0000 <0.05)) respectively. These implied that at none, the null hypothesis is rejected which means that net claim has no unit root (non-stationary)

Net Premium (Net P)

Panel unit root test: Summary
Series: **Net_P**
Date: 03/06/23 Time: 18:10
Sample: 2011-2020
Exogenous variables: Individual effects; Individual effects, individual linear trends; none
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 1
Newey-West automatic bandwidth selection and Bartlett kernel

Table 4.5: Net Premium

		Chi-square (p-value) at Level	Chi-square (p-value) at 1st difference	Chi-square (p-value) at 2nd difference	P=0.05
Levin, Lin & Chu t*	Individual Intercept	7.32204 (1.0000)	-1.12114 (0.1311)	-6.61999 (0.0000)	I(2)
	Individual Intercept and trend	0.03226 (0.5129)	-7.05695 (0.0000)	-2.28495 (0.0112)	I(2)
	None	-0.19474 (0.4228)	-2.88252 (0.0020)	-9.69290 (0.0000)	I(1)
Breitung t-stat	Individual Intercept				
	Individual Intercept and trend	3.51035 (0.9998)	0.49716 (0.6905)	0.78307 (0.7832)	I(3)
	None				
Im, Pesaran and Shin W-stat	Individual Intercept	4.69051 (1.0000)	0.06664 (0.5266)	-2.39026 (0.0084)	I(2)
	Individual Intercept and trend	1.50624 (0.9340)	-0.09242 (0.4632)	-0.15485 (0.4385)	I(3)
	None				
ADF - Fisher Chi-square	Individual Intercept	5.55327 (1.0000)	24.7509 (0.4194)	48.0863 (0.0025)	I(2)
	Individual Intercept and trend	9.06415 (0.9975)	29.5882 (0.1988)	27.0092 (0.2109)	I(3)
	None	21.9540 (0.6912)	39.7315 (0.0299)	93.5585 (0.0000)	I(1)
PP - Fisher Chi-square	Individual Intercept	7.40870 (0.9999)	60.9696 (0.0001)	135.087 (0.0000)	I(1)
	Individual Intercept and trend	24.4660 (0.4352)	73.4819 (0.0000)	114.457 (0.0000)	I(1)
	None	8.58296 (0.9995)	75.6847 (0.0000)	169.364 (0.0000)	I(1)
At I.I	** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.				
At I.I and T	** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.				
None	** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality				

Source: E-view 9.0

Analysis Result, 2022

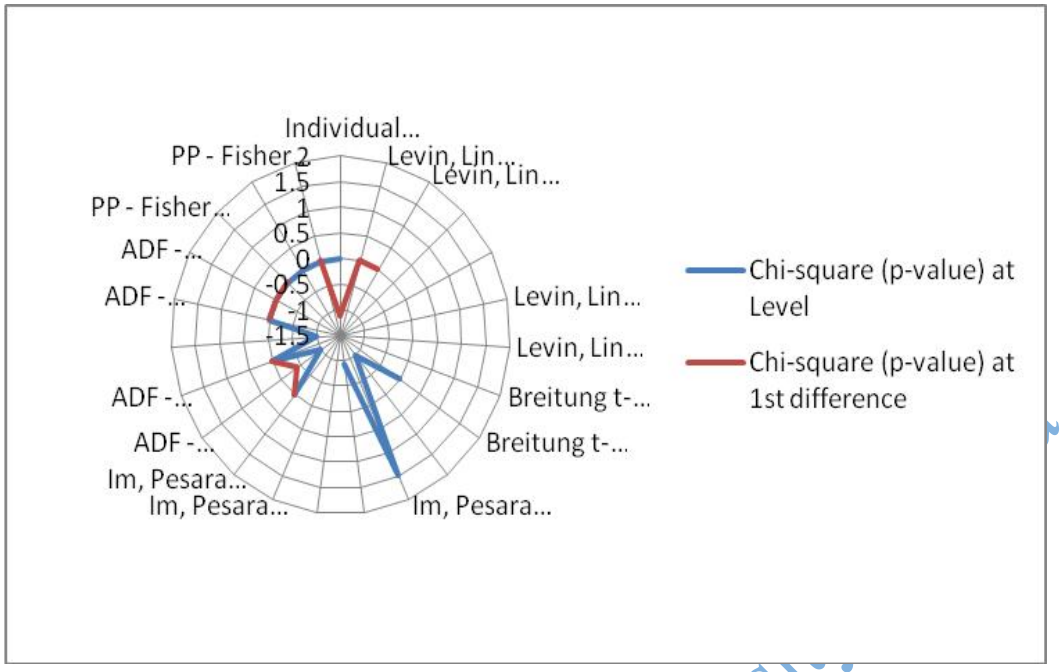


Figure: 4.5 Net Premium

Source: Microsoft Excel 10.0

From the table 4.5, the test is assumed to have null hypothesis as Ho: Net Premium has unit root, Ha: Net Premium has no unit root. At level, the Levin, Lin & Chu t* had a chi-square and probability value of 7.32204 (1.0000> 0.05), Im, Pesaran and Shin W-stat had 4.69051 (1.0000>0.05); and ADF - Fisher Chi-square recorded 5.55327 (1.0000> 0.05) as well as PP - Fisher Chi-square with 7.40870 (0.9999> 0.05). These showed that at level under Individual Intercept, the null hypothesis which says, net premium has unit root is rejected. Net premium data is non-stationary at level.

At individual linear trends, the test as well assumed to have null hypothesis as Ho: Net premium has unit root, Ha: Net premium has no unit root. The Levin, Lin & Chu t* read a chi-square and probability value of 0.03226 (0.5129> 0.05), Breitung t-stat had a chi-square and the p-value of 3.51035 (0.9998> 0.05). However, Im, Pesaran and Shin W-stat and ADF - Fisher Chi-square as well as PP - Fisher Chi-square had the statistical chi-square values of: (1.50624(0.9340>0.05)); (9.06415 (0.9975> 0.05)) and (24.4660 (0.4352> 0.05)) respectively.

Based on the tests, the p-value results, at individual linear trends, showed that the null hypothesis is rejected which means that net premium has no unit root.

At none, the test is also assumed to have null hypothesis as Ho: Net premium has unit root, and Ha: Net premium has no unit root. The Levin, Lin & Chu t* read a chi-square and probability values of -0.19474 (0.4228>0.05). ADF - Fisher Chi-square and PP - Fisher Chi-square had the statistical chi-square and p-values of: (21.9540 (0.6912> 0.05) and [8.58296 (0.9995 > 0.05)] respectively. The results implied that at none, the null hypothesis is rejected which means that net premium has no unit root.

The test here also assumed the same hypothesis and the results read that, at 1st difference, the Levin, Lin & Chu t* recorded a chi-square and probability values of -1.12114(0.1311>0.05), Im, Pesaran and Shin W-stat valued at 0.06664 (0.5266>0.05); and ADF - Fisher Chi-square with 24.7509 (0.4194>0.05) as well as PP - Fisher Chi-square with 60.9696(0.0001< 0.05). These implied that at 1st difference, the null hypothesis is accepted which means that net premium has unit root (non-stationary).

At individual linear trends, the test assumed to have null hypothesis and the Levin, Lin & Chu t* read a chi-square and probability values: -7.05695 (0.0000 < 0.05), Breitung t-stat had a chi-square and p-value of 0.49716 (0.6905>0.05). However, Im, Pesaran and Shin W-stat and ADF - Fisher Chi-square as well as PP - Fisher Chi-square had the statistical chi-square values and p-values of: (-0.09242 (0.4632> 0.05); (29.5882 (0.1988>0.05) and (73.4819 (0.0000 < 0.05)) respectively. These implied that at individual linear trends / 1st difference, the null hypothesis is accepted which means that net premium has unit root (non-stationary).

At none under the 1st difference, the test as well assumes to have null hypothesis as Ho: Net premium has unit root, and Ha: Net premium has no unit root. The Levin, Lin & Chu t* read

a chi-square and probability values of -2.88252 (0.0020 < 0.05). ADF - Fisher Chi-square and PP - Fisher Chi-square had the statistical chi-square and p-values of: (39.7315 (0.0299 < 0.05) and (75.6847(0.0000 <0.05)) respectively. These implied that at none, the null hypothesis is rejected which means that net premium has no unit root (non-stationary).

The second difference stage of the panel unit root test assumed to have null hypothesis as Ho: Net premium has unit root, Ha: Net premium has no unit root. The results read that, at 2nd difference, the Levin, Lin & Chu t* recorded a chi-square and probability values of -6.61999 (0.0000 < 0.05), Im, Pesaran and Shin W-stat valued at -2.39026 (0.0084>0.05); and ADF - Fisher Chi-square with 48.0863(0.0025>0.05) as well as PP - Fisher Chi-square with 135.087 (0.0000 < 0.05). These implied that at 2nd difference, the null hypothesis is rejected which means that net premium has no unit root (non-stationary).

At individual linear trends under the 2nd difference, The Levin, Lin & Chu t* read chi-square and probability values: -2.28495 (0.0112 < 0.05), Breitung t-stat had chi-square and p-value of 0.78307 (0.0084< 0.05). However, Im, Pesaran and Shin W-stat and ADF - Fisher Chi-square as well as PP - Fisher Chi-square had the statistical chi-square values and p-values of: -0.15485 (0.4385>0.05)); (27.0092 (0.2109>0.05) and (114.457(0.0000<0.05)) respectively. These implied that at individual linear trends / 2nd difference, the null hypothesis is rejected which means that net premium has no unit root

At none under the 2nd difference, the test assumed to have null hypothesis and the Levin, Lin & Chu t* read a chi-square and probability values of -9.69290 (0.0012 <0.05). ADF - Fisher Chi-square and PP - Fisher Chi-square had the statistical chi-square and p-values of: (93.5585 and (0.0000 < 0.05) and (169.364 and (0.0000 <0.05)) respectively. These implied that at none, the null hypothesis is rejected which means that net claim has no unit root (non-stationary).

Underwriting Profit (UnderW P)

Panel unit root test: Summary
Series: UnderW_P
Date: 03/06/23 Time: 18:10
Sample: 2011-2020
Exogenous variables: Individual effects; Individual effects, individual linear trends; none
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 1
Newey-West automatic bandwidth selection and Bartlett kernel

Table 4.6: Underwriting Profit

		Chi-square (p-value) at Level	Chi-square (p-value) at 1st difference	Chi-square (p-value) at 2nd difference	P=0.05
Levin, Lin & Chu t*	Individual Intercept	-2.74272 (0.0030)	-9.81133 (0.0000)	-16.3532 (0.0000)	I(0)
	Individual Intercept and trend	-7.89187 (0.0000)	-16.4647 (0.0000)	-13.6739 (0.0000)	I(0)
	None	-0.96428 (0.1675)	-10.3914 (0.0000)	-17.5707 (0.0000)	I(1)
Breitung t-stat	Individual Intercept				
	Individual Intercept and trend	0.81716 (0.7931)	1.46457 (0.9285)	1.13171 (0.8711)	I(3)
	None				
Im, Pesaran and Shin W-stat	Individual Intercept	0.18234 (0.5723)	-3.74666 (0.0001)	-5.58621 (0.0000)	I(1)
	Individual Intercept and trend	-0.82247 (0.2054)	-1.82027 (0.0244)	-0.95205 (0.1705)	I(2)
	None				
ADF - Fisher Chi-square	Individual Intercept	28.6842 (0.3256)	71.0971 (0.0000)	87.2504 (0.0000)	I(1)
	Individual Intercept and trend	46.1701 (0.0087)	65.1566 (0.0000)	48.6082 (0.0046)	I(0)
	None	29.9173 (0.2711)	94.3339 (0.0000)	139.671 (0.0000)	I(1)
PP - Fisher Chi-square	Individual Intercept	33.9994 (0.1350)	100.315 (0.0000)	144.864 (0.0000)	I(1)
	Individual Intercept and trend	50.2660 (0.0029)	95.9665 (0.0000)	116.670 (0.0000)	I(0)
	None	26.5820 (0.4315)	141.850 (0.0000)	195.432 (0.0000)	I(1)
At I.I	** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.				

At I.I and T	** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.
None	** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality

Source: E-view 9.0

Analysis Result, 2022

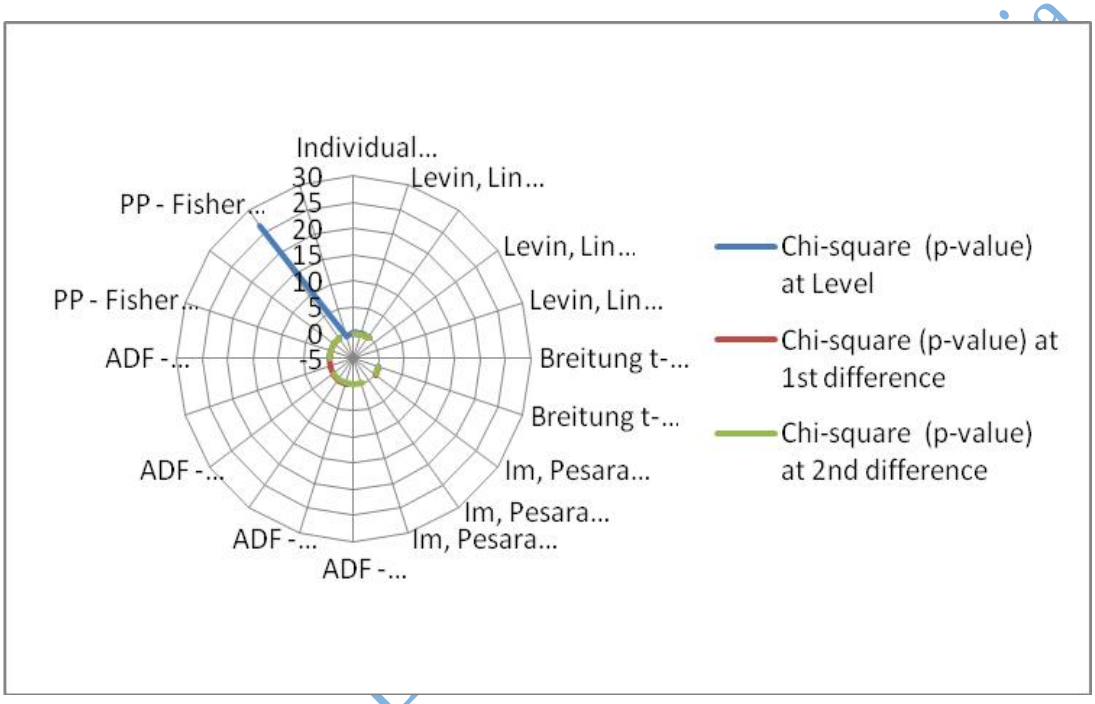


Figure: 4.6: Underwriting Profit

Source: Microsoft Excel 10.0

Table 4.6 assumed that the test had a null hypothesis as Ho: Underwriting profit has unit root, Ha: Underwriting profit has no unit root. The results obtained are compared with P-value of 0.05. At level, the Levin, Lin & Chu t* a chi-square and probability value of: -2.74272(0.18234>0.05), Im, Pesaran and Shin W-stat had 0.91017 (0.5723>0.05); and ADF - Fisher Chi-square recorded 28.6842 (0.3256>0.05) as well as PP - Fisher Chi-square with 33.9994 (0. 1350>0.05). These implied that at level under Individual Intercept, the null hypothesis which says, Underwriting profit has unit root is accepted. That is data on

underwriting profit has unit root (stationary at level since the majority of the tests showed that p-value > 0.05).

At individual linear trends, the test assumed to have null hypothesis as Ho: Underwriting profit has unit root, Ha: underwriting profit has no unit root. The Levin, Lin & Chu t* read a chi-square and probability value of -7.89187 (0.0000 < 0.05), Breitung t-stat had a chi-square and the p-value of 0.81716 (0.7931> 0.05. However, Im, Pesaran and Shin W-stat and ADF - Fisher Chi-square as well as PP - Fisher Chi-square had the statistical chi-square values of: (-0.82247(0.2054>0.05)); (46.1701 (0.0087<0.05)) and (50.2660 (0.0029< 0.05)) respectively. Based on the majority of the tests p-value results, at individual linear trends, the null hypothesis is accepted which means that underwriting profit has unit root

At none, the test is also assumed to have null hypothesis as Ho: Underwriting profit has unit root, and Ha: Underwriting profit has no unit root. The Levin, Lin & Chu t* read a chi-square and probability values of -0.53827 (0. 1675 > 0.05. Here, no Breitung t-stat and Im, Pesaran and Shin W-stat are considered. ADF - Fisher Chi-square and PP - Fisher Chi-square had the statistical chi-square and p-values of: (29.9173(0.2711>0.05) and (26.5820 (0.4315 >0.05) respectively. The results implied that at none, the null hypothesis is rejected which means that underwriting profit has no unit root

The test here also assumed to have null hypothesis as Ho: underwriting profit has unit root, Ha: underwriting profit has no unit root. The results read that, at 1st difference, the Levin, Lin & Chu t* recorded a chi-square and probability values of -9.81133(0.0000 < 0.05), Im, Pesaran and Shin W-stat valued at -3.74666 (0.0000 < 0.05); and ADF - Fisher Chi-square with 71.0971 (0.0000 < 0.05) as well as PP - Fisher Chi-square with 100.315 (0.0000 < 0.05). These implied that 1stdifference, the null hypothesis is rejected and alternative hypothesis is accepted which means that underwriting profit has no unit root.

At individual linear trends, the test assumed to have null hypothesis as Ho: Underwriting profit has unit root, Ha: underwriting profit has no unit root. The Levin, Lin & Chu t* read a chi-square and probability values: -16.4647(0.0000< 0.05), Breitung t-stat had a chi-square and p-value of 1.46457(0.0001<0.05). However, Im, Pesaran and Shin W-stat and ADF - Fisher Chi-square as well as PP - Fisher Chi-square had the statistical chi-square values and p-values of: (65.1566(0.0000<0.05); (95.9665 (0.0000< 0.05) and (141.850 (0.0000 < 0.05)) respectively. These implied that at individual linear trends / 1st difference, the null hypothesis is rejected which means that underwriting profit has no unit root (non-stationary).

At none under the 1st difference, the test as well assumes to have null hypothesis as Ho: Underwriting profit has unit root, and Ha: Underwriting profit has no unit root. The Levin, Lin & Chu t* read a chi-square and probability values of -11.7894 (0.0000 <0.05). ADF - Fisher Chi-square and PP - Fisher Chi-square had the statistical chi-square and p-values of: (132.453and (0.0000 < 0.05) and (141.850 (0.0000 <0.05)) respectively. These implied that at none, the null hypothesis is rejected which means that underwriting profit has no unit root (non-stationary)

The second difference stage of the panel unit root test also assumed to have null hypothesis as Ho: Underwriting profit has unit root, Ha: Underwriting profit has no unit root. The results read that, at 2nd difference, the Levin, Lin & Chu t* recorded a chi-square and probability values of -16.3532 (0.0000 < 0.05), Im, Pesaran and Shin W-stat valued at -5.58621 (0.0000 < 0.05); and ADF - Fisher Chi-square with 87.2504 (0.0000 < 0.05) as well as PP - Fisher Chi-square with 144.864 (0.0000 < 0.05). These implied that at 2nd difference, the null hypothesis is rejected which means that underwriting profit has no unit root (non-stationary)

At individual linear trends under the 2nd difference, The Levin, Lin & Chu t* read chi-square and probability values: -13.6739 (0.0000 < 0.05), Breitung t-stat had chi-square and p-value of 1.13171 (0.0000< 0.05). However, Im, Pesaran and Shin W-stat and ADF - Fisher Chi-

square as well as PP - Fisher Chi-square had the statistical chi-square values and p-values of: (-0.95205 (0.1705> 0.05)); (48.6082 (0.0046< 0.05) and (116.670 (0.0000 < 0.05)) respectively. These implied that at individual linear trends / 2nd difference, the null hypothesis is rejected which means that underwriting profit has no unit root (non-stationary).

At none under the 2nd difference, the test assumed to have null hypothesis and the Levin, Lin & Chu t* read a chi-square and probability values of -17.5707 (0.0000 <0.05). ADF - Fisher Chi-square and PP - Fisher Chi-square had the statistical chi-square and p-values of: (139.671 and (0.0000 < 0.05) and (195.432 and (0.0000 <0.05)) respectively. These implied that at none, the null hypothesis is rejected and alternative hypothesis is accepted which means that return on equity has no unit root (non-stationary)

Loss Adjustment Expenses (Loss_Adj)

Panel unit root test: Summary
Series: **Loss_Adj**
Date: 03/06/23 Time: 18:10
Sample: 2011-2020
Exogenous variables: Individual effects; Individual effects, individual linear trends; none
Automatic selection of maximum lags
Automatic lag length selection based on SIC: 0 to 1
Newey-West automatic bandwidth selection and Bartlett kernel

Table 4.7: Loss Adjustment Expenses

		Chi-square (p-value) at Level	Chi-square (p-value) at 1st difference	Chi-square (p-value) at 2nd difference	P=0.05
Levin, Lin & Chu t*	Individual Intercept	-2.90156 (0.0019)	-3.41893 (0.0003)	-6.43757 (0.0000)	
	Individual Intercept and trend	-2.86842 (0.0021)	-3.81776 (0.0001)	-12.2994 (0.0000)	
	None	0.00869 (0.5035)	-9.69268 (0.0000)	-13.5720 (0.0000)	
Breitung t-stat	Individual Intercept				
	Individual Intercept and trend	-2.68117 (0.0037)	-1.75114 (0.0400)	-0.72437 (0.2344)	
	None				
Im, Pesaran and Shin W-stat	Individual Intercept	-1.02479 (0.1527)	-2.21659 (0.0133)	-3.33152 (0.0004)	
	Individual Intercept and trend	0.10191 (0.5406)	0.02584 (0.5103)	-1.20409 (0.1144)	
	None				
ADF - Fisher Chi-square	Individual Intercept	32.1862 (0.1870)	46.6357 (0.0077)	61.4566 (0.0001)	
	Individual Intercept and trend	23.6632 (0.5952)	26.7058 (0.4249)	49.2097 (0.0039)	
	None	15.9417 (0.9376)	100.997 (0.0000)	130.979 (0.0000)	
PP - Fisher Chi-square	Individual Intercept	62.1491 (0.0001)	126.521 (0.0000)	162.799 (0.0000)	
	Individual Intercept and trend	65.6776 (0.0000)	120.265 (0.0000)	127.215 (0.0000)	
	None	13.8567 (0.9748)	178.720 (0.0000)	213.588 (0.0000)	
At I.I	** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.				
At I.I and T	** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.				
None	** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality				

Source: E-view 9.0

Analysis Result, 2022

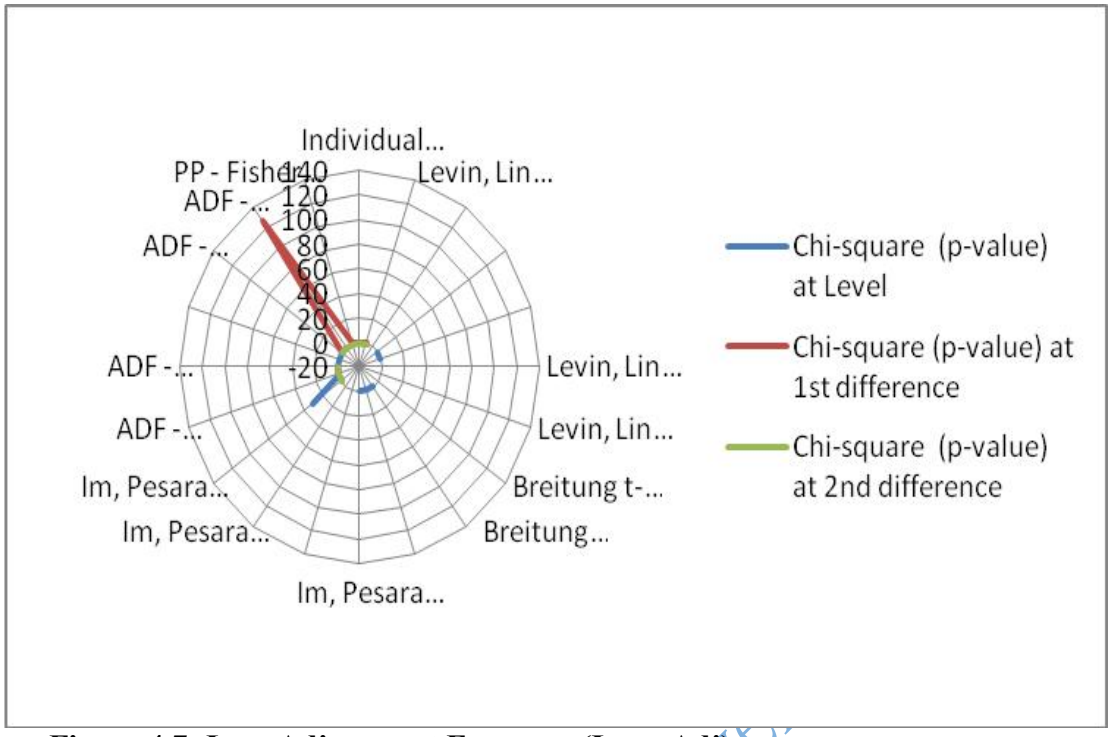


Figure 4.7: Loss Adjustment Expenses (Loss_Adj)

Source: Microsoft Excel 10.0

From the table 4.7, it is assumed that the test had a null hypothesis as Ho: Loss adjustment expenses has unit root, Ha: Loss adjustment expenses has no unit root. At level, the Levin, Lin & Chu t* had a chi-square and probability value of -2.90156 (0.0019 < 0.05), Im, Pesaran and Shin W-stat had -1.02479 (0.1527>0.05); and ADF - Fisher Chi-square recorded 32.1862(0.1870> 0.05) as well as PP - Fisher Chi-square with 62.1491 (0.0001<0.05). These showed that at level under Individual Intercept, the null hypothesis which says, loss adjustment expenses has unit root is rejected, loss adjustment expenses data is non-stationary at level.

At individual linear trends, the test as well assumed to have null hypothesis as Ho: Loss adjustment expenses has unit root, Ha: Loss adjustment expenses has no unit root. The Levin, Lin & Chu t* read a chi-square and probability value of -2.86842 (0.0021 < 0.05), Breitung t-stat had a chi-square and the p-value of -2.68117 (0.0037 < 0.05). However, Im, Pesaran and Shin W-stat and ADF - Fisher Chi-square as well as PP - Fisher Chi-square had the statistical

chi-square values of: (-0.10191 (0.5406>0.05)); (23.6632 (0.5952>0.05)) and (65.6776 (0.0000<0.05)) respectively. Based on the tests, the p-value results, at individual linear trends, showed that the null hypothesis is rejected which means that loss adjustment expenses data has no unit root

At none, the test is also assumed to have null hypothesis as Ho: Loss adjustment expenses has unit root, and Ha: Loss adjustment expenses has no unit root. The Levin, Lin & Chu t* read a chi-square and probability values of 0.00869 (0.5035> 0.05). ADF - Fisher Chi-square and PP - Fisher Chi-square had the statistical chi-square and p-values of: (15.9417 (0.9376> 0.05) and [13.8567(0.9748> 0.05)] respectively. The results implied that at none, the null hypothesis is accepted which means that loss adjustment expenses have unit root

The test here also assumed the same hypothesis and the results read that, at 1st difference, the Levin, Lin & Chu t* recorded a chi-square and probability values of -3.41893 (0.0003 < 0.05), Im, Pesaran and Shin W-stat valued at -2.21659 (0.0133< 0.05); and ADF - Fisher Chi-square with 46.6357 (0.0077< 0.05) as well as PP - Fisher Chi-square with 126.521 (0.0000< 0.05). These implied that at 1st difference, the null hypothesis is rejected which means that net premium has no unit root.

At individual linear trends, the test assumed to have null hypothesis and the Levin, Lin & Chu t* read a chi-square and probability values: -3.81776 (0.0001 < 0.05), Breitung t-stat had a chi-square and p-value of -1.75114 (0.0400< 0.05). However, Im, Pesaran and Shin W-stat and ADF - Fisher Chi-square as well as PP - Fisher Chi-square had the statistical chi-square values and p-values of: (0.02584(0.5103> 0.05); (26.7058 (0.4249> 0.05) and (120.265 (0.0000 < 0.05)) respectively. These implied that at individual linear trends / 1st difference, the null hypothesis is rejected which means that loss adjustment expenses has no unit root (non-stationary).

At none under the 1st difference, the test as well assumes to have null hypothesis as Ho: Loss adjustment expenses has unit root, and Ha: loss adjustment expenses has no unit root. The Levin, Lin & Chu t* read a chi-square and probability values of -9.69268 (0.0000 < 0.05). ADF - Fisher Chi-square and PP - Fisher Chi-square had the statistical chi-square and p-values of: (100.997 (0.0000 < 0.05) and (178.720(0.0000 <0.05)) respectively. These implied that at none, the null hypothesis is rejected which means that loss adjustment expenses has no unit root

The second difference stage of the panel unit root test assumed to have null hypothesis as Ho: Loss adjustment expenses has unit root, Ha: Loss adjustment expenses has no unit root. The results read that, at 2nd difference, the Levin, Lin & Chu t* recorded a chi-square and probability values of -6.43757 (0.0000 < 0.05), Im, Pesaran and Shin W-stat valued at -3.33152 (0.0004 < 0.05); and ADF - Fisher Chi-square with 61.4566 (0.0001< 0.05) as well as PP - Fisher Chi-square with 162.799 (0.0000 < 0.05). These implied that at 2nd difference, the null hypothesis is rejected which means that loss adjustment expenses has no unit root (non-stationary).

At individual linear trends under the 2nd difference, The Levin, Lin & Chu t* read chi-square and probability values: -12.2994 (0.0000 < 0.05), Breitung t-stat had chi-square and p-value of -0.72437 (0.2344>0.05). However, Im, Pesaran and Shin W-stat and ADF - Fisher Chi-square as well as PP - Fisher Chi-square had the statistical chi-square values and p-values of: -1.20409 (0.1144> 0.05)); (49.2097 (0.0039 < 0.05) and (127.215 (0.0000 < 0.05)) respectively. These implied that at individual linear trends / 2nd difference, the null hypothesis is rejected which means that loss adjustment expenses has no unit root (non-stationary).

At none under the 2nd difference, the test assumed to have null hypothesis and the Levin, Lin & Chu t* read a chi-square and probability values of -13.5720(0.0000 <0.05). ADF - Fisher

Chi-square and PP - Fisher Chi-square had the statistical chi-square and p-values of: (130.979(0.0000 < 0.05) and (213.588(0.0000 <0.05)) respectively. These implied that at none, the null hypothesis is rejected which means that loss adjustment expenses has no unit root (non-stationary).

Panel Co-Integration Test

In this study, the researcher used Johansen's test of co-integration to perform co-integration tests on the variables in the models. Table 4.3 shows the co-integration results for the variables. At the 5% level of significance, the result indicates the existence of a co-integrating equation.

Pedroni Residual Cointegration Test
Series: ROA ROE NET_CL NET_P UNDERW_P LOSS_ADJ
Date: 03/06/23 Time: 18:41
Sample: 2011 2020
Included observations: 130
Cross-sections included: 13 in non-parametric (PP) test; 10 (3 dropped)
parametric (ADF) test
Null Hypothesis: No cointegration
Trend assumption: No deterministic trend
User-specified lag length: 1
Newey-West automatic bandwidth selection and Bartlett kernel

Table 4.8: Cointegration Test

Alternative hypothesis: common AR coefs. (within-dimension)

	Statistic	Prob.	Weighted Statistic	Prob.
Panel v-Statistic	-0.089448	0.5356	-1.777489	0.9623
Panel rho-Statistic	3.250254	0.9994	3.192902	0.9993
Panel PP-Statistic	-5.272034	0.0000	-7.236184	0.0000
Panel ADF-Statistic	0.547661	0.7080	0.961848	0.8319

Alternative hypothesis: individual AR coefs. (between-dimension)

	Statistic	Prob.
Group rho-Statistic	4.696058	1.0000
Group PP-Statistic	-13.82359	0.0000
Group ADF-Statistic	1.128126	0.8704

Cross section specific results

Phillips-Peron results (non-parametric)

Cross ID	AR(1)	Variance	HAC	Bandwidth	Obs
AIICO	-0.273	7.03E-05	3.30E-05	5.00	9
CHI	-0.379	0.000103	2.57E-05	7.00	8
CORNER	-0.318	2.81E-05	1.13E-05	8.00	9
GUINEA	-0.741	1.73E-06	1.73E-06	0.00	7
IEI	-0.078	0.000640	0.000640	0.00	7
LASACO	-0.843	2.41E-06	6.57E-07	8.00	9
LINKAGE	0.010	6.23E-06	6.58E-06	1.00	9
MUTUAL	-0.734	6.80E-05	6.80E-05	0.00	9
NEM	-0.141	9.51E-06	3.61E-06	8.00	9
PRESTIGE	-0.259	8.13E-06	3.69E-06	7.00	9
REGENCY	0.088	0.000115	0.000115	0.00	9
SOV TRUST	-0.595	5.49E-05	5.30E-05	1.00	9
UNIVERSAL	-0.080	1.60E-06	1.39E-06	2.00	9

Augmented Dickey-Fuller results (parametric)

Cross ID	AR(1)	Variance	Lag	Max lag	Obs
AIICO	-1.221	3.52E-05	1	--	8
CHI	Dropped from Test				
CORNER	-1.176	1.81E-05	1	--	8
GUINEA	Dropped from Test				
IEI	Dropped from Test				
LASACO	-1.244	1.95E-06	1	--	8
LINKAGE	0.097	6.95E-06	1	--	8
MUTUAL	-1.008	5.46E-05	1	--	8
NEM	-0.826	5.56E-06	1	--	8
PRESTIGE	-0.632	8.33E-06	1	--	8
REGENCY	0.073	7.74E-05	1	--	8
SOV TRUST	-0.749	5.87E-05	1	--	8
UNIVERSAL	-0.259	1.74E-06	1	--	8

Pedroni Residual Cointegration Test
Series: ROA ROE NET_CL NET_P UNDERW_P LOSS_ADJ
Date: 03/06/23 Time: 18:42
Sample: 2011 2020
Included observations: 130
Cross-sections included: 10 (3 dropped) in non-parametric (PP) test; 0
(13 dropped) parametric (ADF) test

Null Hypothesis: No cointegration
Trend assumption: Deterministic intercept and trend
User-specified lag length: 1
Newey-West automatic bandwidth selection and Bartlett kernel

Alternative hypothesis: common AR coefs. (within-dimension)

	Statistic	Prob.	Weighted Statistic	Prob.
Panel v-Statistic	0.401176	0.3441	-1.319869	0.9066
Panel rho-Statistic	3.111485	0.9991	3.827836	0.9999
Panel PP-Statistic	-9.688562	0.0000	-7.436987	0.0000
Panel ADF-Statistic	NA	NA	NA	NA

Alternative hypothesis: individual AR coefs. (between-dimension)

	Statistic	Prob.
Group rho-Statistic	4.798148	1.0000
Group PP-Statistic	-12.56461	0.0000
Group ADF-Statistic	NA	NA

Cross section specific results

Phillips-Peron results (non-parametric)

Cross ID	AR(1)	Variance	HAC	Bandwidth	Obs
AIICO	-0.642	2.62E-05	3.83E-06	8.00	9
CHI	Dropped from Test				
CORNER	-0.180	1.87E-05	1.44E-05	1.00	9
GUINEA	Dropped from Test				
IEI	Dropped from Test				
LASACO	-0.848	2.32E-06	1.47E-06	4.00	9
LINKAGE	-0.004	6.26E-06	6.26E-06	0.00	9
MUTUAL	-0.727	6.70E-05	6.70E-05	0.00	9
NEM	-0.135	9.49E-06	3.60E-06	8.00	9
PRESTIGE	-0.781	2.33E-07	1.75E-07	2.00	9
REGENCY	-0.225	3.86E-05	1.71E-05	8.00	9
SOV TRUST	-0.432	7.38E-05	7.68E-05	1.00	9
UNIVERSAL	-0.110	8.39E-07	3.00E-07	8.00	9

Pedroni Residual Cointegration Test
Series: ROA ROE NET_CL NET_P UNDERW_P LOSS_ADJ
Date: 03/06/23 Time: 18:43
Sample: 2011 2020
Included observations: 130
Cross-sections included: 13
Null Hypothesis: No cointegration

Trend assumption: No deterministic intercept or trend
User-specified lag length: 1
Newey-West automatic bandwidth selection and Bartlett kernel

Alternative hypothesis: common AR coefs. (within-dimension)

	Statistic	Prob.	Weighted Statistic	Prob.
Panel v-Statistic	-0.901976	0.8165	-2.045973	0.9796
Panel rho-Statistic	2.355979	0.9908	2.344498	0.9905
Panel PP-Statistic	-17.84814	0.0000	-10.75052	0.0000
Panel ADF-Statistic	-0.397657	0.3454	-2.203791	0.0138

Alternative hypothesis: individual AR coefs. (between-dimension)

	Statistic	Prob.
Group rho-Statistic	4.002578	1.0000
Group PP-Statistic	-18.44832	0.0000
Group ADF-Statistic	-1.356504	0.0875

Cross section specific results

Phillips-Peron results (non-parametric)

Cross ID	AR(1)	Variance	HAC	Bandwidth	Obs
AIICO	0.028	0.000109	7.03E-05	1.00	9
CHI	-0.358	0.000104	2.64E-05	7.00	8
CORNER	-0.399	2.81E-05	9.42E-06	8.00	9
GUINEA	-0.311	6.67E-06	1.54E-06	6.00	7
IEI	-0.221	0.000312	5.73E-05	6.00	7
LASACO	-0.666	4.69E-06	4.81E-06	1.00	9
LINKAGE	-0.448	3.53E-06	4.43E-06	1.00	9
MUTUAL	-0.499	0.000126	0.000107	2.00	9
NEM	-0.155	9.17E-06	3.47E-06	8.00	9
PRESTIGE	0.224	1.10E-05	7.45E-06	5.00	9
REGENCY	-0.047	0.000143	0.000143	0.00	9
SOV TRUST	-0.580	5.90E-05	5.90E-05	1.00	9
UNIVERSAL	-0.556	2.87E-06	6.89E-07	8.00	9

Augmented Dickey-Fuller results (parametric)

Cross ID	AR(1)	Variance	Lag	Max lag	Obs
AIICO	-0.441	7.49E-05	1	--	8
CHI	-0.835	0.000101	1	--	7
CORNER	-1.230	1.83E-05	1	--	8
GUINEA	-1.139	1.83E-06	1	--	5
IEI	-0.431	0.000301	1	--	5
LASACO	-0.654	5.04E-06	1	--	8
LINKAGE	-0.022	3.62E-06	1	--	8

MUTUAL	-0.621	0.000107	1	--	8
NEM	-0.855	5.74E-06	1	--	8
PRESTIGE	-0.008	8.66E-06	1	--	8
REGENCY	-0.130	8.55E-05	1	--	8
SOV TRUST	-0.674	6.28E-05	1	--	8
UNIVERSAL	-1.079	2.85E-06	1	--	8

The results of the panel co-integration tests in table 4.8 are used to demonstrate the existence of short-run or long-term relationship between the variables in the study. The results were considered with two different techniques (i,e, Augmented Dickey-Fuller results (parametric) and Phillips-Peron results (non-parametric). At level, the hypothesis of no co-integration at 5% significance level was accepted according to the test result. This is because all the parameters tested revealed value > 0.05 except Panel PP-Statistic. This result indicated that there is no presence of a long run relationship among the variables in the model at level under the two categories.

At individual and trend, the case is similar to that of level where all the parameters tested under Augmented Dickey-Fuller results (parametric) and Phillips-Peron results (non-parametric) were statistically insignificant except Panel PP-Statistic. This result indicated that there is no presence of a long run relationship among the variables in the model at level under the two categories. Similar issue was observed at none; as a result, this result indicated that there is presence of short run relationship among the variables in the model. This means that the series are not related and can be perfectly combined in a linear fashion. The researcher therefore concluded that the parameters measured over time have no significant relationship. As a result, the error correction model for the models can be estimated.

Vector Error Correction Estimates (VECE)

Vector Error Correction Estimates
Date: 03/08/23 Time: 01:41
Sample (adjusted): 2014 2020
Included observations: 82 after adjustments

Standard errors in ( ) & t-statistics in [ ]

Table 4.9: Vector Error Correction

Cointegrating Eq:	CointEq1
ROA(-1)	1.000000
ROE(-1)	-0.708021 (0.04575) [-15.4751]
NET_CL(-1)	-1.50E-10 (1.0E-08) [-0.01448]
NET_P(-1)	3.10E-10 (5.2E-09) [0.06023]
UNDERW_P(-1)	7.83E-09 (7.9E-09) [0.98915]
LOSS_ADJ(-1)	-0.103822 (0.05377) [-1.93075]
C	0.080342

Error Correction:	D(ROA)	D(ROE)	D(Net_Cl)	D(Net_P)	D(Underw_P)	D(Loss_Adj)
CointEq1	-0.030088 (0.05187) [-0.58010]	1.780055 (0.16829) [10.5773]	-550060.6 (864548.) [-0.63624]	460437.0 (1728334) [0.26641]	3743659. (4075831) [0.91850]	0.134560 (0.15022) [0.89573]
D(ROA(-1))	-0.512446 (0.10771) [-4.75775]	-0.510167 (0.34947) [-1.45982]	2153512. (1795325) [1.19951]	679424.8 (3589069) [0.18930]	-6878480. (8463897) [-0.81268]	-0.333297 (0.31196) [-1.06840]
D(ROA(-2))	-0.359797 (0.11886) [-3.02710]	-1.418749 (0.38565) [-3.67882]	511601.8 (1981194) [0.25823]	-1477900. (3960644) [-0.37315]	-17739993 (9340160) [-1.89932]	-0.347104 (0.34425) [-1.00828]
D(ROE(-1))	-0.007822 (0.02357) [-0.33191]	0.230589 (0.07647) [3.01549]	261562.4 (392836.) [0.66583]	944313.6 (785325.) [1.20245]	2393942. (1851988) [1.29263]	0.070652 (0.06826) [1.03505]
D(ROE(-2))	-0.016243 (0.01945)	0.412307 (0.06311)	-182475.6 (324186.)	-1111781. (648087.)	28263.13 (1528345)	0.086642 (0.05633)

	[-0.83515]	[6.53366]	[-0.56287]	[-1.71548]	[0.01849]	[1.53809]
D(Net_CL(-1))	2.16E-09	7.66E-08	0.773251	0.873760	1.779879	2.41E-08
	(1.2E-08)	(3.9E-08)	(0.19789)	(0.39560)	(0.93293)	(3.4E-08)
	[0.18158]	[1.98973]	[3.90750]	[2.20867]	[1.90784]	[0.69983]
D(Net_CL(-2))	-6.34E-09	4.85E-09	0.090108	0.723055	-1.346350	-1.39E-08
	(1.3E-08)	(4.1E-08)	(0.21048)	(0.42077)	(0.99228)	(3.7E-08)
	[-0.50245]	[0.11835]	[0.42811]	[1.71840]	[-1.35682]	[-0.38035]
D(Net_P(-1))	-1.20E-09	-2.79E-08	0.034055	0.240868	-1.620072	-9.88E-09
	(3.7E-09)	(1.2E-08)	(0.06223)	(0.12440)	(0.29338)	(1.1E-08)
	[-0.32066]	[-2.30689]	[0.54724]	[1.93617]	[-5.52218]	[-0.91394]
D(Net_P(-2))	6.23E-09	7.34E-08	0.133183	-0.585502	-0.095876	2.93E-08
	(5.2E-09)	(1.7E-08)	(0.08728)	(0.17448)	(0.41148)	(1.5E-08)
	[1.19036]	[4.31762]	[1.52592]	[-3.35562]	[-0.23301]	[1.93443]
D(Underw_P(-1))	1.07E-09	7.27E-09	0.009643	-0.297624	0.410315	4.62E-08
	(6.1E-09)	(2.0E-08)	(0.10166)	(0.20324)	(0.47928)	(1.8E-08)
	[0.17537]	[0.36759]	[0.09485]	[-1.46442]	[0.85611]	[2.61273]
D(Underw_P(-2))	-6.84E-09	-1.14E-08	-0.191359	-0.127005	0.866739	2.13E-08
	(5.2E-09)	(1.7E-08)	(0.08710)	(0.17412)	(0.41063)	(1.5E-08)
	[-1.30955]	[-0.67344]	[-2.19700]	[-0.72939]	[2.11077]	[1.40620]
D(Loss_Adj(-1))	-0.042424	-0.201046	-2242459.	-1731605.	-5450527.	-0.233223
	(0.05442)	(0.17657)	(907098.)	(1813397)	(4276431)	(0.15762)
	[-0.77958]	[-1.13860]	[-2.47212]	[-0.95490]	[-1.27455]	[-1.47967]
D(Loss_Adj(-2))	0.036774	0.184114	-743783.8	-2161716.	2017048.	-0.082172
	(0.05041)	(0.16355)	(840191.)	(1679642)	(3961003)	(0.14599)
	[0.72955]	[1.12574]	[-0.88526]	[-1.28701]	[0.50923]	[-0.56285]
C	0.004358	-0.066123	147608.9	394801.1	563892.8	-0.011423
	(0.00702)	(0.02278)	(117010.)	(233917.)	(551632.)	(0.02033)
	[0.62075]	[-2.90309]	[1.26151]	[1.68779]	[1.02223]	[-0.56183]
R-squared	0.507659	0.694505	0.554433	0.493210	0.453434	0.180290
Adj. R-squared	0.413536	0.636101	0.469252	0.396324	0.348944	0.023581
Sum sq. resids	0.192809	2.029841	5.36E+13	2.14E+14	1.19E+15	1.617436
S.E. equation	0.053249	0.172773	887578.1	1774375.	4184406.	0.154227
F-statistic	5.393522	11.89150	6.508821	5.090608	4.339477	1.150477
Log likelihood	131.8108	35.29628	-1231.770	-1288.572	-1358.921	44.60800
Akaike AIC	-2.873433	-0.519422	30.38463	31.77005	33.48588	-0.746537
Schwarz SC	-2.462530	-0.108518	30.79554	32.18095	33.89678	-0.335633
Mean dependent	0.005688	0.017889	451048.8	692146.0	-47482.37	0.008624
S.D. dependent	0.069533	0.286409	1218322.	2283722.	5185905.	0.156078
Determinant resid covariance (dof adj.)		1.90E+31				

Determinant resid covariance	6.19E+30
Log likelihood	-3605.015
Akaike information criterion	90.12231
Schwarz criterion	92.76383

In the analysis in table 4.9, the estimate showed that if all of the independent variables (net claim, net premium, underwriting profit, and loss adjustment expenses proxies) are held constant, the dependent variable (ROA and ROE) would still be positive and statistically significant at the 1% level. Further, the VECM estimate established a coefficient of determination of R^2 of 0.507659 (50.8%) on ROA and 0.694505(69.5%) on ROE, indicating that all of the independent variables (net claim, net premium, underwriting profit, and loss adjustment expenses) jointly accounted for 49.2% of the variation in the regressed (ROA), for 30.5% of the variation in the regressed (ROE) respectively, These suggested that the models as a whole had high explanatory powers. Also, it could be read from the same estimate that net claims in Nigerian Insurance industry had an estimated R^2 of 0.554433 (55.4%) indicating that net claims contribution jointly accounted for 55.4% of the variation in the regressed ROA and ROE, with the stochastic term accounting for the remaining 44.6%. When adjusted, the regressor only accounted for (44.6%) of the variance. This suggested that the model as a whole had a high explanatory power.

Furthermore, an estimate on net premium in Nigeria showed an R^2 of 0.493210 (49.3%) indicating that net premium jointly accounted for 49.3% of the variation in the regressed ROA and ROE, with the stochastic term accounting for the remaining 50.7%. When adjusted, the regressor only accounted for 50.7% of the variance. This suggested that the model as a whole had a low explanatory power. A look at underwriting profit values from the estimate showed an R^2 of 0.453434(45.3%) indicating that underwriting profit jointly accounted for 45.3% of the variation in the regressed ROA and ROE, with the stochastic term accounting

for the remaining 54.7%. When adjusted, the regressor only accounted for 54.7 of the variance. This suggested that the model as a whole had a high explanatory power.

Finally, the VECM estimate established a coefficient of determination of R^2 of 0.180290 (18.02%), indicating that loss adjustment expenses jointly accounted for 81.98% of the variation in the regressed ROA and ROE, with the stochastic term accounting for the remaining 18.02%. When adjusted, the regressor only accounted for 18.02% of the variance. This suggested that the model as a whole had a low explanatory power.

Testing Assumption of Linear Regression Model

Before going further into panel data econometric measurement, the first issue is to test the assumption of linear regression model. Some assumptions were made relating to the linear regression model. These were required to show that estimation technique, ordinary least squares (OLS), had a number of desirable properties, and also hypothesis tests regarding the coefficient estimates could validly be conducted[1].

The Error have Zero Mean E (ut) = 0

The first assumption required is that the average value of the errors is zero. In fact, if a constant term is included in the regression equation, this assumption will never be violated (Nwoji, 2022). Since this research included a constant term (α) in the regression model it passed the first assumption.

Heteroskedasticity (ut) = $\partial^2 < \infty$

It has been assumed that the variance of the errors is constant, σ2 this is known as the assumption of homoscedasticity. If the errors do not have a constant variance, they are said to be heteroscedastic[2]. To test this assumption, the Breusch-pagan LM test was used having the null hypothesis of heteroskedasticity:

Ho = $\partial_1 = \partial_2 = \partial_3 =$ ……..… $=\partial_k = 0$

Ha = At least one of the ∂_s is different from 0 and that at least one of the Xs affects the variance of the residuals.

Autocorrelation

This assumption stated that the covariance between the error terms over time (or cross sectionals, for that type of data) is zero. In other words, it is assumed that the errors are uncorrelated with one another. If the errors are correlated with one another, it would be stated that they are "auto correlated" or that they are "serially correlated[1].

Normality

A normal distribution is not skewed and is defined to have a coefficient of kurtosis of 3. Jarque Bera formalizes this by testing the residuals for normality and testing whether the coefficient of skeweness and kurtosis are =0 and = 3 respectively. Normality assumption of the regression model can be tested with the Jarque- Bera measure. If the Jarque Bera value is greater than 0.05, it is an indicator for the presence of normality (Brook, 2008).

Heteroskedasticity Test

Return on Assets

Here, the Breusch-pagan LM test was conducted on equation (1) stated in the previous chapter:

ROA = $\alpha + \beta_{it}$ (NC) + β_{it} (NP) + β_{it} (DC) + β_{it} (LAE) + μ_{it} ……....1

Recall, $e = \overline{\mu} = \partial_0 + \partial_1 X_{1it} + \partial_2 X_{2it} + \partial_3 X_{3it} + \ldots\ldots\ldots\ldots\ldots + \partial_k X_{kit} + V_{it}$

The hypothesis under the Breusch-pagan LM test agreed that:

$H_0 = \partial_1 = \partial_2 = \partial_3 = \ldots\ldots\ldots = \partial_k = 0$ (i.e, when the ∂_s is constant, that said the data are homoskedastacity and otherwise heteroskedasticity)

Ha = At least one of the ∂_s is different from 0 and that at least one of the Xs affects the variance of the residuals.

Decision Criteria

If LM = nR^2_{it} statistic > chi-square value (X^2_K): Reject the null hypothesis and conclude that there is significant evidence of heteroskedasticity in the model

Alternatively, if the p-value < 0.05: Reject the null hypothesis and conclude that there is significant evidence of heteroskedasticity in the model.

Dependent Variable: $RESID^2$
Method: Panel Least Squares
Date: 03/08/23 Time: 00:50
Sample: 2011 2020
Periods included: 10
Cross-sections included: 13
Total panel (unbalanced) observations: 127

Table 4.10: Heteroskedasticity test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NET_CL	2.99E-23	4.25E-09	7.05E-15	1.0000
NET_P	-1.50E-23	2.20E-09	-6.81E-15	1.0000
UNDERW_P	4.39E-24	1.45E-09	3.04E-15	1.0000
LOSS_ADJ	-3.28E-17	0.017744	-1.85E-15	1.0000

R-squared	-0.000000	Mean dependent var	-1.64E-18
Adjusted R-squared	-0.024390	S.D. dependent var	0.061364
S.E. of regression	0.062108	Akaike info criterion	-2.688897
Sum squared resid	0.474460	Schwarz criterion	-2.599316
Log likelihood	174.7449	Hannan-Quinn criter.	-2.652501
Durbin-Watson stat	1.269376		

The test result in Table 4.10 yields a chi-squared (x^2) statistic of 5.991465 with 2 degrees of freedom, hence rejecting the null hypothesis of homoskedasticity at the 5 per cent level of

significance. From the result of the regression in the table, LM = nR^2_{it} which means the number of observations x R-squared value (128 x -0.000000) = 0 <5.991465. This indicated that there is enough evidence that the data on ROA as regressed on other variables is homoskedastic. Durbin-Watson stat (DW) showed 1.269376 indicating autocorrelation. The D-W statistics is always between 0 and 4. A value of 1 shows autocorrelation.

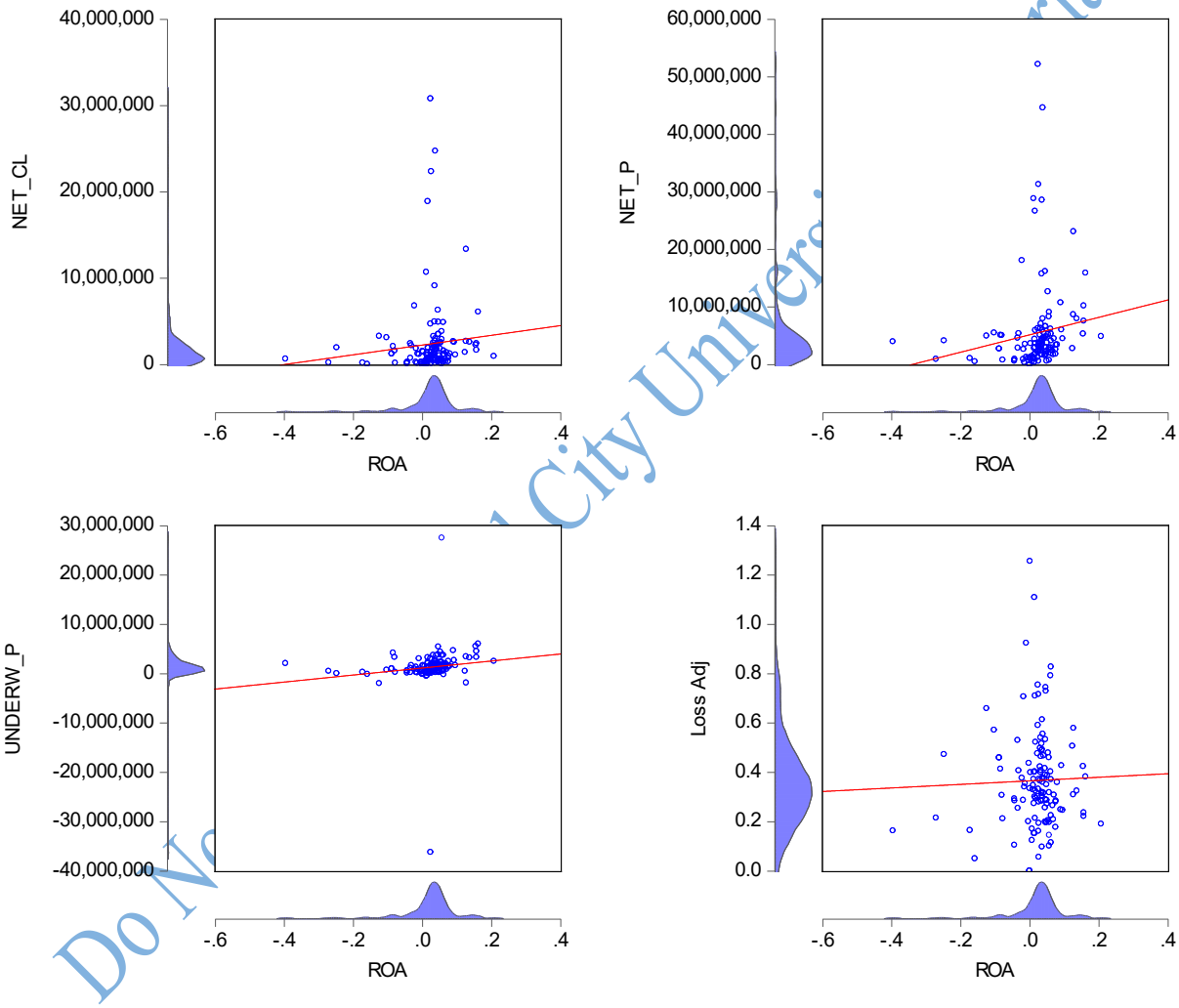


Figure: 4.8 Graphical Illustration of Heteroskedasticity Test

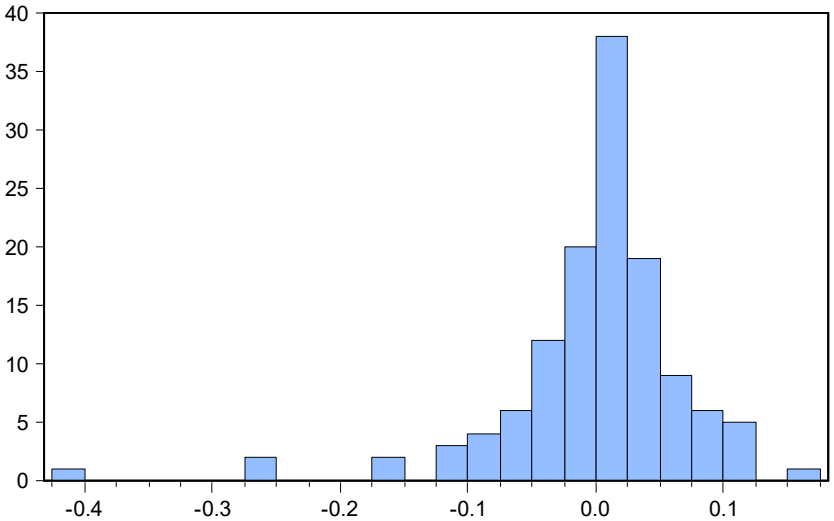


Figure: 4.9 Normality Test

Source: E-view 9.0 Result, 2022

The diagram above, witnesses that normality assumption holds that the coefficient of kurtosis was greater than 3 (12.46598), skewness was -2.182135 and the Jarque-Bera statistic has a value of 579.4752. The p-value was 0.0000 < 0.05 was perfectly significant. These imply that the data were consistent with a normal distribution assumption. Based on the statistical result, the study failed to reject the null hypothesis of normality.

Heteroskedasticity Test (ROE)

Return on Equity

The Breusch-pagan LM test was conducted on equation (1) stated in the previous chapter:

$ROE = \alpha + \beta_{it}(NC) + \beta_{it}(NP) + \beta_{it}(DC) + \beta_{it}(LAE) + \mu_{it}$ 2

Recall, $e = \overline{\mu} = \partial_0 + \partial_1 X_{1it} + \partial_2 X_{2it} + \partial_3 X_{3it} + \ldots\ldots\ldots\ldots\ldots + \partial_k X_{kit} + V_{it}$

The hypothesis under the Breusch-pagan LM test agreed that:

Ho = $\partial_1 = \partial_2 = \partial_3 = \ldots\ldots\ldots = \partial_k = 0$ (i.e., when the ∂_s is constant, that said the data are homoskedastic and otherwise heteroskedastic)

Ha = At least one of the ∂_s is different from 0 and that at least one of the Xs affects the variance of the residuals.

Decision Criteria

If LM = nR^2_{it} statistic > chi-square value (X^2_K): Reject the null hypothesis and conclude that there is significant evidence of heteroskedasticity in the model

Alternatively, if the p-value < 0.05: Reject the null hypothesis and conclude that there is significant evidence of heteroskedasticity in the model

Dependent Variable: $RESID^3$
Method: Panel Least Squares
Date: 03/08/23 Time: 01:15
Sample: 2011 2020
Periods included: 10
Cross-sections included: 13
Total panel (unbalanced) observations: 127

Table 4.11: Heteroskedasticity Test (ROE)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.40E-16	0.124554	1.12E-15	1.0000
NET_CL	1.33E-22	4.31E-08	3.08E-15	1.0000
NET_P	-7.10E-23	2.28E-08	-3.11E-15	1.0000
UNDERW_P	8.44E-24	1.27E-08	6.66E-16	1.0000
LOSS_ADJ	-2.42E-16	0.284924	-8.49E-16	1.0000
R-squared	0.000000	Mean dependent var		-9.83E-18
Adjusted R-squared	-0.032787	S.D. dependent var		0.533384
S.E. of regression	0.542058	Akaike info criterion		1.651686
Sum squared resid	35.84686	Schwarz criterion		1.763662
Log likelihood	-99.88206	Hannan-Quinn criter.		1.697180
F-statistic	0.000000	Durbin-Watson stat		0.716522
Prob(F-statistic)	1.000000			

Source: E-view 9.0 Result, 2022

The test result in Table 4.11 yields a chi-squared (x^2) statistic of 5.991465 with 2 degrees of freedom, hence rejecting the null hypothesis of homoskedasticity at the 5 per cent level of

significance. From the result of the regression in the table, LM = nR^2_{it} which means that the number of observations x R-squared value (127 x 0.000000) = 0 <5.991465. This indicated that there is enough evidence that the data on ROE as regressed on other variables is homoskedastic. Durbin-Watson stat (DW) showed 0.716522 indicating autocorrelation. The D-W statistics is always between 0 and 4. A value of 1 shows autocorrelation.

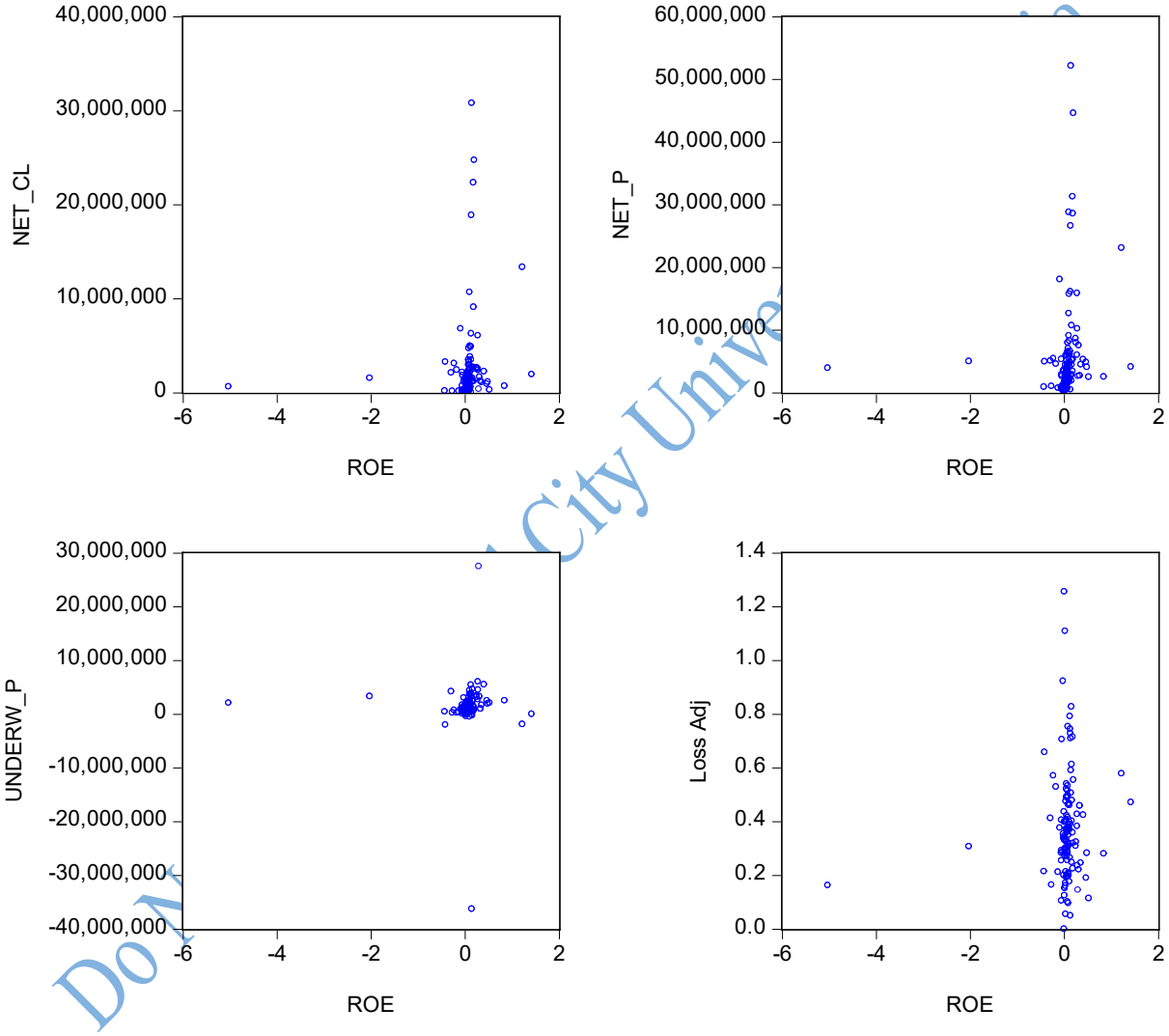


Figure: 4.10 Graphical Illustration of Heteroskedasticity Test

Source: E-view 9.0 Result, 2022

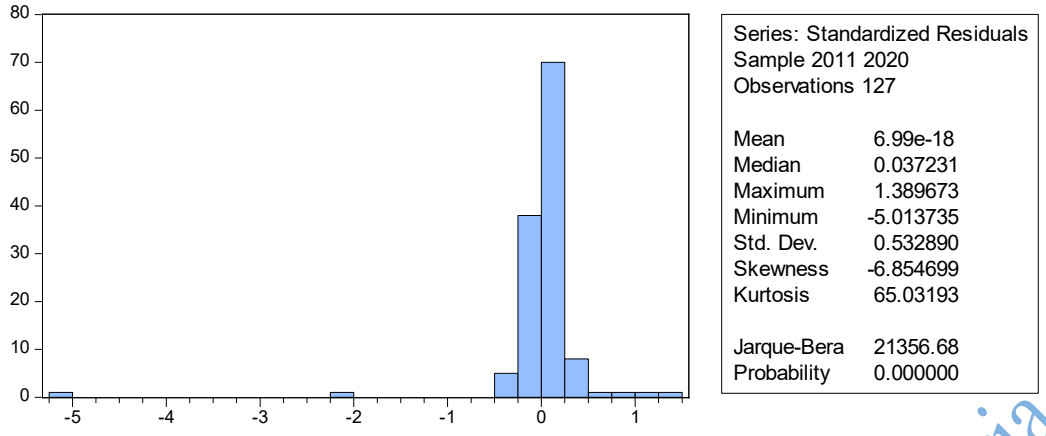


Figure: 4.11: Normality Test

Source: E-view 9.0 Result, 2022

The diagram above, witnesses that normality assumption holds that the coefficient of kurtosis was greater than 3 (65.03193), skewness was -6.85469 and the Jarque-Bera statistic has a value of 21356.68. The p-value was 0.0000 < 0.05 was perfectly significant. These imply that the data were consistent with a normal distribution assumption. Based on the statistical result, the study failed to reject the null hypothesis of normality.

Hypotheses: Fixed Effect and Random Effect

Fixed Effect

Dependent Variable: ROA
Method: Panel Least Squares
Date: 03/08/23 Time: 03:40
Sample: 2011 2020
Periods included: 10
Cross-sections included: 13
Total panel (unbalanced) observations: 128

Table 4.12: Fixed Effect

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NET_CL	4.83E-09	5.64E-09	0.856223	0.3937
NET_P	-2.32E-09	3.83E-09	-0.606360	0.5455
UNDERW_P	1.65E-09	1.57E-09	1.047059	0.2973
LOSS_ADJ	-0.060216	0.042371	-1.421139	0.1581
C	0.042277	0.021234	1.991043	0.0489
Effects Specification				

Cross-section fixed (dummy variables)

R-squared	0.431662	Mean dependent var	0.021139
Adjusted R-squared	0.349739	S.D. dependent var	0.076843
S.E. of regression	0.061965	Akaike info criterion	-2.601363
Sum squared resid	0.426205	Schwarz criterion	-2.222578
Log likelihood	183.4873	Hannan-Quinn criter.	-2.447461
F-statistic	5.269140	Durbin-Watson stat	1.919868
Prob(F-statistic)	0.000000		

Random effect

Dependent Variable: ROA
Method: Panel EGLS (Cross-section random effects)
Date: 03/08/23 Time: 03:42
Sample: 2011 2020
Periods included: 10
Cross-sections included: 13
Total panel (unbalanced) observations: 128
Swamy and Arora estimator of component variances

Table 4.13: Random effect

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NET_CL	6.28E-10	5.35E-09	0.117413	0.9067
NET_P	1.26E-09	3.17E-09	0.397005	0.6921
UNDERW_P	2.22E-09	1.52E-09	1.462286	0.1462
LOSS_ADJ	-0.032677	0.039289	-0.831721	0.4072
C	0.021458	0.020704	1.036401	0.3020

Effects Specification		
	S.D.	Rho
Cross-section random	0.038651	0.2801
Idiosyncratic random	0.061965	0.7199

Weighted Statistics

R-squared	0.024788	Mean dependent var	0.009533
Adjusted R-squared	-0.006926	S.D. dependent var	0.062881
S.E. of regression	0.063112	Sum squared resid	0.489920
F-statistic	0.781603	Durbin-Watson stat	1.666790
Prob(F-statistic)	0.539213		

Unweighted Statistics

R-squared	0.043963	Mean dependent var	0.021139
Sum squared resid	0.716946	Durbin-Watson stat	1.138990

Source: E-view 9.0

Analysis Result, 2022

The Hausman Test: Random Effect (RE) Versus Fixed Effect (FE) Models

The choice between both approaches is done by running a Hausman test. The following results are observed, with only the top panel that reports the Hausman test results being reported here in the table.

The Assumption of the Model

Ho: Random effects are independent of explanatory variables
Ha: Ho is not true.

The null hypothesis is the random effects model and if the test statistic exceeds the relevant critical value, the random effects model is rejected in favour of the fixed effects model.

Correlated Random Effects - Hausman Test
Equation: Untitled
Test period random effects

Table 4.14: Correlated Random Effect-Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random	2.256029	5	0.8127

** WARNING: estimated period random effects variance is zero.

Period random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
Underw_P	0.000000	0.000000	0.000000	0.9875
Net_Cl	-0.000000	-0.000000	0.000000	0.5802
Net_P	0.000000	0.000000	0.000000	0.5435
Loss_Adj	0.018151	0.019181	0.000140	0.9306

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.012177	0.017654	-0.689778	0.4917
Underw_P	2.97E-09	1.79E-09	1.664203	0.0006
NET_CL	-8.63E-09	6.24E-09	-1.382769	0.0000
NET_P	5.77E-09	3.30E-09	1.752100	0.0070
Loss_Adj	0.018151	0.040743	0.445498	0.6568

Effects Specification			
Period fixed (dummy variables)			
R-squared	0.141210	Mean dependent var	0.021139
Adjusted R-squared	0.034811	S.D. dependent var	0.076843
S.E. of regression	0.075494	Akaike info criterion	-2.219806
Sum squared resid	0.644019	Schwarz criterion	-1.885583
Log likelihood	157.0676	Hannan-Quinn criter.	-2.084009
F-statistic	1.327177	Durbin-Watson stat	1.182060
Prob(F-statistic)	0.202549		

Source: E-view 9.0

Analysis Result, 2022

If the p-value for the test is less than 1%, it indicated that the random effects model is not appropriate and that the fixed effects specification is to be preferred. As shown in the above table, the result of Hausman specification test the p- value (0.8127) is more than 1%, the null hypothesis which is: the random effect model is appropriate, failed to be rejected and the study therefore rejected the alternative hypothesis of fixed effect model by choosing the random effect model.

Regression Result

The empirical model used in the study in order to examine the relationship between Claim Payment, Loss Adjustment and financial performance of listed insurance companies in Nigeria is:

$ROA = \alpha + \beta_{it}(NC) + \beta_{it}(NP) + \beta_{it}(DC) + \beta_{it}(LAE) + \mu_{it}$ 1

Thus, based on the result in the random effect table, the following model was developed to examine the relationship between Claim payment, loss adjustment and financial performance.

ROA_{it}=-0.012114-7.61E-09Net_Cl_{it}+5.26E-09Net_P_{it}+2.97E+09$UnderwP_{it}$+0.019181

$Loss\_Adj_{it}$ + e

In the table, the R-squared statistics and the adjusted-R squared statistics of the model were 11.34% and 7.70% respectively. The adjusted R squared value of 11.34% indicated that the

total variation of ROA as explained by the variables in the model. Thus, the variables jointly, are strong explanatory variables to ROA. The regression F-statistic (3.119658) and the p-value of 0.000012 attached to the test statistic revealed that implied that the independent variable in the model was able to explain variations in the dependent variable. The coefficient of variables, starting from the constant variable; shows that the relationship between Claim payment, loss adjustment and financial performance of listed insurance companies in Nigeria will have constant amount of -0.012114 on ROA other things being constant. The coefficient for underwriting profit was 2.97E-09 on ROA indicated that the underwriting profit of selected insurers had positive relationship with ROA and however, the relationship is statistically significant (0.0006) at 5% level of significant.

Furthermore, the coefficient for loss adjustment expenses is 7.45E-09 on ROA which indicated that the loss adjustment expenses granted to selected listed insurers had a positive relationship with ROA and the relationship is significant at 5% (P = 0.0023). The coefficient for Net claim is -8.63E-09 on ROA that indicated the net claim granted to selected listed insurers had a negative relationship with ROA and statistically significant at 5% (p=0.0000). The coefficient for net premium was 5.26E-09 on ROA which indicated that insurers` net premium measured had a positive relationship with ROA and significant effect at 5% level of significant (p= 0.0070). The positive relationships indicated that there is a direct relationship between the independent variables and ROA. Thus, the increase of those variables will lead to an increase in ROA.

The formulated hypotheses were tested using p-value statistics. A sig-value less than α=0.05 indicates that there is enough statistical evidence to reject the null hypothesis, and thereby accept the alternative hypothesis. If P-value is >0.05, then we do not have adequate statistical evidence to reject the null hypothesis or accept the alternative hypothesis.

4.2 Presentation of Test of Hypotheses

Ho1: Net Claim has no significant effect on Financial Performance of listed Insurance Companies in Nigeria

In the random effect table, the strength of the positive effect of Net Claim on Financial Performance is measured by the calculated p-value = 0.0034 at significance level (α) of 0.05. Since the computed p-value is greater than the significance level (α) of 0.05 (0.0034<p-value<0.05), therefore the result supported the alternative hypothesis that Net Claim has significant effect on Financial Performance of the listed Nigerian Insurance Companies.

Ho2: Net Premium has no significant influence on Financial Performance of listed Insurance Companies in Nigeria

The random effect table was used to determine the strength of the positive effect of Net Premium on Financial Performance. The calculated p-value = 0.0045 at significance level (α) of 0.05. Since the computed p-value is greater than the significance level (α) of 0.05 (0.0045<p-value<0.05), therefore the result supported the alternative hypothesis that Net Premium Growth has significant influence on Financial Performance of the listed Nigerian Insurance Companies.

Ho3: Underwriting Profit has no significant effect on Financial Performance of listed Insurance Companies in Nigeria

To test this hypothesis, the random effect table was used. The strength of the positive effect of Underwriting Profit on Financial Performance is measured by the calculated p-value = 0.0002at significance level (α) of 0.05. Since the computed p-value is greater than the significance level (α) of 0.05 (0.0002<p-value<0.05), therefore the result supported the alternative hypothesis that There is significant effect of Underwriting Profit on Financial Performance of the listed Nigerian Insurance Companies

Ho4: There is no significant relationship between Loss Adjustment Expenses and Financial Performance of listed Insurance Companies in Nigeria

The strength of the positive relationship between Loss Adjustment Expenses and Financial Performance was measured by the calculated p-value = 0.0008 at significance level (α) of 0.05. Since the computed p-value is greater than the significance level (α) of 0.05 (0.6568<p-value<0.05), therefore the result supported the alternative hypothesis that Loss Adjustment Expenses significant relationship with and Financial Performance of the listed Nigerian Insurance Companies.

4.3 Discussion of Findings

In the study, four hypotheses were tested under each determinant. The variables measured were statistically significant. This may be used to support the evidence on the link between claim payment, loss adjustment, and the financial performance of the listed Nigerian insurance sector. It could also be supported by the results of other studies in this area. There is a significant positive correlation between underwriting and claims management practices used by insurance companies, but the relationship with financial results was insignificant, according to a study conducted to evaluate the impact of underwriting and management of claims on property and casualty insurance companies in East Africa. In this study, underwriting is an important factor in investigating the requirements of management, as this is the basis for assessing financial risk. Bad insurance decisions will expose the insurance company to financial risk[4]. Underwriting and claims management practices were found to be directly and significantly associated with non-financial performance, but the opposite was true when compared to financial performance, according to a cross-country study on the effects of these practices on the performance of insurance firms in Kenya[5].

Another study conducted in Nigeria to investigate the determinants of profitability in insurance companies using a panel data set consisting of financial data of nine insurers over the period of 2015 to 2018 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 ROE. As a result, key factors affecting the profitability of insurance firms in Nigeria are the size of the insurer, the Loss ratio (risk), tangibility, and leverage. However, the association between writing premium increase, insurer age, and liquidity is statistically negligible[6].

Furthermore, a research on determinants of profitability of insurance firms in Nigeria using secondary data from financial reports were collected from sixteen insurance firms in Nigeria for the period 2015 to 2018 discovered that, apart from tangibility which has a negative relationship, there was a positive relationship between leverage, liquidity and profitability of insurance firms in Nigeria. It was also concluded that, the profitability model adopted has been explained in respect to all the independent variables and that the degree of error is less than 20%. The model used for this study was statistically fit as the result of the study presents variations in r square as 81%. The result of the study was also sound as the Multicolinearity of the data was checked[7].

Endnotes

1. H. P. Grinyer & P. McKiernan, *The Determinants of Corporate Profitability in the UK Electrical Engineering Industry*. **British Journal of Management**, 2(1), 2005, 17-32.

2. B. Y. Iyodo, S. E. Samuel, & S. J. Inyada, *Effect of Insurance Industry Performance on Economic Growth in Nigeria.* **International Journal Business Finance and Management Research**, 6, 2018, 22- 33.

3. S. Nzotta, *Money, Banking and Finance.* Owerri: Hudson-Jude Nigeria Publishers, 2004.

4. P. Haynes, & K. Senneseth, *A Panel Study of Firm Growth Among SMEs in Networks*. **Small Business Economics**, 16(4), 2001, 293-302.

5. V. C. Okparaka, *Impact of Insurance Investments on Nigerian Capital Market.* **International Journal of Advanced Research in Management and Social Sciences,** 7(8), 2018, 124-135.

Chapter Five

Conclusion

5.1 Summary of Findings

The study examined the relationship between claims payment, loss adjustment, and financial performance of listed Nigerian insurance companies with other specific objectives to examine the effect of Net Claim on Financial Performance of listed insurance companies in Nigeria; determine the influence of Net Premium on Financial Performance of listed insurance companies in Nigeria; investigate the effect of Underwriting Profit on Financial Performance of listed insurance companies in Nigeria; examine the relationship between Loss Adjustment Expenses and Financial Performance of listed insurance companies in Nigeria. The study in addressing these objectives was structured in five chapters as presented below:

The study provides the direction to the study through the background of the study and the problem statement. The research questions alongside the objectives of the study and the research hypotheses was also presented in this chapter, and further captured the significance of the study, the scope and delimitation of the study, and definition of terms as employed in the study.

The study also was structured into conceptual review of the literature, the theoretical review, and the empirical review of the literature; and the conceptual model respectively. The conceptual review was based on the main themes relevant to the subject matter under investigation, the empirical review was based on methods and findings of other study related to the subject matter, the theoretical framework of the study focused on the theories adopted for the explanation of the subject matter, and the conceptual framework focus on the explanation of the linkages between the variables of study.

Furthermore, the study employed longitudinal research design on the panel data to establish sequence of events among Claims Payment, Loss Adjustment and Financial Performance of Listed Insurance Companies in Nigeria. The data were collected for the period of 2011 – 2020 from the Nigeria Insurers Association Digest. In order to evaluate the association between Claims payment, loss adjustment, and financial performance of listed Nigerian Insurance Companies, the study used the Ordinary Least Squares (OLS) regression technique.

In the study, four hypotheses were tested to reach vivid conclusion. At first, the hypothesis tested on Net Claim and Financial Performance revealed 0.0034<p-value<0.05 which implied that Net Claim has significant effect on Financial Performance of the listed Nigerian Insurance Companies. In the same vein, the second hypothesis which capitalized on Net Premium Growth has significant influence on Financial Performance of the listed Nigerian Insurance Companies depicted 0.0045<p-value<0.05 which implied that Net Premium Growth has significant influence on Financial Performance of the listed Nigerian Insurance Companies.

Furthermore, the hypothesis on Underwriting Profit and Financial Performance showed 0.0002<p-value<0.05 which further implied that there is significant effect of Underwriting Profit on Financial Performance of the listed Nigerian Insurance Companies. Finally, the positive relationship between Loss Adjustment Expenses and Financial Performance revealed 0.6568<p-value<0.05 which implied that Loss Adjustment Expenses has significant relationship with Financial Performance of the listed Nigerian Insurance Companies. The results stated above showed that the variables are suitable to measure the financial performance of the listed insurance in Nigeria.

5.2 Conclusion

Based on the findings, it was deducted that net claim, net premium and underwriting profit as well as Loss adjustment expenses have positive relationships with the financial performance of the listed insurers thus the study therefore concluded that net claim, net premium, underwriting profit and loss adjustment expenses are significant determinants of financial performance of the listed insurers in Nigeria. The variable showed the propensity and capacity of the firms to pay claim to their clients, motivate their employees, and maximize the wealth of their shareholders. The findings implied that sound net claim; net premium, underwriting profit and loss adjustment expenses increase the value of investment which in turn increases financial performance of the listed insurers in Nigeria.

5.3 Recommendations

Based on the conclusion, the study recommends that:

1. From policy formulation to policy termination, claim managers should collaborate with other sections of the insurance companies. This will not only prevent fraudulent claims from being paid, but will also encourage timely payment of legitimate claims and increase the firms' profitability through effective cost control.
2. The insurance companies should not lose sight of the main reason for their existence which is to return the insured to her pre-loss financial position by paying legitimate claims. As a result, every effort should be made to pay genuine claims promptly, as this increases public trust in insurance and the industry as a whole.
3. Insurance companies should pay close attention to other administrative costs, such as underwriting costs, which can reduce the companies' profit margin and disrupt claim payment.

4. Claims managers should create strategic plans to make sure that complaint files for insurance claims are appropriately maintained, tracked, and managed in case they are required in the future.
5. The insurers should adopt underwriting procedures in order to gather important data that will offer insightful analysis of the strategy and the input required to come up with practical solutions to reduce risks. Effective risk management procedures should be in place for management. This will make it easier to see internal and external risks that could lead to a substantial budget rise, a disruption of the schedule, or problems with financial performance. The organization can successfully address difficulties as they materialize by foreseeing, averting, and managing potential risks.
6. A cutting-edge training mechanism should be put in place to enhance and improve a claim officer's working pattern, which will invariably affect the organizational efficiency of insurance companies.
7. Claims handling procedures should be managed as soon as possible to avoid a shortfall in the organization's operational goals.
8. That the institution regulators and other industry stakeholders should intensify efforts on a regular basis to determine the claims handling procedural methods used by insurance companies in Nigeria.

5.4 Contribution to Knowledge

In the following ways, this study has advanced the body of knowledge. Few research have previously been conducted on the connection between claim payment, loss adjustment, and the financial performance of listed Nigerian insurance companies. This study found a correlation between listed insurance companies' performance and net claim, net premium, underwriting profit, and loss adjustment costs.

To the best of the researcher's knowledge, this is the first study that links the performance of listed insurers in Nigeria using two separate indicators, including net claim, net premium, and underwriting profit and loss adjustment expenses (i.e, ROA, ROE) while also covering a span into the more recent. The results show that good net claim, net premium, and underwriting profit and loss adjustment expenses raise investment value, which in turn raises the financial performance of the Nigerian insurers listed on the exchange.

5.5 Suggested Areas for Further Research

In this study, the financial performance of Nigerian listed insurance companies was compared to claim payment, loss adjustment, and financial performance for the period of 2011 to 2020. According to the existing literature, most previous studies focused on claim management and financial performance (ROA) of listed insurance, but few studies linked it to return on asset and return on equity. As a result, more research into the relationship between claim payment, loss adjustment, and financial performance of Nigeria's listed insurance companies is required. As a result, the researcher proposes that future studies consider: Claim payment: A practice toward high profitability and financial sustainability in the Listed Nigerian Insurance Companies

Bibliography

Conference Proceeding/Seminar

Abdul-Hafiz, J. *The Impact of Intangible Assets and Economic Profit on Mergers and Acquisitions in the Communication Services Industry*. International Conference on Excellence in Business, Sharjah United Arab Emirates. 2012.

Charumathi, B. *On the Determinants of Profitability of Indian Life - An Empirical Study.* Proceedings of the World Congress on Engineering, 1, 2012.

Skalska, M. *The Relationship between Insurance Development and Economic Growth: The Motor Third Party Liability Insurance in the Czech Republic*. The 12th International Days of Statistics and Economics, Prague, 2018.

Tarsono, O. Ardheta, P. A. & Amriyami, R. *The Influence of Net Premium Growth, Loss Adjustment Expenses and Risk-Based Capital on the Financial Performance of Life Insurance Companies*. Proceedings of the Annual International Conference on Accounting Research (AICAR 2019), 127, 2019, 65-68.

Zaid, N. A. M, Ibrahim, W. M. F. W. & Zulqernain, N. S. *The Determinants of Profitability: Evidence from Malaysian Construction Companies*. Proceedings of fifth Asia-Pacific Business Research Conference, Kuala Lumpur, Malaysia. 2014.

Journal

Abass O. A. & Olubusade T. J. *Effects of Reinsurance Utilisation on the Capital Adequacy of Non-life Insurance Companies in Nigeria.* **Acta Universitatis Danubius,** 19(2), 2023.

Abass, O. A. & Obalola, M. A. *Reinsurance Utilisation and Performance of Non- Life Business in the Nigerian Insurance Industry: A Mixed Methods Approach.* **The Journal of Risk Management and Insurance,** 22 (2), 2018, 18-32

Abass, O. A. & Ojikutu, R. K. *Interactions between Capital and Demand for Reinsurance; An Empirical Study of Non-Life Insurance Business in Nigeria*. **LASU Journal of Management Sciences**, 5(1), 2019, 42-53.

Abass, O. A. *Empirical Analysis of Reinsurance Dependence on the Profitability of General Insurance Business in Nigeria.* **Academic Journal of Economic Studies,** 5(4), 2019, 136–43.

Abdel-Basset, M., Ding, W., Mohamed, R. & Metawa, N. *An Integrated Plithogenic MCDM Approach for Financial Performance Evaluation of Manufacturing Industries.* **Risk Management**, 22, 2020, pp.192-218.

Abdoush, T., Hussainey, K. & Albitar, K. *Corporate Governance and Performance in the Uk Insurance Industry Pre, During and Post the Global Financial Crisis.* **International Journal of Accounting & Information Management,** 30(5), 2022, pp.617-640.

Abebe, Z.B., Ali, A.A. & Wodajo, B.S. *Corporate Governance and Financial Performance in the Emerging Economy: The Case of Ethiopian Insurance Companies.* **Cogent Economics & Finance,** 10(1), 2022, p.2117117.

Abere, O. J. & Saka, S. T. *The Financial Performance of Nigerian Manufacturing Firms and Risk Management Practices*. **International Business & Economic Studies**, 5(2), 2023, 138-150.

Adegbite, G. A., Olusesi, H. O., Akomolafe, J. A. & Owotutu, S. *Accounting Ratios Information: An Instrument for a Business Performance Analysis*. **International Journal of Trend in Scientific Research and Development**, 2(5), 2018, 683-688.

Adetunji A. L., Nwude E. C. & Udeh S. N. *Interface of Insurance and Economic Growth: Nigerian Experience.* **International Journal of Economics and Financial Issues**, 8(4), 2018, 16-26.

Afolabi, T. S. *Effect of Claims Payments on Profitability in the Nigerian Insurance Industry*. **Advances in Social Sciences Research Journal**, 4, 2018.

Agubata, S. & Odubiasi, A. C. *Effect of Exchange Rate Fluctuation on the Financial Performance of Manufacturing Companies in Nigeria.* **International Journal of Commerce and Management**, 4(4), 2018, 56-61.

Agyei-Mensah, B.K. *Impact of Corporate Governance Attributes and Financial Reporting Lag on Corporate Financial Performance.* **African Journal of Economic and Management Studies,** 9(3), 2018, pp.349-366.

Ajao M. G. & E. Ogieriakhi, *Firm Specific Factors and Performance of Insurance Firms in Nigeria*. **Amity Journal of Finance**, 3(1), 2018, 14-28.

Ajemunigbohun, S. S., Isimoya, O. A., & Ipigansi, P. M. *Insurance Claims Fraud in Homeowner's Insurance: Empirical Evidence from the Nigerian Insurance Industry*. **Facta Universitatis: Economics and Organization**, 16(1), 2019, 103-116.

Ajibola, A., Wisdom, O., & Qudus, O.L. *Capital Structure and Financial Performance of Listed Manufacturing Firms in Nigeria.* **Journal of Research in International Business and Management,** *5*(1), 2018, pp.81-89.

Akidi, I. L., Wamala, S. K. & Mugonola, B. *Determinants of Smallholder Indigenous Chicken Farmers Market Participation Decisions and Value of Sales in Gulu District.* **Journal of Development and Agricultural Economics,** 10(8), 2018, 271-278.

Akpan, S. S., Nnamseh, M., Etuk, S. G. & Edema, A. J. M. *Managing the Underwriting Functions and Profitability Paradoxes of Nigerian Insurers: A Pooled Panel Model Study*. **International Journal of Innovation, Creativity and Change**, 14(4), 2020.

Al Omari, R., Alkhawaldeh, R.S. & Jaber, J.J. *Artificial Neural Network for Classifying Financial Performance in Jordanian Insurance Sector.* Economies, 11(4), 2023, p.106.

Al-Dmour, A.H., Abbod, M., & Al-Balqa, N.S., *The Impact of the Quality of Financial Reporting on Non-Financial Business Performance and the Role of Organizations Demographic' Attributes (Type, Size and Experience),* 2018.

Alshehhi, A., Nobanee, H., & Khare, N. *The Impact of Sustainability Practices on Corporate Financial Performance: Literature Trends and Future Research Potential.* Sustainability, 10(2), 2018, p.494.

Ang, R., Shao, Z., Liu, C., Yang, C., & Zheng, Q. *The Relationship between CSR and Financial Performance and the Moderating Effect of Ownership Structure: Evidence from Chinese Heavily Polluting Listed Enterprises.* **Sustainable Production and Consumption,** 30, 2022, pp.117-129.

Angga F. P. H., Isfenti, S., & Iskandar M. *The Effect of Claim Ratio, Operational Ratio and Retention Ratio on Profitability Performance of Insurance Companies in Indonesia Stock Exchange.* **International Journal of Research and Review**, 7(3), 2020.

Angga, F. P., Putra, H., Isfenti, S. & Iskandar, M. *The Effect of Loss Adjustment Expenses, Operational Ratio and Retention Ratio on Performance of Insurance Companies in Indonesia Stock Exchange*. **International Journal of Research and Review**, 7(3), 2020.

Aseinimieyeofori, P.A. *Non-Current Assets Investment and Financial Performance of Listed Insurance Companies in Nigeria.* **BW Academic Journal,** 2022, pp.17-17.

Bala, S.A., Salisu, M.Y. & Sani, I.D.R.I.S. *Corporate Liquidity and Performance of Listed Insurance Companies in Nigeria.* **UMYU Journal of Accounting and Finance Research,** 3(1), 2022, pp.118-133.

Banjo, K. A. & Oloyede, F. A. *Risk Management Practices and the Financial Performance of Manufacturing Firms in Nigeria.* **International Journal of Management Studies and Social Science Research**, 3(5), 2021, 350 - 358.

Banmore, O. O., Adefulu, A. D. & Makinde, G. O. *Claims Management and Firm Performance of Insurance Companies in Nigeria: Moderating Effect of Marketing Factors*. **Journal of Economics, Finance and Management Studies**, 6(6), 2023, 2974-2984.

Barakat, F.S., Hussein, J., Mahmoud, O.A. & Bayyoud, M. *Analysis of the Factors Affecting the Financial Performance of Insurance Companies Listed on the Palestine Stock Exchange*. **Indian Journal of Finance and Banking,** 9(1), 2022, pp.213-229.

Bashaija, W. *Effect of Financial Risk on Financial Performance of Insurance Companies in Rwanda.* **Journal of Finance and Accounting,** 10(5), 2022.

Bashir, R. & Azeez, A. A. *Risk Management Practices of Islamic and Conventional Banks of Pakistan: A Comparative Study*. **International Journal of Banking and Finance**, 17(2), 2022, 57-90.

Battaglio Jr, R.P., Belardinelli, P., Bellé, N. & Cantarelli, P. *Behavioral Public Administration Adfontes: A Synthesis of Research on Bounded Rationality, Cognitive Biases, and Nudging in Public Organizations.* **Public Administration Review,** 79(3), 2019, pp.304-320.

Beck, C., Frost, G., & Jones, S. *CSR Disclosure and Financial Performance Revisited: A Cross-Country Analysis.* **Australian Journal of Management,** 43(4), 2018, pp.517-537.

Bunyaminu, A., Bashiru, S., Yakubu, I.N., Aggrey, E., Appiah, A. & Tuffour, S.A. *Claim Management of Non-Life Insurance Companies in Ghana: Does It Impact on Profitability.* **Journal of Applied Economic Sciences,** 2(74), 2022, pp.97-106.

Cappiello, A. *The Digital (r) Evolution of Insurance Business Models.* **American Journal of Economics and Business Administration,** 12(1), 2020, pp.1-13.

Chen, H., Yang, D., Zhang, J.H. & Zhou, H. *Internal Controls, Risk Management, and Cash Holdings.* **Journal of Corporate Finance,** 64, 2010, p.101695.

Cherian, J., Umar, M., Thu, P.A., Nguyen-Trang, T., Sial, M.S., & Khuong, N.V. *Does Corporate Social Responsibility affect the Financial Performance of the Manufacturing Sector? Evidence from an Emerging Economy.* **Sustainability**, 11(4), 2019, p.1182.

Chowdhry, B., Davies, S.W. & Waters, B. *Investing for Impact*. **The Review of Financial Studies,** 32(3), 2019, pp.864-904.

Chowdhury, L.A.M., Rana, T., Akter, M., & Hoque, M. *Impact of Intellectual Capital on Financial Performance: Evidence from the Bangladeshi Textile Sector.* **Journal of Accounting & Organizational Change,** 14(4), 2018, pp.429-454.

Dionne, G. & Desjardins, D. *A Re-examination of the US Insurance Market's Capacity to Pay Catastrophe Losses.* **Risk Management and Insurance Review,** 25(4), 2022, pp.515-549.

Doytch, N. & Uctum, M. *Does The Worldwide Shift of FDI from Manufacturing to Services Accelerate Economic Growth? A GMM Estimation Study*. **Journal of International Money and Finance**, 30(3), 2011, 410-427.

Ebaid, I. E. *The Impact of Capital Structure Choice on Firm Performance: Empirical Evidence from Egypt.* **Journal of Risk Finance**, 10(5), 2009, 477- 487.

Elsiefy, E. *Determinants of Profitability of Commercial Banks in Qatar: Comparative Overview between Domestic Conventional and Islamic Banks during the Period 2006-2011.* **International Journal of Economics and Management Sciences**, 2(11), 2013, 108-142.

Enekwe, C. I., Okwo, I. M. & Ordu, M. M. *Financial Ratio Analysis as a Determinant of Profitability in Nigerian Pharmaceutical industry*. **International Journal of Business and Management**, 8(8), 2013, 107-117.

Epetimehin, A. M. *Cross-border Insurance Marketing and the Corporate Implications.* **European Scientific Journal**, 9(1), 2013, 152-162.

Esa, M., Ibrahim, F. S., Ishak, S. S. M. & Razi, S. R. M. *Impact of Enterprise Risk Management on Organizational Performance.* **Journal of Advanced Research in Dynamical and Control System**, 10(6), 2018, 190-197.

Etale L. M. & Edoumiekumo A.R. *Financial Sector Policies and Economic Growth: Evidence from Insurance Sector in Nigeria.* **Research in Business and Social Sciences,** 10(9), 2020.

Etale, L. M. *Insurance Sector Development and Economic Growth in Nigeria: An Empirical Analysis*. **International Journal of Development and Economic Sustainability**, 7(4), 2019, 34-48.

Eugene, I. *Insurance Industry Performance and the Selected Regulatory Instruments in Nigeria*. **Journal of Economics and Finance**, 9(6), 2018, 67-77.

Euphasio Junior, J.W. & Carvalho, J.V.F. *Reinsurance and Solvency Capital: Mitigating Insurance Companies' Ruin Probability.* **Revista de Administração Contemporânea,** 26, 2021.

Ewan, S. O. E., Esang, A. E., & Bassey, J. U. *Appraisal of Capital Market Efficiency on Economic Growth in Nigeria.* **Journal of Business and Management,** 4(12), 2009, 219 - 288.

Ezu G. K., Okoye N. J., & Ogbogu O. S. *Effect of Consolidation of the Nigerian Insurance Industry on the Growth of the Nigerian Economy (1996-2018).* **IOSR Journal of Economics and Finance,** 11(2), 2020, 22-32.

Fadun, O. S. & Shoyemi, O. S. *Insurance Investment Funds and Economic Growth in Nigeria*. **International Journal of Development and Management Review**, 13(1), 2018, 73-88.

Fadun, O. S. *Analysis of the Impacts of Insurance Claims Settlement on Economic Growth: The Case of Nigeria*. **International Journal of Business Ecosystem and Strategy**, 5(3), 2023, 51-59.

Fadun, O. S. *Nexus between Insurance Penetration and Economic Growth: Evidence from Nigeria*. **The Nigerian Journal of Risk and Insurance**, 11(1), 2021, 20-36.

Fashagba, M. O. *The Impact of Insurance on Economic Growth in Nigeria*. **Afro Asian Journal of Social Sciences**, 9(1), 2018, 1-10.

Fatihudin D. & Mochklas M. *How Measuring Financial Performance.* **International Journal of Civil Engineering and Technology,** 9(6), 2018.

Fraga-Lamas, P. & Fernández-Caramés, T.M. *A Review on Blockchain Technologies for an Advanced and Cyber-Resilient Automotive Industry.* IEEE access, 7, 2019, pp.17578-17598.

Fujianti, L., & Satria, I. *Firm Size, Profitability, Leverage as Determinants of Audit Report Lag: Evidence from Indonesia.* **International Journal of Financial Research,** 11(2), 2020, pp.61-67.

Gangi, F., Meles, A., D'Angelo, E., & Daniele, L.M. *Sustainable Development and Corporate Governance in the Financial System: Are Environmentally Friendly Banks Less Risky?.* **Corporate Social Responsibility and Environmental Management,** 26(3), 2019, pp.529-547.

Gao, P. & Zhang, G. *Accounting Manipulation, Peer Pressure, and Internal Control.* **The Accounting Review,** 94(1), 2019, pp.127-151.

Greenwood, F., Nelson, E.L. & Greenough, P.G. *Flying into the Hurricane: A Case Study of UAV use in Damage Assessment during the 2017 Hurricanes in Texas and Florida.* PLoS one, 15(2), 2020, p.e0227808.

Grima, S., Spiteri, J. & Romānova, I. *A Steep Framework Analysis of the Key Factors Impacting the Use of Blockchain Technology in the Insurance Industry.* **The Geneva Papers on Risk and Insurance-Issues and Practice,** 45, 2020, pp.398-425.

Haynes, P. & Senneseth, K. *A Panel Study of Firm Growth among SMEs in Networks*. **Small Business Economics**, 16(4), 2001, 293-302.

Ibrahim, M. I., Nyor, T. & Mustapha, L. O. *Financial Risk and Financial Performance of Listed Insurance Companies in Nigeria*. **European Journal of Business and Management**, 12(12), 2020, 143-153.

Iheanacho E. *Insurance Industry Performance and the Selected Regulatory Instruments in Nigeria.* **IOSR Journal of Economics and Finance,** 9(6), 2018, 67-77.

Iqbal, N., Tufail, M.S., Mohsin, M., & Sandhu, M.A. *Assessing Social and Financial Efficiency: The Evidence from Microfinance Institutions in Pakistan.* **Pakistan Journal of Social Sciences,** 39(1), 2019, pp.149-161.

Ironkwe, U. I. & Osaat, A. S. *Risk Asset Management and Financial Performance of Insurance Companies in Nigeria*. **International Journal of Advanced Academic Research and Accounting Practice**, 5(4), 2019, 18-46.

Iyodo, B. Y., Samuel, S. E. & Inyada, S. J. *Effect of Insurance Industry Performance on Economic Growth in Nigeria*. **International Journal of Business and Finance Management Research**, 6, 2018, 22-33.

Ja'afar, Y., Isah, B.M. & Alhassan, N.T. *Corporate Physiognomies and Profitability of Quoted Insurance Companies: Evidence from Emerging Markets.* **African Journal of Management and Business Research,** 6(1), 2022, pp.151-168.

Jaaman, S.H. & Xinn, O.C. *Solvency Analysis by Business Classifications of General Insurance Industry in Malaysia.* **International Journal of Sciences: Basic and Applied Research,** 48(5), 2019, pp.24-32.

Jawad, Y.A.L.A. & Ayyash, I. *Determinants of the Solvency of Insurance Companies in Palestine.* **International Journal of Financial Research,** 10(6), 2019, pp.188-195.

Jin, Y., Gao, X., & Wang, M. *The Financing Efficiency of Listed Energy Conservation and Environmental Protection Firms: Evidence and Implications for Green Finance in China.* Energy Policy, 153, 2021, p.112254.

Kajwang B. *Contribution of Fire Insurance to the Growth of Businesses in Kenya.* **Afro Asian Journal of Social Sciences**, IX (I) 2022.

Kaya U. N. & Beser N. O. *The Effect of Insurance Premium on Economic Growth in European Union Countries: Panel Data Analysis.* **Journal of Academic Researches and Studies**. 12(23), 2020, 442-451.

Kaya, C.T., Türkyılmaz, M. & Birol, B. *Impact of RPA Technologies on Accounting Systems.* **Muhasebe ve Finansman Dergisi,** 82, 2019.

Kemshall, H. & Maguire, M. *Public Protection, Partnership and Risk Penality: The Multi-Agency Risk Management of Sexual and Violent Offenders.* **In Governing Risks,** 2021, pp. 319-346.

Khambata, D., & Bagdi, R. *Off-Balance-Sheet Credit Risk of the Top 20 Japanese Banks.* **Journal of International Banking Regulation,** 5(1), 2003, 57 - 71.

Lazar, S. *Determinants of Firm Performance: Evidence from Romanian Listed Companies*. **Review of Economics and Business Studies**, 9(1), 2016, 53-69.

Lee, I. *Does Size Matter in Firm Performance? Evidence from US Public Firms*. **International Journal of the Economics of Business**, 16(2), 2009, 189-203.

Li, Y., Li, X., Xiang, E. & Djajadikerta, H.G. *Financial Distress, Internal Control, and Earnings Management: Evidence from China.* **Journal of Contemporary Accounting & Economics,** 16 (3), 2020, p.100210.

Liu, Y., Saleem, S., Shabbir, R., Shabbir, M.S., Irshad, A., & Khan, S. *The Relationship between Corporate Social Responsibility and Financial Performance: A Moderate Role of Fintech Technology.* **Environmental Science and Pollution Research,** 28, 2021, pp.20174-20187.

Lv, C., Shao, C., & Lee, C.C. *Green Technology Innovation and Financial Development: Do Environmental Regulation and Innovation Output Matter?*. Energy Economics, 98, 2021, p.105237.

Malali, A.B. & Gopalakrishnan, S. *Application of Artificial Intelligence and its Powered Technologies in the Indian Banking and Financial Industry: An Overview.* **IOSR Journal Of Humanities and Social Science,** 25(4), 2020, pp.55-60.

Malik, H. *Determinants of Insurance Companies' Profitability: An Analysis of Insurance Sector of Pakistan.* **Academic Research International**, 1(3), 2011, 315-321.

Mardiana, M., Puji, E. P. & Ayyu, W. A. D. *The Effect of Risk Management on Financial Performance with Good Corporate Governance as a Moderation Variable.* **Management and Economics Journal,** 2(3), 2018, 257-268.

Markonah, M., Silalahi, S. & Selliamanik, I. *Claim Paying and Reinsurance on Company's Financial Health.* **International Journal of Applied Management and Business,** 1(1), 2023, pp.9-25.

Marzen, C.G. *The Actions of Crop Insurance Bad Faith.* **Bus. Entrepreneurship & Tax L. Rev.,** 6, 2022, p.17.

Mazviona, B. W., Dube, M. & Sakahuhwa, T. *An Analysis of Factors Affecting the Performance of Insurance Companies in Zimbabwe*. **Journal of Finance and Investment Analysis**, 6(1), 2017, 1-2.

Mojambo, G., Tulung, J.E., & Saerang, R.T. *The influence of Top Management Team (TMT) Characteristics toward Indonesian Banks Performance during the Digital Era (2014–2018),* 2020.

Msomi, T.S. *Macroeconomic and Firm-Specific Determinants of Financial Performance: Evidence from Non-Life Insurance Companies in Africa.* Cogent Business & Management, 10(1), 2023, p.2190312.

Munari, C., Weber, S. & Wilhelmy, L. *Capital Requirements and Claims Recovery: A New Perspective on Solvency Regulation.* **Journal of Risk and Insurance,** 90(2), 2023, pp.329-380.

Mushafiq, M., Sindhu, M.I., & Sohail, M.K. *Financial Performance under Influence of Credit Risk in Non-Financial Firms: Evidence from Pakistan.* **Journal of Economic and Administrative Sciences,** 39(1), 2023, pp.25-42.

Nayak, B., Bhattacharyya, S.S. & Krishnamoorthy, B. *Explicating the Role of Emerging Technologies and Firm Capabilities towards Attainment of Competitive Advantage in Health Insurance Service Firms.* **Technological Forecasting and Social Change,** 170, 2021, p.120892.

Nguyen, T.N.L., & Nguyen, V.C. *The Determinants of Profitability in Listed Enterprises: A Study from Vietnamese Stock Exchange.* **Journal of Asian Finance, Economics and Business,** 7(1), 2020, pp.47-58.

Nirino, N., Ferraris, A., Miglietta, N., & Invernizzi, A.C. *Intellectual Capital: The Missing Link in the Corporate Social Responsibility–Financial Performance Relationship.* **Journal of Intellectual Capital,** 23(2), 2020, pp.420-438.

Nirino, N., Santoro, G., Miglietta, N., & Quaglia, R. *Corporate Controversies and Company's Financial Performance: Exploring the Moderating Role of ESG Practices.* **Technological Forecasting and Social Change,** 162, 2021, p.120341.

Ntwali, A., Kituyi, A. & Kengere, A. O. *Claims Management and Financial Performance of Insurance Companies in Rwanda: A Case of SONARWA General Insurance Company Ltd*. **Journal of Financial Risk Management**, 9(3), 2020.

Nwani, A. T. & Omankhanlen, A. E. *Insurance Receivables and Economic Growth: The Case of Nigeria.* Journal of Physics: Conference Series, International Conference on Engineering for Sustainable World, 1378, 2019, 1-15.

Nwoji E. *Nigeria's Insurance Sector Total Premium Reached N508 Billion in 2021 as Claims on Endsars Protest Hits N11 Billion*. This Day, https://www.allafrica.com, 2022.

Nwosa, P. I. & Mustapha, Z. B. *The Dynamics of Insurance Development and Economic Growth in Nigeria*. **The Indian Economic Journal**, 65(1-4), 2017, 37-44.

Ogbeide O., Adu T.O., Fapohunda F. M. & Obadeyi J. *Insurance Sector Development and Economic Growth: Empirical Analysis from Nigeria.* **Asian Journal of Economics, Business and Accounting,** 22(17), 2022, 55-72.

Ogunlami K. *The Effect of Claim Settlement on Profit Maximization in the Insurance Industry*. **International Journal of Social Relevance & Concern,** 9(9), 2021.

Oke, M. O. *Insurance Sector Development and Economic Growth in Nigeria*. **African Journal of Business Management**, 6(23), 2012, 7016-7023.

Okonkwo I. V. & Eche E. A. *Insurance Penetration Rate and Economic Growth in Nigeria*. **International Journal of Social Sciences and Management Review,** 2(1), 2019, 22-45.

Okparaka V. C. *Impact of Insurance Investments on Nigerian Capital Market.* **International Journal of Advanced Research in Management and Social Sciences**, 7(8), 2018, 124-135.

Oladunni, O.E. & Okonkwo, I.V. *Impact of Risk Retention on Claims Management of Insurance Companies in Nigeria.* **Fuoye Journal of Finance and Contemporary Issues,** 3(1), 2022.

Oloyede, J. A. Folorunsho, A. & Ogamen, O. F. *The Impact of Insurance on Economic Growth in Nigeria.* **Nigerian Journal of Banking and Financial Issues**, 9(1), 2023, 1-8.

Oluwaleye, O. T., Shoyemi, O. S. & Edewusi, D. G. *Effects of Claims Management on Profitability of Insurance Companies in Nigeria.* **British Journal of Management and Marketing Studies**, 3(4), 2020, 106-114.

Oluwaleye, T., Kolapo, F. T. & Osasona, A. V. *Impact of Insurance Risk Management on Fixed Capital Formation in Nigeria*. **Acta Universitatis Danubius Œconomica**, 18(5), 2022.

Omondi, R.I., & Jagongo, A. *Microfinance Services and Financial Performance of Small and Medium Enterprises of Youth SMEs in Kisumu County, Kenya.* **International Academic Journal of Economics and Finance,** 3(1), 2018, pp.24-43.

Ono, T., Ardheta, P. U. & Rininda, A. *The Influence of Net Premium Growth, Claim Ratio and Risk-based Capital on the Financial Performance of Life Insurance Companies.* **Advances in Economics, Business and Management Research**, 127, 2019, 65-68.

Onyebuchi B., Nwankwo S. P., Onuka O. I. *Insurance Sub-Sector Development: An Emerging Pillar for Economic Growth and Sustainability in Nigeria*. **International Journal of Economics and Financial Management**, 1(1), 2017, 76-85.

Onyele K. O. & Ariwa F. *Risk Transfer and Growth of Nigeria's Insurance Industry: An Empirical Analysis.* **Amity Journal of Finance**, 4(2), 2019, 53-69.

Ostroff, I. & Schmitt, N. *Configuration of Organizational Effectiveness and Efficiency,* **Academy of Management Journal**, 36(6), 1993, 1345-1361.

Ostrowski, H. *Out-of-Court Settlement of Consumer Sales Claims.* Kwartalnik Prawa Międzynarodowego, 2(II), 2020, pp.77-95.

O'sullivan, C.A., Bonnett, G.D., McIntyre, C.L., Hochman, Z. & Wasson, A.P. *Strategies to Improve the Productivity, Product Diversity and Profitability of Urban Agriculture.* **Agricultural Systems,** 174, 2019, pp.133-144.

Oyedokun, G. E. & Falade, O. A. *Loss Adjusters and Insurance Customers Retention in the Nigeria Insurance Industry*. **International Journal of Economics, Commerce and Management**. 10(3), 2022, 43-65.

Oyedokun, G. E., & Gabriel, F. G. *Effects of Claims Management on Profitability of Listed Insurance Companies in Nigeria.* **American Journal of Management,** 18(5), 2018, 37-45.

Oyedokun, G.E. & Amafa, E.O. *Claims Payment, Risk Management and Financial Performance of Selected Insurance Companies in Nigeria.* **Journal of Insurance and Financial Management,** 6(3), 2022, pp.81-115.

Oyerogba, E. O. & Gbolagade, A. S. *The Influence of Risk Management on the Financial Performance of listed Insurance Companies in Nigeria*. **Research Application of Thermal Engineering**, 6(1), 2023, 12-23.

Pantić, N., Mikulič, K. & Lekovič, M. *The Influence of Claims Payments on the Investment Portfolio of Insurance Companies.* Oditor, 8(3), 2022, pp.42-71.

Peleckiene V., Peleckis K., Dudzeviciute G., & Peleckis K.K. *The Relationship between Insurance and Economic Growth: Evidence from the European Union Countries.* **Economic Research – Ekonomska Istrazivanja,** 32(1), 2019, 1138-1151.

Pjanić, M. Milenkovic, N. B., Kalaš, B. & Mirović, V. *Profitability Determinants of Non-life Insurance Companies in Serbia*. **Ekonomika Preduzeca**, 66(5-6), 2018, 333-345.

Ridanti, P.P. & Suryaningrum, D.H. *The Effect of Financial Distress, Internal Control, And Debt Structure on Earnings Management in Companies Registered in Indonesia Stock Exchange*. **JASa (Jurnal Akuntansi, Audit dan Sistem Informasi Akuntansi),** 5(3), 2021, pp.458-472.

Ronghangpi, M. & Roy, N.D. *Dispute Settlement Mechanism about Claims under Life Insurance: A Legal Study.* **Int'l JL Mgmt. & Human**. Issue 5, 3, 2020, p.25.

Saeidi, P., Saeidi, S.P., Sofian, S., Saeidi, S.P., Nilashi, M. & Mardani, A. *The Impact of Enterprise Risk Management on Competitive Advantage by Moderating Role of Information Technology.* **Computer Standards & Interfaces,** 63, 2019, pp.67-82.

Saeidi, P., Saeidi, S.P., Sofian, S., Saeidi, S.P., Nilashi, M. & Mardani, A. *The Impact of Enterprise Risk Management on Competitive Advantage by Moderating Role of Information Technology.* **Computer Standards & Interfaces**, 63, 2019, pp.67-82.

Salman, A., & Nawaz, H. *Islamic Financial System and Conventional Banking: A Comparison.* **Arab Economic and Business Journal,** 13(2), 2018, pp.155-167.

Samitas, A. & Kampouris, E. *Financial Illness and Political Virus: The Case of Contagious Crises in the Eurozone*. **International Review of Applied Economics, Taylor and Francis Group**, 2017.

Samreena, T. *A Study of Customer Preference on Private Life Insurance Company with special reference to Srinagar City.* **International Journal of Management, Technology and Engineering,** 8(8), 2018, 162-175.

Sare, S. P. *Risk Management Practices among Manufacturing Firms.* **European Journal of Business and Management**, 5(20), 2013, 1-8.

Sawadogo R., Guerineau, S. & Ouedraogo, I. M. *Life Insurance Development and Economic Growth: Evidence from Developing Countries*. **Journal of Economic Development.** 43(2), 2018, 1-28.

Shaddady, A. *Business Environment, Political Risk, Governance, Shariah Compliance and Efficiency in Insurance Companies in the Mena Region.* **The Geneva Papers on Risk and Insurance-Issues and Practice,** 47(4), 2022, pp.861-904.

Shiferaw, T. & Gujral, T. *Determinants of Insurance Companies Profitability in Ethiopia.* **Journal of Positive School Psychology**, 6(2), 2022.

Shim, J. *Are Mergers and Acquisitions Beneficial to Consumers*? Evidence from the Property-Liability Insurance Industry. **Financial Review,** 58(3), 2023, pp.629-652.

Soewarno, N., & Tjahjadi, B. *Measures that Matter: An Empirical Investigation of Intellectual Capital and Financial Performance of Banking Firms in Indonesia.* **Journal of Intellectual Capital,** 21(6), 2020, pp.1085-1106.

Sølvsten, S. & Kaiser, B. *Do Insurers Adjust Prices for the Adoption of Loss Prevention Technologies? Evidence from Danish Municipal Contracts.* **Risk Management and Insurance Review,** 26(1), 2023, pp.57-82.

Soye, Y. A. & Adeyemo, D. L. *Underwriting Capacity and Income of Insurance Companies: A Case of Nigeria.* **International Journal of Innovative Science and Research Technology**, 3(10), 2018, 731-738.

Suhadak, S., Kurniaty, K., Handayani, S.R., & Rahayu, S.M. *Stock Return and Financial Performance as Moderation Variable in Influence of Good Corporate Governance towards Corporate Value.* **Asian Journal of Accounting Research,** 4(1), 2018, pp.18-34.

Sunardi, N., & Tatariyanto, F. *The Impact of the Covid-19 Pandemic and Fintech Adoption on Financial Performance moderating by Capital Adequacy.* **International Journal of Islamic Business and Management Review,** 3(1), 2023, pp.102-118.

Taofeek, S. A.*Effect of Claims Payments on Profitability in the Nigerian Insurance Industry.* **Advances in Social Sciences Research Journal**, 5(4), 2018.

Tarsono O., Ardheta P. A. & Amriyani R. *The Influence of Net Premium Growth, Claim Ratio and Risk-Based Capital on the Financial Performance of Life Insurance Companies.* Annual International Conference on Accounting Research**,** 2019, 65-68.

Ullah, A., Pinglu, C., Ullah, S., Zaman, M., & Hashmi, S.H. *The Nexus between Capital Structure, Firm-Specific Factors, Macroeconomic Factors and Financial Performance in the Textile Sector of Pakistan.* Heliyon, 6(8), 2020.

Uruakpa, P. C. *Insurance Premium and Economic Performance in Nigeria: A Variance Decomposition Approach*. **Archives of Business Research**, 7(SP), 2019, 16-33.

Vu, M.C., Phan, T.T., & Le, N.T. *Relationship between Board Ownership Structure and Firm Financial Performance in Transitional Economy: The Case of Vietnam.* **Research in International Business and Finance,** 45, 2018, pp.512-528.

Wadesango N., Mhaka C., & Shava F. *Effectiveness of Risk Management Systems on Financial Performance in a Public Setting.* **Academy of Accounting and Financial Studies Journal**, 22(4), 2018.

Wang, S., Wang, H., Wang, J., & Yang, F. *Does Environmental Information Disclosure contribute to Improve Firm Financial Performance? An Examination of the Underlying Mechanism.* **Science of the Total Environment,** 714, 2020, p.136855.

Wu, S. & Li, Y. *Impact of the Business Structure on Solvency of Property-Liability Insurance Companies and its Mediating Effect*. **Discrete Dynamics in Nature and Society,** 2021, pp.1-17.

Xu, J., & Wang, B. *Intellectual Capital, Financial Performance and Companies' Sustainable Growth: Evidence from the Korean Manufacturing Industry.* **Sustainability**, 10(12), 2018, p.4651.

Yusuf, O. T. & Abass, O. A. *Investigating the Roles of Claims Manager in Claims Handling Process in the Nigeria Insurance Industry*. **Journal of Business Finance** 1(2), 2013, 69-74.

Yusuf, T. O. & Ajemunigbohun, S. S. *Effectiveness, Efficiency and Promptness of Claims Handling Process in the Nigerian Insurance Industry*. **European Journal of Business and Economics**, 10(2) 2015.

Yusuf, T. O. & Dansu, S. *Francis. Effect of Claim Cost on Insurers` Profitability in Nigeria*. **International Journal of Business and Commerce**, 3(10), 2014.

Zhou, G., Sun, Y., Luo, S., & Liao, J. *Corporate Social Responsibility and Bank Financial Performance in China: The Moderating Role of Green Credit.* Energy Economics, 97, 2021, p.105190.

Zwick, E. *The Costs of Corporate Tax Complexity.* **American Economic Journal: Economic Policy,** 13(2), 2021, pp.467-500.

Textbook

Agbaje, R. *Accounting for Specialized Transactions*: First Edition, Mokola, Ibadan: Akins Prints, 2005.

Ajayi, A. A. *Element and Scope of Insurance*. Akure: Hybrid Publishers Limited, 2000.

Akintayo, L. A. *Fundamentals of Insurance Claims* (3rd edition). CSS Bookshop Limited. 2002.

Akintayo, L. A. *Introduction to General Insurance Underwriting.* CSS Bookshops Limited, 2004.

Alokla, J., Daynes, A., Pagas, P. & Tzouvanas, P. *Solvency Determinants: Evidence from the Takaful Insurance Industry.* The Geneva Papers on Risk and Insurance-Issues and Practice, 2022, pp.1-25.

Chance, D.M. & Brooks, R. *An Introduction to Derivatives and Risk Management.* South-Western, Cengage Learning, 2021.

Cummins, J.D., Dionne, G., Gagné, R. & Nouira, A. *The Costs and Benefits of Reinsurance.* The Geneva Papers on Risk and Insurance-Issues and Practice, 46, 2021, pp.177-199.

Gallati, R.R. *Risk Management and Capital Adequacy.* McGraw-Hill, 2022.

Hubbard, D.W. *The Failure of Risk Management: Why it's Broken and How to Fix it.* John Wiley & Sons, 2020.

Hull, J. C. *Risk Management and Financial Institutions (6th ed.).* Wiley Finance Series, 2023.

Irukwu, J. O. *Fundamental of Insurance*. British Library Cataloguing in publication data. 2007.

Nuti, D.M. *Codetermination, Profit Sharing and Full Employment.* In Collected Works of Domenico Mario Nuti, Volume II: Economic Systems, Democracy and Integration. Cham: Springer International Publishing. 2023, pp. 317-334.

Nzotta, S. *Money, Banking and Finance.* Owerri: Hudson-Jude Nigeria Publishers, 2004.

Otley, D.T. & Berry, A.J. *Control, Organisation and Accounting.* In Management Control Theory. Routledge, 2019, pp. 101-114.

Pandy, I. M. *Financial Management. Vikas Publishing House.* PVT LTD. Janpura, New Delhi- 110014. India. Tenth edition. 2010.

Redja, G. E. *Principles of Risk Management and Insurance* (10th Ed) Pearson education, New York. 2008.

Rose, P. & Marquis, M. *Money and Capital Market.* Mcgraw Hill Professional; 10th Edition, 2008.

Thesis / Dissertation

Amber, K. *Importance of Claims Management in the Insurance Sector*. Unpublished Thesis. 2017.

Olajumoke, O. *The Determinants of the Profitability of Insurance Companies in Nigeria*. University of Bath. Nigeria 2012.

Periodical: Newspaper/Magazine

African Insurance Organisation (AIO). *Annual Report*; Douala, Cameroon, 1972.

Asika, N. *Research Methodology: A Practical Approach.* Lagos, Mukugamu & Brothers Enterprises, 2004.

Association of Insurance and Risk Managers in Industry and Commerce, *Delivery Excellence in Insurance Claims Handling: Guide to Best Practice.* London: AIRMIC, 2009.

Biniam, S. *Factors Affecting Sales Performance of Crop Insurance at Ethiopian Insurance Corporation*. Addis Ababa, Ethiopia. 2015.

CBN. *Central Bank of Nigeria Statistical Bulletin.* Online Publication. 2018.

Daniel, F. *Insurance Penetration Fast-track Nigeria's Economic Growth* Vanguard News Paper, Nigeria. 2013.

Dehm, S. *Outsourcing, Responsibility and Refugee Claim-Making in Australia's Offshore Detention Regime.* Profit and Protest in the Asylum Industry (PM Press, Forthcoming), 2019.

Osinuga, D. *The Challenges of Nigeria Insurance Industry*. Article on Linkedin 2016.

Priest, C. *Measuring Underwriting Results Under Changing Reinsurance Conditions IBM Business Consulting Services*. Property and casualty underwriting – the possible, 2003.

Website

Amoroso, C. R. *Driving Operational Excellence in Loss Adjustment*. Deloitte, 2019. http://www.deloitte.com.

Nigerian Info, *List of Companies in the Nigerian Stock Exchange*. Nigerian Info, 2021. https://www.thenigerianinfo.com/nigerian-stock-exchange-listed-companies/

Iwunze R. *Insurance GDP Bounces Back to Growth, posts 15.7% Yr-on-Yr Rise.* Vanguard, 2021. https://www.vanguardngr.com/2021/09/insurance-gdp-bounces-back-togrowth-posts-15-7-yr-on-yr-rise-2/amp/.

Kenton, W. *Accelerator Theory.* Investopedia, 2018. https://www.investopedia.com/terms/a/acceleratortheory.asp.

Nau, R. *Statistical Forecasting: Notes on Regression and Time Series Analysis*. 2016. https://people.duke.edu/~r nau/411home.htm.

Appendices

Appendix 1

INSURERS	YEAR	PROFIT AFTER TAX	TOTAL ASSET	SHAREHOLDERS' FUNDS	ROA	ROE	NET_CL	NET_P	UNDERW_P	Loss Adj
AIICO	2011	1,332,464	29,377,856	9,944,720	0.0454	0.133987	6,266,724	16,128,960	3,858,239	0.3885
AIICO	2012	1,247,963	34,868,088	11,589,876	0.0358	0.107677	4,938,591	15,730,457	433,981	0.314
AIICO	2013	-930,157	41,718,939	10,642,163	-0.0223	-0.0874	6,784,085	18,049,958	908,135	0.3759
AIICO	2014	2,131,893	58,766,470	11,634,729	0.0363	0.183235	9,098,087	28,568,226	1,265,825	0.3185
AIICO	2015	966,465	80,724,025	9,444,775	0.012	0.102328	10,667,702	28,787,115	-545248	0.3706
AIICO	2016	9,682,116	75,818,527	7,932,941	0.1277	1.220495	13,335,988	23,086,756	-1889787	0.5776
AIICO	2017	1,471,254	89,800,972	10,322,233	0.0164	0.142533	18,881,056	26,616,565	3,228,239	0.7094
AIICO	2018	2,604,411	98,170,248	14,347,313	0.0265	0.181526	22,343,225	31,260,465	603,476	0.7147
AIICO	2019	5,157,259	135,263,455	25,944,424	0.0381	0.198781	24,714,369	44,577,355	843,477	0.5544
AIICO	2020	4,764,596	196,334,608	32,478,583	0.0243	0.1467	30,776,073	52,137,873	-36,272,055	0.5903
CHI	2011	271,687	5,679,106	3,910,079	0.0478	0.069484	572,080	2,936,470	1,373,156	0.1948
CHI	2012	382,488	6,664,332	4,016,858	0.0574	0.095221	558,417	2,849,273	1,520,573	0.196
CHI	2013	-207,112	6,130,358	3,629,746	-0.0338	-0.05706	722,743	2,849,273	1,057,117	0.2537
CHI	2014	185,053	6,111,846	2,297,047	0.0303	0.080561	967,055	2,649,526	863,244	0.365
CHI	2015	534,279	6,964,210	6,964,201	0.0767	0.076718	958,014	3,381,960	1,361,580	0.2833
CHI	2016	197,923	7,392,513	4,367,001	0.0268	0.045322	1,387,144	3,738,925	1,053,372	0.371
CHI	2017	354,751	9,393,328	4,601,752	0.0378	0.07709	1,422,944	3,786,121	1,242,878	0.3758
CHI	2018	376,025	10,463,465	6,058,041	0.0359	0.06207	2,068,244	4,242,215	1,194,857	0.4875

CHI	2019	586,074	11,291,007	6,481,541	0.0519	0.090422	1,822,780	4,720,360	1,753,151	0.3862
CHI	2020	614,805	13,827,757	8,126,240	0.0445	0.075657	2,344,485	5.651,908	1,860,754	0.4148
CORNER	2011	156,344	11,448,578	6,966,265	0.0137	0.022443	1,115,440	2,793,975	1,178,955	0.3992
CORNER	2012	433,981	12,010,523	6,019,806	0.0361	0.072092	1,020,412	3,354,868	1,245,199	0.3042
CORNER	2013	908,135	14,771,874	5,585,825	0.0615	0.162578	1,154,421	2,872,479	939,251	0.4019
CORNER	2014	1,265,825	15,817,231	6,966,265	0.08	0.181708	1,215,592	3,392,157	1,504,904	0.3584
CORNER	2015	-545,248	17,255,166	10,142,477	-0.0316	-0.05376	2,157,368	5,323,487	1,646,161	0.4053
CORNER	2016	-1,889,787	18,368,251	8,309,516	-0.1029	-0.22742	3,104,464	5,444,570	696,385	0.5702
CORNER	2017	-2,577,503	20,804,553	6,196,001	-0.1239	-0.41599	3,258,634	4,954,878	-2032428	0.6577
CORNER	2018	1,288,738	24,091,594	7,492,091	0.0535	0.172013	2,477,860	5,179,961	2,331,140	0.4784
CORNER	2019	2,937,223	31,717,981	10,596,675	0.0926	0.277183	2,546,524	5,970,539	2,671,510	0.4265
CORNER	2020	1,738,171	36,481,873	12,988,019	0.0476	0.133829	3,491,951	4,796,607	1,089,258	0.728
GUINEA	2011	-655,741	3,803,653	2,466,296	-0.1724	-0.26588	166,989	1,017,768	251363	0.1641
GUINEA	2012	50,090	3,958,154	2,562,012	0.0127	0.019551	281,268	1,030,395	301,347	0.273
GUINEA	2013	39,835	4,213,959	2,982,953	0.0095	0.013354	324,281	985,182	267,004	0.3292
GUINEA	2014	-81,898	4,564,728	2,896,428	-0.0179	-0.02828	243,517	850,603	277,915	0.2863

GUINEA	2015	-7,227	4,116,103	2,899,952	-0.0018	-0.00249	269,135	617,517	315,243	0.4358
GUINEA	2016	2,520	3,982,125	2,897,745	0.0006	0.00087	214,530	642,875 3	453427	0.3337
GUINEA	2017	251,033	4,402,946	3,406,135	0.057	0.0737	70,298	693,774	501120	0.1013
GUINEA	2018	-190,199	4,421,775	3,105,835	-0.043	-0.06124	256,195	904,934	524,596	0.2831
GUINEA	2019	-975,042	3,605,444	2,274,616	-0.2704	-0.42866	193,056	902,477	433,910	0.2139
GUINEA	2020	-272,673	3,504,752	2,117,947	-0.0778	-0.12874	155,213	733,953	285,127	0.2115
IEI	2011	-4,493,317	11,365,696	894,142	-0.3953	-5.02528	636,538	3,921,984	2,036,136	0.1623
IEI	2012	-807,646	10,118,754	398,611	-0.0798	-2.02615	1,533,942	5,008,213	3,288,479	0.3063
IEI	2013	330,045	9,448,579	678,629	0.0349	0.486341	1,134,593	4,019,639	1,905,921	0.2823
IEI	2014	-2,164,762	8,735,758	-1,522,561	-0.2478	1.42179	1,932,706	4,096,283	0	0.4718
IEI	2015	-710,009	8,071,742	-2,121,064	-0.088	0.334742	1,225,156	2,671,766	992,563	0.4586
IEI	2016	-710,009	8,071,742	-2,121,064	-0.088	0.334742	1,225,156	2,671,766	956,031	0.4586
IEI	2017	0	0	0	0	#DIV/0!	0	0	-145851	0
IEI	2018	-1,206,035	7,622,991	-8822052	-0.1582	0.136707	21,966	445,957	-157693	0.0493
IEI	2019	-109,607	7,474,953	10,816,399	-0.0147	-0.01013	113,053	332,868	112,763	0.3396
IEI	2020	0	0	10,949,477	0	0	0	0	-27,109	0
LASACO	2011	212,743	13,051,104	5,547,832	0.0163	0.038347	623,245	2,925,210	2,018,623	0.2131
LASACO	2012	-255,025	14,572,756	5,597,356	-0.0175	-0.04556	1,839,748	2,608,742	1,283,558	0.7052
LASACO	2013	275,340	16,052,567	5,875,918	0.0172	0.046859	1,880,448	3,609,819	1,405,498	0.5209
LASA	2014	445,745	17,597,160	8,418,094	0.0253	0.052951	1,043,294	3,151,034	1,195,823	0.3311

CO										
LASACO	2015	283,320	19,166,697	8,578,795	0.0148	0.033026	706,929	1,758,699	1,039,245	0.402
LASACO	2016	944,461	19,298,231	9,851,942	0.0489	0.095865	622,776	1,783,590	235,156	0.3492
LASACO	2017	661,878	21,434,678	8,156,327	0.0309	0.081149	1,830,700	3,687,003	1,253,599	0.4965
LASACO	2018	736,279	17,052,479	8,483,574	0.0432	0.086789	1,725,417	4,615,893	2,121,611	0.3738
LASACO	2019	315,745	18,510,279	7,979,341	0.0171	0.03957	1,918,463	5,903,506	2,298,684	0.325
LASACO	2020	671,050	20,526,738	7,802,232	0.0327	0.086007	3,246,047	7,013,219	1,975,929	0.4628
LINKAGE	2011	171,011	5,144,951	8,186,951	0.0332	0.020888	493,075	1,727,983	480,525	0.2853
LINKAGE	2012	179,770	16,956,973	14,723,749	0.0106	0.01221	437,934	1,262,474	85,898	0.3469
LINKAGE	2013	414,282	17,738,500	15,367,958	0.0234	0.026958	645,993	2,143,276	183,021	0.3014
LINKAGE	2014	324,997	17,976,222	15,587,689	0.0181	0.02085	552,964	1,876,534	402,498	0.2947
LINKAGE	2015	324,997	17,976,222	15,587,689	0.0181	0.02085	552,964	1,876,534	1,267	0.2947
LINKAGE	2016	544,564	20,332,447	16,533,292	0.0268	0.032937	159,180	2,907,558	720,584	0.0547
LINKAGE	2017	2,891,268	23,308,158	19,952,832	0.124	0.144905	1,393,140	2,756,505	456861	0.5054
LINKAGE	2018	-290,118	23,145,508	17,920,487	-0.0125	-0.01619	1,229,723	3,477,836	772480	0.3536
LINKAGE	2019	1,452,154	28,704,432	23,040,050	0.0506	0.063027	1,008,262	3,713,380	409,240	0.2715

LINKAGE	2020	2,395,012	33,877,404	26,375,825	0.0707	0.090803	1,367,934	4,450,402	825,589	0.3074
MUTUAL	2011	763,828	12,199,778	4,171,064	0.0626	0.183125	1,186,795	5,285,482	525355	0.2245
MUTUAL	2012	-475,292	13,893,809	2,730,259	-0.0342	-0.17408	2,410,416	4,559,148	235179	0.5287
MUTUAL	2013	530,083	14,448,462	3,305,130	0.0367	0.160382	2,723,222	4,448,312	2,572,898	0.6122
MUTUAL	2014	2,243,768	14,488,600	5,548,649	0.1549	0.404381	2,238,452	5,283,657	5,506,212	0.4237
MUTUAL	2015	652,613	15,798,729	6,201,262	0.0413	0.105239	2,139,309	4,581,656	3,619,015	0.4669
MUTUAL	2016	-1,390,527	16,579,092	4,810,735	-0.0839	-0.28905	2,088,789	5,071,372	4,188,027	0.4119
MUTUAL	2017	605,276	18,720,412	5,466,843	0.0323	0.110718	2,489,149	6,252,687	3,704,667	0.3981
MUTUAL	2018	479,929	19,962,026	5,748,382	0.024	0.083489	4,695,817	6,230,006	3,058,531	0.7537
MUTUAL	2019	1,086,304	22,991,158	8,255,603	0.0472	0.131584	4,892,833	6,579,594	5,398,988	0.7436
MUTUAL	2020	1,862,856	30,315,809	15,009,822	0.0614	0.124109	4,856,063	6,136,755	3,676,087	0.7913
NEM	2011	1,297,646	8,238,384	4,148,310	0.1575	0.312813	1,659,404	7,525,020	3,256,987	0.2205
NEM	2012	434,075	7,580,146	4,300,645	0.0573	0.100933	2,879,691	9,066,054	3,628,978	0.3176
NEM	2013	368,908	9,627,877	4,695,694	0.0383	0.078563	2,965,052	7,936,798	224,222	0.3736
NEM	2014	1,507,179	10,977,314	5,900,713	0.1373	0.255423	2,568,166	7,936,798	3,157,044	0.3236
NEM	2015	685,460	12,087,666	6,207,334	0.0567	0.110427	3,799,062	8,270,205	2,281,176	0.4594
NEM	2016	1,848,616	14,531,978	7,431,968	0.1272	0.248738	2,669,780	8,641,958	3,436,978	0.3089
NEM	2017	2,763,120	17,605,884	9,756,280	0.1569	0.283215	2,398,883	10,186,442	4,512,556	0.2355
NEM	2018	2,020,636	22,432,234	12,427,157	0.0901	0.162598	2,649,014	10,693,794	4,623,241	0.2477

NEM	2019	1,417,830	26,660,545	14,083,035	0.0532	0.100676	2,563,616	12,617,540	4,348,697	0.2032
NEM	2020	5,075,395	31,170,642	18,337,337	0.1628	0.276779	6,054,469	15,862,758	5,980,143	0.3817
PRESTIGE	2011	255,990	7,014,720	2,766,692	0.0365	0.092526	155,806	1,623,629	694,457	0.096
PRESTIGE	2012	603,019	9,698,035	3,888,930	0.0622	0.15506	1,569,158	1,896,551	-263,467	0.8274
PRESTIGE	2013	-90,836	10,134,493	4,413,343	-0.009	-0.02058	1,146,571	1,242,162	2,980,176	0.923
PRESTIGE	2014	14,187	11,893,946	4,576,147	0.0012	0.0031	1,515,700	1,207,615	1,528,306	1.2551
PRESTIGE	2015	145,295	10,367,741	5,991,827	0.014	0.024249	1,024,552	924,893	-422,314	1.1078
PRESTIGE	2016	221,992	9,689,587	6,228,262	0.0229	0.035643	563,018	1,184,657	254,074	0.4753
PRESTIGE	2017	531,841	11,775,553	7,508,121	0.0452	0.070835	431,662	1,690,281	335,395	0.2554
PRESTIGE	2018	423,795	13,020,999	8,101,086	0.0325	0.052313	1,232,185	2,281,491	450,674	0.5401
PRESTIGE	2019	431,828	13,179,445	8,445,735	0.0328	0.05113	1,204,902	2,963,063	511,770	0.4066
PRESTIGE	2020	678,305	18,504,924	12,403,394	0.0367	0.054687	1,703,686	3,471,260	799,849	0.4908
REGENCY	2011	247,126	5,503,060	3,888,014	0.0449	0.063561	295,206	1,492,116	972345	0.1978
REGENCY	2012	391,081	5,190,077	3,482,627	0.0754	0.112295	312,799	1,777,167	1297792	0.176
REGENCY	2013	403,603	5,976,545	3,154,107	0.0675	0.127961	609,884	2,303,363	1,382,119	0.2648
REGENCY	2014	294,908	6,387,239	4,114,026	0.0462	0.071684	605,820	2,094,967	1,420,665	0.2892

REGENCY	2015	333,329	6,726,540	4,673,522	0.0496	0.071323	447,101	2,269,002	1,538,349	0.197
REGENCY	2016	470,594	6,855,691	4,946,288	0.0686	0.095141	344,725	1,654,588	2,001,592	0.2083
REGENCY	2017	196,475	7,248,018	4,944,231	0.0271	0.039738	629,357	2,251,852	1707108	0.2795
REGENCY	2018	209,599	7,820,840	5,050,801	0.0268	0.041498	470,860	2,442,604	1971196	0.1928
REGENCY	2019	649,594	8,536,393	772,225	0.0761	0.841198	710,377	2,539,375	2462567	0.2797
REGENCY	2020	628,587	10,052,954	1,201,684	0.0625	0.523088	282,575	2,475,203	2026983	0.1142
SOV TRUST	2011	704,114	7,310,390	1,978,675	0.0963	0.355851	1,096,376	4,465,718	1,651,784	0.2455
SOV TRUST	2012	1,476,355	7,113,234	3,138,804	0.2076	0.470356	920,433	4,861,037	2,484,240	0.1893
SOV TRUST	2013	346,930	8,649,295	3,483,496	0.0401	0.099592	1,751,951	5,545,186	2,468,159	0.3159
SOV TRUST	2014	294,943	8,492,846	4,160,855	0.0347	0.070885	2,181,184	4,235,913	1,707,064	0.5149
SOV TRUST	2015	582,209	9,264,869	5,025,195	0.0628	0.115858	1,506,511	4,074,106	1,673,586	0.3698
SOV TRUST	2016	23,592	9,511,560	5,235,428	0.0025	0.004506	1,440,861	3,620,280	1,651,722	0.398
SOV TRUST	2017	157,869	10,817,675	5,471,904	0.0146	0.028851	1,303,145	4,358,842	1,210,311	0.299
SOV TRUST	2018	344,236	11,321,427	5,820,355	0.0304	0.059143	2,134,174	5,061,377	1,922,967	0.4217
SOV TRUST	2019	503,382	13,418,426	7,786,606	0.0375	0.064647	2,139,353	5,950,253	2,073,391	0.3595
SOV	2020	687,698	14,833,236	8,626,099	0.0464	0.079723	3,485,777	6,541,908	1,991,252	0.5328

TRUST										
UNIVERSAL	2011	115,234	8,919,449	9,965,149	0.0129	0.011564	51,068	335,769	222,433	0.1521
UNIVERSAL	2012	166,409	11,116,511	10,287,338	0.015	0.016176	60,825	399,375	259,551	0.1523
UNIVERSAL	2013	303,955	11,563,217	10,435,612	0.0263	0.029127	92,902	580,000	49,895	0.1602
UNIVERSAL	2014	-472,170	10,834,813	8,260,596	-0.0436	-0.05716	67,350	646,485	71,478	0.1042
UNIVERSAL	2015	-472,170	10,834,813	8,260,596	-0.0436	-0.05716	171,075	586,369	559,166	0.2918
UNIVERSAL	2016	90,043	11,896,152	8,855,152	0.0076	0.010168	56,352	455,296	523,491	0.1238
UNIVERSAL	2017	634,184	12,761,657	9,497,151	0.0497	0.066776	171,109	597,602	623773	0.2863
UNIVERSAL	2018	-46,672	12,891,741	9,450,426	-0.0036	-0.00494	223,107	1,118,473	527246	0.1995
UNIVERSAL	2019	75,393	10,027,157	2,654,885	0.0075	0.028398	233,821	1,379,068	1459052	0.1696
UNIVERSAL	2020	624,647	10,985,217	2,115,416	0.0569	0.295283	378,345	2,614,311	27481185	0.1447

Appendix II

Table 3.1 List of Insurers on the floor of NSE

S/N	Nigerian Insurance Companies
1	African Alliance Insurance
2	AIICO Insurance
3	AXA Mansard Insurance
4	Consolidated Hallmark Insurance
5	Cornerstone Insurance
6	Goldlink Insurance
7	Guinea Insurance
8	International Energy Insurance
9	Lasaco Assurance
10	Tangerine Insurance Plc
11	Linkage Assurance
12	Mutual Benefit Insurance
13	NEM Insurance Plc
14	Niger Insurance Plc
15	Prestige Assurance Plc
16	Regency Alliance Insurance Plc
17	Sovereign Trust Insurance Plc
18	Staco Insurance Plc
19	Standard Alliance Insurance Plc
20	SUNU Assurances Nigeria
21	Universal Insurance Plc
22	Veritas Kapital Assurance Plc
23	Coronation Insurance Plc

Source: NAICOM (2022).

Appendix III

Appendix I

	ROA	ROE	Net_Cl	Net_P	Underw_P	Loss_Adj
Mean	0.021306	0.046731	2421566.	5548936.	1328750.	0.370183
Median	0.032700	0.071684	1225156.	3392157.	1195823.	0.331100
Maximum	0.207600	1.421790	30776073	52137873	27481185	1.255100
Minimum	-0.395300	-5.025283	0.000000	0.000000	-36272055	0.000000
Std. Dev.	0.077124	0.538351	4483862.	7882838.	4305762.	0.199833
Skewness	-2.035779	-6.867521	4.256183	3.560452	-3.485426	1.443694
Kurtosis	11.25071	65.37390	22.69912	17.43080	57.45475	6.467286
Jarque-Bera	447.9493	21585.53	2436.895	1370.305	15948.62	107.7335
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	2.705800	5.934823	3.08E+08	7.05E+08	1.69E+08	47.01320
Sum Sq. Dev.	0.749464	36.51753	2.53E+15	7.83E+15	2.34E+15	5.031571
Observations	127	127	127	127	127	127

ROA at level

Panel unit root test: Summary
Series: ROA
Date: 03/06/23 Time: 17:58
Sample: 2011 2020
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-9.55229	0.0000	13	104
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-4.10106	0.0000	13	104

ADF - Fisher Chi-square	67.7865	0.0000	13	104
PP - Fisher Chi-square	72.7299	0.0000	13	117

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

at level/trend

Panel unit root test: Summary
Series: ROA
Date: 03/06/23 Time: 18:04
Sample: 2011 2020
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-10.4326	0.0000	13	104
Breitung t-stat	-2.39903	0.0082	13	91
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-1.69458	0.0451	13	104
ADF - Fisher Chi-square	57.4066	0.0004	13	104
PP - Fisher Chi-square	86.0942	0.0000	13	117

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

level/none

Panel unit root test: Summary
Series: ROA
Date: 03/06/23 Time: 18:05
Sample: 2011 2020
Exogenous variables: None
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs

Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-5.60335	0.0000	13	104
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	63.4838	0.0001	13	104
PP - Fisher Chi-square	66.6709	0.0000	13	117

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

1st individul

Panel unit root test: Summary
Series: D(ROA)
Date: 03/06/23 Time: 18:06
Sample: 2011 2020
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-12.4221	0.0000	13	91
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-6.13193	0.0000	13	91
ADF - Fisher Chi-square	93.1326	0.0000	13	91
PP - Fisher Chi-square	154.446	0.0000	13	104

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

1st/trend

Panel unit root test: Summary
Series: D(ROA)
Date: 03/06/23 Time: 18:07
Sample: 2011 2020
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel

Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-17.9353	0.0000	13	91
Breitung t-stat	-3.20602	0.0007	13	78
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-2.79428	0.0026	13	91
ADF - Fisher Chi-square	75.4992	0.0000	13	91
PP - Fisher Chi-square	120.990	0.0000	13	104

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

1st/none

Panel unit root test: Summary
Series: D(ROA)
Date: 03/06/23 Time: 18:07
Sample: 2011 2020
Exogenous variables: None
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-15.8495	0.0000	13	91
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	167.920	0.0000	13	91
PP - Fisher Chi-square	206.732	0.0000	13	104

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

2nd/indiv

Panel unit root test: Summary
Series: D(ROA,2)

Date: 03/06/23 Time: 18:08
Sample: 2011 2020
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-18.5981	0.0000	13	78
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-7.32584	0.0000	13	78
ADF - Fisher Chi-square	99.1067	0.0000	13	78
PP - Fisher Chi-square	165.672	0.0000	13	91

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

2nd/trend

Panel unit root test: Summary
Series: D(ROA,2)
Date: 03/06/23 Time: 18:08
Sample: 2011 2020
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-18.4364	0.0000	13	78
Breitung t-stat	-1.09181	0.1375	13	65
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-1.59273	0.0556	13	78
ADF - Fisher Chi-square	54.3264	0.0009	13	78
PP - Fisher Chi-square	121.939	0.0000	13	91

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic

normality.

2nd/none

Panel unit root test: Summary
Series: D(ROA,2)
Date: 03/06/23 Time: 18:09
Sample: 2011 2020
Exogenous variables: None
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-19.1455	0.0000	13	78
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	170.023	0.0000	13	78
PP - Fisher Chi-square	209.317	0.0000	13	91

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

ROE

Level/individual

Panel unit root test: Summary
Series: ROE
Date: 03/06/23 Time: 18:10
Sample: 2011 2020
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-12.1541	0.0000	13	101
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-4.07383	0.0000	13	101
ADF - Fisher Chi-square	67.3438	0.0000	13	101

PP - Fisher Chi-square	67.6997	0.0000	13	115

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

level/trend

Panel unit root test: Summary
Series: ROE
Date: 03/06/23 Time: 18:12
Sample: 2011 2020
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-12.1090	0.0000	12	96
Breitung t-stat	0.60924	0.7288	12	84
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-1.53989	0.0618	12	96
ADF - Fisher Chi-square	50.0221	0.0014	12	96
PP - Fisher Chi-square	67.2140	0.0000	12	108

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

level/none

Panel unit root test: Summary
Series: ROE
Date: 03/06/23 Time: 18:12
Sample: 2011 2020
Exogenous variables: None
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				

Levin, Lin & Chu t*	-8.10940	0.0000	13	101
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	68.8437	0.0000	13	101
PP - Fisher Chi-square	75.4034	0.0000	13	115

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

1st/indi

Panel unit root test: Summary
Series: D(ROE)
Date: 03/06/23 Time: 18:12
Sample: 2011 2020
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-12.6086	0.0000	12	84
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-5.57774	0.0000	12	84
ADF - Fisher Chi-square	79.6351	0.0000	12	84
PP - Fisher Chi-square	128.949	0.0000	12	96

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

1st/trend

Panel unit root test: Summary
Series: D(ROE)
Date: 03/06/23 Time: 18:13
Sample: 2011 2020
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-13.7643	0.0000	12	84
Breitung t-stat	0.09253	0.5369	12	72
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-2.12064	0.0170	12	84
ADF - Fisher Chi-square	61.7271	0.0000	12	84
PP - Fisher Chi-square	119.581	0.0000	12	96

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

1st/none

Panel unit root test: Summary
Series: D(ROE)
Date: 03/06/23 Time: 18:13
Sample: 2011 2020
Exogenous variables: None
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-13.4459	0.0000	12	84
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	139.803	0.0000	12	84
PP - Fisher Chi-square	178.588	0.0000	12	96

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

2nd/ind

Panel unit root test: Summary
Series: D(ROE,2)
Date: 03/06/23 Time: 18:14
Sample: 2011 2020

Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-13.9017	0.0000	12	72
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-5.91315	0.0000	12	72
ADF - Fisher Chi-square	81.4171	0.0000	12	72
PP - Fisher Chi-square	156.322	0.0000	12	84

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

2nd/trend

Panel unit root test: Summary
Series: D(ROE,2)
Date: 03/06/23 Time: 18:14
Sample: 2011 2020
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-22.5652	0.0000	12	72
Breitung t-stat	-0.23681	0.4064	12	60
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-1.89928	0.0288	12	72
ADF - Fisher Chi-square	50.8037	0.0011	12	72
PP - Fisher Chi-square	130.186	0.0000	12	84

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

2nd/none

Panel unit root test: Summary
Series: D(ROE,2)
Date: 03/06/23 Time: 18:15
Sample: 2011 2020
Exogenous variables: None
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-16.4904	0.0000	12	72
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	142.474	0.0000	12	72
PP - Fisher Chi-square	189.444	0.0000	12	84

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

Net claim

Level /ind

Panel unit root test: Summary
Series: NET_CL
Date: 03/06/23 Time: 18:16
Sample: 2011 2020
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	3.30552	0.9995	13	104
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	2.42141	0.9923	13	104
ADF - Fisher Chi-square	12.3349	0.9891	13	104

PP - Fisher Chi-square	25.1061	0.5130	13	117

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

level /trend

Panel unit root test: Summary
Series: NET_CL
Date: 03/06/23 Time: 18:16
Sample: 2011 2020
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-2.67266	0.0038	13	104
Breitung t-stat	0.86087	0.8053	13	91
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	0.64959	0.7420	13	104
ADF - Fisher Chi-square	19.2363	0.8263	13	104
PP - Fisher Chi-square	45.7271	0.0098	13	117

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

level/none

Panel unit root test: Summary
Series: NET_CL
Date: 03/06/23 Time: 18:17
Sample: 2011 2020
Exogenous variables: None
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs

Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	4.54987	1.0000	13	104
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	9.32089	0.9989	13	104
PP - Fisher Chi-square	7.56866	0.9998	13	117

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

1st/ind

Panel unit root test: Summary
Series: D(NET_CL)
Date: 03/06/23 Time: 18:18
Sample: 2011 2020
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-1.48319	0.0690	13	91
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-1.07405	0.1414	13	91
ADF - Fisher Chi-square	33.9061	0.1374	13	91
PP - Fisher Chi-square	102.666	0.0000	13	104

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

1st/trend

Panel unit root test: Summary
Series: D(NET_CL)
Date: 03/06/23 Time: 18:18
Sample: 2011 2020
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel

Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-4.33304	0.0000	13	91
Breitung t-stat	0.12189	0.5485	13	78
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	0.17173	0.5682	13	91
ADF - Fisher Chi-square	26.5072	0.4355	13	91
PP - Fisher Chi-square	105.398	0.0000	13	104

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

1st/none

Panel unit root test: Summary
Series: D(NET_CL)
Date: 03/06/23 Time: 18:19
Sample: 2011 2020
Exogenous variables: None
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-4.71410	0.0000	13	91
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	61.0589	0.0001	13	91
PP - Fisher Chi-square	129.864	0.0000	13	104

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

2nd/nd

Panel unit root test: Summary

Series: D(NET_CL,2)
Date: 03/06/23 Time: 18:19
Sample: 2011 2020
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-4.45803	0.0000	13	78
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-2.56102	0.0052	13	78
ADF - Fisher Chi-square	51.1747	0.0023	13	78
PP - Fisher Chi-square	157.432	0.0000	13	91

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

2nd/trend

Panel unit root test: Summary
Series: D(NET_CL,2)
Date: 03/06/23 Time: 18:20
Sample: 2011 2020
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-50.7183	0.0000	13	78
Breitung t-stat	0.54202	0.7061	13	65
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-4.07202	0.0000	13	78
ADF - Fisher Chi-square	45.9769	0.0092	13	78
PP - Fisher Chi-square	136.506	0.0000	13	91

** Probabilities for Fisher tests are computed using an asymptotic Chi

-square distribution. All other tests assume asymptotic normality.

2nd/none

Panel unit root test: Summary
Series: D(NET_CL,2)
Date: 03/06/23 Time: 18:20
Sample: 2011 2020
Exogenous variables: None
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-11.2013	0.0000	13	78
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	106.305	0.0000	13	78
PP - Fisher Chi-square	195.222	0.0000	13	91

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

net premium

level/ind

Panel unit root test: Summary
Series: NET_P
Date: 03/06/23 Time: 18:22
Sample: 2011 2020
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	7.32204	1.0000	13	100
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	4.69051	1.0000	13	100

ADF - Fisher Chi-square	5.55327	1.0000	13	100
PP - Fisher Chi-square	7.40870	0.9999	13	114

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

level/trend

Panel unit root test: Summary
Series: NET_P
Date: 03/06/23 Time: 18:22
Sample: 2011 2020
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	0.03226	0.5129	12	95
Breitung t-stat	3.51035	0.9998	12	83
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	1.50624	0.9340	12	95
ADF - Fisher Chi-square	9.06415	0.9975	12	95
PP - Fisher Chi-square	24.4660	0.4352	12	107

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

level/none

Panel unit root test: Summary
Series: NET_P
Date: 03/06/23 Time: 18:23
Sample: 2011 2020
Exogenous variables: None
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				

Levin, Lin & Chu t*	-0.19474	0.4228	13	100
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	21.9540	0.6912	13	100
PP - Fisher Chi-square	8.58296	0.9995	13	114

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

1st/ind

Panel unit root test: Summary
Series: D(NET_P)
Date: 03/06/23 Time: 18:23
Sample: 2011 2020
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-1.12114	0.1311	12	83
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	0.06664	0.5266	12	83
ADF - Fisher Chi-square	24.7509	0.4194	12	83
PP - Fisher Chi-square	60.9696	0.0000	12	95

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

1st/trend

Panel unit root test: Summary
Series: D(NET_P)
Date: 03/06/23 Time: 18:24
Sample: 2011 2020
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel

Cross-

Method	Statistic	Prob.**	sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-7.05695	0.0000	12	83
Breitung t-stat	0.49716	0.6905	12	71
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-0.09242	0.4632	12	83
ADF - Fisher Chi-square	29.5882	0.1988	12	83
PP - Fisher Chi-square	73.4819	0.0000	12	95

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

1st/none

Panel unit root test: Summary
Series: D(NET_P)
Date: 03/06/23 Time: 18:25
Sample: 2011 2020
Exogenous variables: None
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-2.88252	0.0020	12	83
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	39.7315	0.0229	12	83
PP - Fisher Chi-square	75.6847	0.0000	12	95

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

2nd/ind

Panel unit root test: Summary
Series: D(NET_P,2)
Date: 03/06/23 Time: 18:26
Sample: 2011 2020
Exogenous variables: Individual effects
User-specified lags: 1

Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-6.61999	0.0000	12	71
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-2.39026	0.0084	12	71
ADF - Fisher Chi-square	48.0863	0.0025	12	71
PP - Fisher Chi-square	135.087	0.0000	12	83

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

2nd/trend

Panel unit root test: Summary
Series: D(NET_P,2)
Date: 03/06/23 Time: 18:26
Sample: 2011 2020
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-2.28495	0.0112	11	66
Breitung t-stat	0.78307	0.7832	11	55
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-0.15485	0.4385	11	66
ADF - Fisher Chi-square	27.0092	0.2109	11	66
PP - Fisher Chi-square	114.457	0.0000	11	77

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

2nd/none

Panel unit root test: Summary
Series: D(NET_P,2)
Date: 03/06/23 Time: 18:26
Sample: 2011 2020
Exogenous variables: None
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-9.69290	0.0000	12	71
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	93.5585	0.0000	12	71
PP - Fisher Chi-square	169.364	0.0000	12	83

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

underwriting profit

level/ind

Panel unit root test: Summary
Series: UNDERW_P
Date: 03/06/23 Time: 18:27
Sample: 2011 2020
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-2.74272	0.0030	13	104
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	0.18234	0.5723	13	104
ADF - Fisher Chi-square	28.6842	0.3256	13	104
PP - Fisher Chi-square	33.9994	0.1350	13	117

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

level/trend

Panel unit root test: Summary
Series: UNDERW_P
Date: 03/06/23 Time: 18:28
Sample: 2011 2020
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-7.89187	0.0000	13	104
Breitung t-stat	0.81716	0.7931	13	91
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-0.82247	0.2054	13	104
ADF - Fisher Chi-square	46.1701	0.0087	13	104
PP - Fisher Chi-square	50.2660	0.0029	13	117

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

level/none

Panel unit root test: Summary
Series: UNDERW_P
Date: 03/06/23 Time: 18:29
Sample: 2011 2020
Exogenous variables: None
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-0.96428	0.1675	13	104
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	29.9173	0.2711	13	104
PP - Fisher Chi-square	26.5820	0.4315	13	117

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

1st/ind

Panel unit root test: Summary
Series: D(UNDERW_P)
Date: 03/06/23 Time: 18:29
Sample: 2011 2020
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-9.81133	0.0000	13	91
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-3.74666	0.0001	13	91
ADF - Fisher Chi-square	71.0971	0.0000	13	91
PP - Fisher Chi-square	100.315	0.0000	13	104

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

1st/trend

Panel unit root test: Summary
Series: D(UNDERW_P)
Date: 03/06/23 Time: 18:30
Sample: 2011 2020
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-16.4647	0.0000	13	91
Breitung t-stat	1.46457	0.9285	13	78

Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-1.82027	0.0344	13	91
ADF - Fisher Chi-square	65.1566	0.0000	13	91
PP - Fisher Chi-square	95.9665	0.0000	13	104

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

1st/none

Panel unit root test: Summary
Series: D(UNDERW_P)
Date: 03/06/23 Time: 18:30
Sample: 2011 2020
Exogenous variables: None
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-10.3914	0.0000	13	91
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	94.3339	0.0000	13	91
PP - Fisher Chi-square	141.850	0.0000	13	104

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

2nd/ind

Panel unit root test: Summary
Series: D(UNDERW_P,2)
Date: 03/06/23 Time: 18:31
Sample: 2011 2020
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Cross-

Method	Statistic	Prob.**	sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-16.3532	0.0000	13	78
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-5.58621	0.0000	13	78
ADF - Fisher Chi-square	87.2504	0.0000	13	78
PP - Fisher Chi-square	144.864	0.0000	13	91

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

2nd/trend

Panel unit root test: Summary
Series: D(UNDERW_P,2)
Date: 03/06/23 Time: 18:31
Sample: 2011 2020
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-13.6739	0.0000	13	78
Breitung t-stat	1.13171	0.8711	13	65
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-0.95205	0.1705	13	78
ADF - Fisher Chi-square	48.6082	0.0046	13	78
PP - Fisher Chi-square	116.670	0.0000	13	91

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

2nd/none

Panel unit root test: Summary
Series: D(UNDERW_P,2)
Date: 03/06/23 Time: 18:32

Sample: 2011 2020
Exogenous variables: None
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-17.5707	0.0000	13	78
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	139.671	0.0000	13	78
PP - Fisher Chi-square	195.432	0.0000	13	91

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

loss Adjustment expenses

Panel unit root test: Summary
Series: LOSS_ADJ
Date: 03/06/23 Time: 18:34
Sample: 2011 2020
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-2.90156	0.0019	13	104
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-1.02479	0.1527	13	104
ADF - Fisher Chi-square	32.1862	0.1870	13	104
PP - Fisher Chi-square	62.1491	0.0001	13	117

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

level/trend

Panel unit root test: Summary
Series: LOSS_ADJ
Date: 03/06/23 Time: 18:35
Sample: 2011 2020
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-2.86842	0.0021	13	104
Breitung t-stat	-2.68117	0.0037	13	91
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	0.10191	0.5406	13	104
ADF - Fisher Chi-square	23.6632	0.5952	13	104
PP - Fisher Chi-square	65.6776	0.0000	13	117

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

level/none

Panel unit root test: Summary
Series: LOSS_ADJ
Date: 03/06/23 Time: 18:36
Sample: 2011 2020
Exogenous variables: None
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	0.00869	0.5035	13	104
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	15.9417	0.9376	13	104
PP - Fisher Chi-square	13.8567	0.9748	13	117

** Probabilities for Fisher tests are computed using an asymptotic Chi

-square distribution. All other tests assume asymptotic normality.

1st/level

Panel unit root test: Summary
Series: D(LOSS_ADJ)
Date: 03/06/23 Time: 18:36
Sample: 2011 2020
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-3.41893	0.0003	13	91
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-2.21659	0.0133	13	91
ADF - Fisher Chi-square	46.6357	0.0077	13	91
PP - Fisher Chi-square	126.521	0.0000	13	104

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

1st/trend

Panel unit root test: Summary
Series: D(LOSS_ADJ)
Date: 03/06/23 Time: 18:37
Sample: 2011 2020
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-3.81776	0.0001	13	91
Breitung t-stat	-1.75114	0.0400	13	78
Null: Unit root (assumes individual unit root process)				

Im, Pesaran and Shin W-stat	0.02584	0.5103	13	91
ADF - Fisher Chi-square	26.7058	0.4249	13	91
PP - Fisher Chi-square	120.265	0.0000	13	104

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

1st/none

Panel unit root test: Summary
Series: D(LOSS_ADJ)
Date: 03/06/23 Time: 18:37
Sample: 2011 2020
Exogenous variables: None
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-9.69268	0.0000	13	91
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	100.997	0.0000	13	91
PP - Fisher Chi-square	178.720	0.0000	13	104

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

2nd/level

Panel unit root test: Summary
Series: D(LOSS_ADJ,2)
Date: 03/06/23 Time: 18:38
Sample: 2011 2020
Exogenous variables: Individual effects
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs

Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-6.43757	0.0000	13	78
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-3.33152	0.0004	13	78
ADF - Fisher Chi-square	61.4566	0.0001	13	78
PP - Fisher Chi-square	162.799	0.0000	13	91

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

2nd/trend

Panel unit root test: Summary
Series: D(LOSS_ADJ,2)
Date: 03/06/23 Time: 18:38
Sample: 2011 2020
Exogenous variables: Individual effects, individual linear trends
User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-12.2994	0.0000	13	78
Breitung t-stat	-0.72437	0.2344	13	65
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-1.20409	0.1143	13	78
ADF - Fisher Chi-square	49.2097	0.0039	13	78
PP - Fisher Chi-square	127.215	0.0000	13	91

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

2nd/none

Panel unit root test: Summary
Series: D(LOSS_ADJ,2)
Date: 03/06/23 Time: 18:39
Sample: 2011 2020
Exogenous variables: None

User-specified lags: 1
Newey-West automatic bandwidth selection and Bartlett kernel
Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-13.5720	0.0000	13	78
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	130.979	0.0000	13	78
PP - Fisher Chi-square	213.588	0.0000	13	91

** Probabilities for Fisher tests are computed using an asymptotic Chi
-square distribution. All other tests assume asymptotic normality.

panel cointegration test

at intercept

Pedroni Residual Cointegration Test
Series: ROA ROE NET_CL NET_P UNDERW_P LOSS_ADJ
Date: 03/06/23 Time: 18:41
Sample: 2011 2020
Included observations: 130
Cross-sections included: 13 in non-parametric (PP) test; 10 (3 dropped)
parametric (ADF) test
Null Hypothesis: No cointegration
Trend assumption: No deterministic trend
User-specified lag length: 1
Newey-West automatic bandwidth selection and Bartlett kernel

Alternative hypothesis: common AR coefs. (within-dimension)

	Statistic	Prob.	Weighted Statistic	Prob.
Panel v-Statistic	-0.089448	0.5356	-1.777489	0.9623
Panel rho-Statistic	3.250254	0.9994	3.192902	0.9993
Panel PP-Statistic	-5.272034	0.0000	-7.236184	0.0000
Panel ADF-Statistic	0.547661	0.7080	0.961848	0.8319

Alternative hypothesis: individual AR coefs. (between-dimension)

	Statistic	Prob.
Group rho-Statistic	4.696058	1.0000

Group PP-Statistic	-13.82359	0.0000
Group ADF-Statistic	1.128126	0.8704

Cross section specific results

Phillips-Peron results (non-parametric)

Cross ID	AR(1)	Variance	HAC	Bandwidth	Obs
AIICO	-0.273	7.03E-05	3.30E-05	5.00	9
CHI	-0.379	0.000103	2.57E-05	7.00	8
CORNER	-0.318	2.81E-05	1.13E-05	8.00	9
GUINEA	-0.741	1.73E-06	1.73E-06	0.00	7
IEI	-0.078	0.000640	0.000640	0.00	7
LASACO	-0.843	2.41E-06	6.57E-07	8.00	9
LINKAGE	0.010	6.23E-06	6.58E-06	1.00	9
MUTUAL	-0.734	6.80E-05	6.80E-05	0.00	9
NEM	-0.141	9.51E-06	3.61E-06	8.00	9
PRESTIGE	-0.259	8.13E-06	3.69E-06	7.00	9
REGENCY	0.088	0.000115	0.000115	0.00	9
SOV					
TRUST	-0.595	5.49E-05	5.30E-05	1.00	9
UNIVERSA					
L	-0.080	1.60E-06	1.39E-06	2.00	9

Augmented Dickey-Fuller results (parametric)

Cross ID	AR(1)	Variance	Lag	Max lag	Obs
AIICO	-1.221	3.52E-05	1	--	8
CHI	Dropped from Test				
CORNER	-1.176	1.81E-05	1	--	8
GUINEA	Dropped from Test				
IEI	Dropped from Test				
LASACO	-1.244	1.95E-06	1	--	8
LINKAGE	0.097	6.95E-06	1	--	8
MUTUAL	-1.008	5.46E-05	1	--	8
NEM	-0.826	5.56E-06	1	--	8
PRESTIGE	-0.632	8.33E-06	1	--	8
REGENCY	0.073	7.74E-05	1	--	8
SOV					
TRUST	-0.749	5.87E-05	1	--	8
UNIVERSA					
L	-0.259	1.74E-06	1	--	8

at trend

Pedroni Residual Cointegration Test
Series: ROA ROE NET_CL NET_P UNDERW_P

LOSS_ADJ
Date: 03/06/23 Time: 18:42
Sample: 2011 2020
Included observations: 130
Cross-sections included: 10 (3 dropped) in non-parametric (PP) test; 0
(13 dropped) parametric (ADF) test
Null Hypothesis: No cointegration
Trend assumption: Deterministic intercept and trend
User-specified lag length: 1
Newey-West automatic bandwidth selection and Bartlett kernel

Alternative hypothesis: common AR coefs. (within-dimension)

	Statistic	Prob.	Weighted Statistic	Prob.
Panel v-Statistic	0.401176	0.3441	-1.319869	0.9066
Panel rho-Statistic	3.111485	0.9991	3.827836	0.9999
Panel PP-Statistic	-9.688562	0.0000	-7.436987	0.0000
Panel ADF-Statistic	NA	NA	NA	NA

Alternative hypothesis: individual AR coefs. (between-dimension)

	Statistic	Prob.
Group rho-Statistic	4.798148	1.0000
Group PP-Statistic	-12.56461	0.0000
Group ADF-Statistic	NA	NA

Cross section specific results

Phillips-Peron results (non-parametric)

Cross ID	AR(1)	Variance	HAC	Bandwidth	Obs
AIICO	-0.642	2.62E-05	3.83E-06	8.00	9
CHI	Dropped from Test				
CORNER	-0.180	1.87E-05	1.44E-05	1.00	9
GUINEA	Dropped from Test				
IEI	Dropped from Test				
LASACO	-0.848	2.32E-06	1.47E-06	4.00	9
LINKAGE	-0.004	6.26E-06	6.26E-06	0.00	9
MUTUAL	-0.727	6.70E-05	6.70E-05	0.00	9
NEM	-0.135	9.49E-06	3.60E-06	8.00	9
PRESTIGE	-0.781	2.33E-07	1.75E-07	2.00	9
REGENCY	-0.225	3.86E-05	1.71E-05	8.00	9
SOV TRUST	-0.432	7.38E-05	7.68E-05	1.00	9
UNIVERSAL	-0.110	8.39E-07	3.00E-07	8.00	9

at none

Pedroni Residual Cointegration Test
Series: ROA ROE NET_CL NET_P UNDERW_P LOSS_ADJ
Date: 03/06/23 Time: 18:43
Sample: 2011 2020
Included observations: 130
Cross-sections included: 13
Null Hypothesis: No cointegration
Trend assumption: No deterministic intercept or trend
User-specified lag length: 1
Newey-West automatic bandwidth selection and Bartlett kernel

Alternative hypothesis: common AR coefs. (within-dimension)

	Statistic	Prob.	Weighted Statistic	Prob.
Panel v-Statistic	-0.901976	0.8165	-2.045973	0.9796
Panel rho-Statistic	2.355979	0.9908	2.344498	0.9905
Panel PP-Statistic	-17.84814	0.0000	-10.75052	0.0000
Panel ADF-Statistic	-0.397657	0.3454	-2.203791	0.0138

Alternative hypothesis: individual AR coefs. (between-dimension)

	Statistic	Prob.
Group rho-Statistic	4.002578	1.0000
Group PP-Statistic	-18.44832	0.0000
Group ADF-Statistic	-1.356504	0.0875

Cross section specific results

Phillips-Peron results (non-parametric)

Cross ID	AR(1)	Variance	HAC	Bandwidth	Obs
AIICO	0.028	0.000109	7.03E-05	1.00	9
CHI	-0.358	0.000104	2.64E-05	7.00	8
CORNER	-0.399	2.81E-05	9.42E-06	8.00	9
GUINEA	-0.311	6.67E-06	1.54E-06	6.00	7
IEI	-0.221	0.000312	5.73E-05	6.00	7
LASACO	-0.666	4.69E-06	4.81E-06	1.00	9
LINKAGE	-0.448	3.53E-06	4.43E-06	1.00	9
MUTUAL	-0.499	0.000126	0.000107	2.00	9
NEM	-0.155	9.17E-06	3.47E-06	8.00	9
PRESTIGE	0.224	1.10E-05	7.45E-06	5.00	9
REGENCY	-0.047	0.000143	0.000143	0.00	9
SOV TRUST	-0.580	5.90E-05	5.90E-05	1.00	9
UNIVERSAL	-0.556	2.87E-06	6.89E-07	8.00	9

Augmented Dickey-Fuller results (parametric)

Cross ID	AR(1)	Variance	Lag	Max lag	Obs
AIICO	-0.441	7.49E-05	1	--	8
CHI	-0.835	0.000101	1	--	7
CORNER	-1.230	1.83E-05	1	--	8
GUINEA	-1.139	1.83E-06	1	--	5
IEI	-0.431	0.000301	1	--	5
LASACO	-0.654	5.04E-06	1	--	8
LINKAGE	-0.022	3.62E-06	1	--	8
MUTUAL	-0.621	0.000107	1	--	8
NEM	-0.855	5.74E-06	1	--	8
PRESTIGE	-0.008	8.66E-06	1	--	8
REGENCY	-0.130	8.55E-05	1	--	8
SOV TRUST	-0.674	6.28E-05	1	--	8
UNIVERSAL	-1.079	2.85E-06	1	--	8

Vector Error Correction Estimates

Vector Error Correction Estimates
Date: 03/08/23 Time: 01:41
Sample (adjusted): 2014 2020
Included observations: 82 after adjustments
Standard errors in ( ) & t-statistics in [ ]

Cointegrating Eq:	CointEq1
ROA(-1)	1.000000
ROE(-1)	-0.708021 (0.04575) [-15.4751]
NET_CL(-1)	-1.50E-10 (1.0E-08) [-0.01448]
NET_P(-1)	3.10E-10 (5.2E-09) [0.06023]
UNDERW_P(-1)	7.83E-09 (7.9E-09) [0.98915]
LOSS_ADJ(-1)	-0.103822 (0.05377) [-1.93075]
C	0.080342

Error Correction:	D(ROA)	D(ROE)	D(NET_CL)	D(NET_P)	D(UNDERWD_P)	D(LOSS_ADJ)
CointEq1	-0.030088 (0.05187) [-0.58010]	1.780055 (0.16829) [10.5773]	-550060.6 (864548.) [-0.63624]	460437.0 (1728334) [0.26641]	3743659. (4075831) [0.91850]	0.134560 (0.15022) [0.89573]
D(ROA(-1))	-0.512446 (0.10771) [-4.75775]	-0.510167 (0.34947) [-1.45982]	2153512. (1795325) [1.19951]	679424.8 (3589069) [0.18930]	-6878480. (8463897) [-0.81268]	-0.333297 (0.31196) [-1.06840]
D(ROA(-2))	-0.359797 (0.11886) [-3.02710]	-1.418749 (0.38565) [-3.67882]	511601.8 (1981194) [0.25823]	-1477900. (3960644) [-0.37315]	-17739993 (9340160) [-1.89932]	-0.347104 (0.34425) [-1.00828]
D(ROE(-1))	-0.007822 (0.02357) [-0.33191]	0.230589 (0.07647) [3.01549]	261562.4 (392836.) [0.66583]	944313.6 (785325.) [1.20245]	2393942. (1851988) [1.29263]	0.070652 (0.06826) [1.03505]
D(ROE(-2))	-0.016243 (0.01945) [-0.83515]	0.412307 (0.06311) [6.53366]	-182475.6 (324186.) [-0.56287]	-1111781. (648087.) [-1.71548]	28263.13 (1528345) [0.01849]	0.086642 (0.05633) [1.53809]
D(NET_CL(-1))	2.16E-09 (1.2E-08) [0.18158]	7.66E-08 (3.9E-08) [1.98973]	0.773251 (0.19789) [3.90750]	0.873760 (0.39560) [2.20867]	1.779879 (0.93293) [1.90784]	2.41E-08 (3.4E-08) [0.69983]
D(NET_CL(-2))	-6.34E-09 (1.3E-08) [-0.50245]	4.85E-09 (4.1E-08) [0.11835]	0.090108 (0.21048) [0.42811]	0.723055 (0.42077) [1.71840]	-1.346350 (0.99228) [-1.35682]	-1.39E-08 (3.7E-08) [-0.38035]
D(NET_P(-1))	-1.20E-09 (3.7E-09) [-0.32066]	-2.79E-08 (1.2E-08) [-2.30689]	0.034055 (0.06223) [0.54724]	0.240868 (0.12440) [1.93617]	-1.620072 (0.29338) [-5.52218]	-9.88E-09 (1.1E-08) [-0.91394]
D(NET_P(-2))	6.23E-09 (5.2E-09) [1.19036]	7.34E-08 (1.7E-08) [4.31762]	0.133183 (0.08728) [1.52592]	-0.585502 (0.17448) [-3.35562]	-0.095876 (0.41148) [-0.23301]	2.93E-08 (1.5E-08) [1.93443]
D(UNDERW_P(-1))	1.07E-09 (6.1E-09) [0.17537]	7.27E-09 (2.0E-08) [0.36759]	0.009643 (0.10166) [0.09485]	-0.297624 (0.20324) [-1.46442]	0.410315 (0.47928) [0.85611]	4.62E-08 (1.8E-08) [2.61273]
D(UNDERW_P(-2))	-6.84E-09 (5.2E-09) [-1.30955]	-1.14E-08 (1.7E-08) [-0.67344]	-0.191359 (0.08710) [-2.19700]	-0.127005 (0.17412) [-0.72939]	0.866739 (0.41063) [2.11077]	2.13E-08 (1.5E-08) [1.40620]
D(LOSS_ADJ(-1))	-0.042424 (0.05442) [-0.77958]	-0.201046 (0.17657) [-1.13860]	-2242459. (907098.) [-2.47212]	-1731605. (1813397) [-0.95490]	-5450527. (4276431) [-1.27455]	-0.233223 (0.15762) [-1.47967]

D(LOSS_ADJ(-2))	0.036774	0.184114	-743783.8	-2161716.	2017048.	-0.082172
	(0.05041)	(0.16355)	(840191.)	(1679642)	(3961003)	(0.14599)
	[0.72955]	[1.12574]	[-0.88526]	[-1.28701]	[0.50923]	[-0.56285]
C	0.004358	-0.066123	147608.9	394801.1	563892.8	-0.011423
	(0.00702)	(0.02278)	(117010.)	(233917.)	(551632.)	(0.02033)
	[0.62075]	[-2.90309]	[1.26151]	[1.68779]	[1.02223]	[-0.56183]
R-squared	0.507659	0.694505	0.554433	0.493210	0.453434	0.180290
Adj. R-squared	0.413536	0.636101	0.469252	0.396324	0.348944	0.023581
Sum sq. resids	0.192809	2.029841	5.36E+13	2.14E+14	1.19E+15	1.617436
S.E. equation	0.053249	0.172773	887578.1	1774375.	4184406.	0.154227
F-statistic	5.393522	11.89150	6.508821	5.090608	4.339477	1.150477
Log likelihood	131.8108	35.29628	-1231.770	-1288.572	-1358.921	44.60800
Akaike AIC	-2.873433	-0.519422	30.38463	31.77005	33.48588	-0.746537
Schwarz SC	-2.462530	-0.108518	30.79554	32.18095	33.89678	-0.335633
Mean dependent	0.005688	0.017889	451048.8	692146.0	-47482.37	0.008624
S.D. dependent	0.069533	0.286409	1218322.	2283722.	5185905.	0.156078

Determinant resid covariance (dof adj.)	1.90E+31
Determinant resid covariance	6.19E+30
Log likelihood	-3605.015
Akaike information criterion	90.12231
Schwarz criterion	92.76383

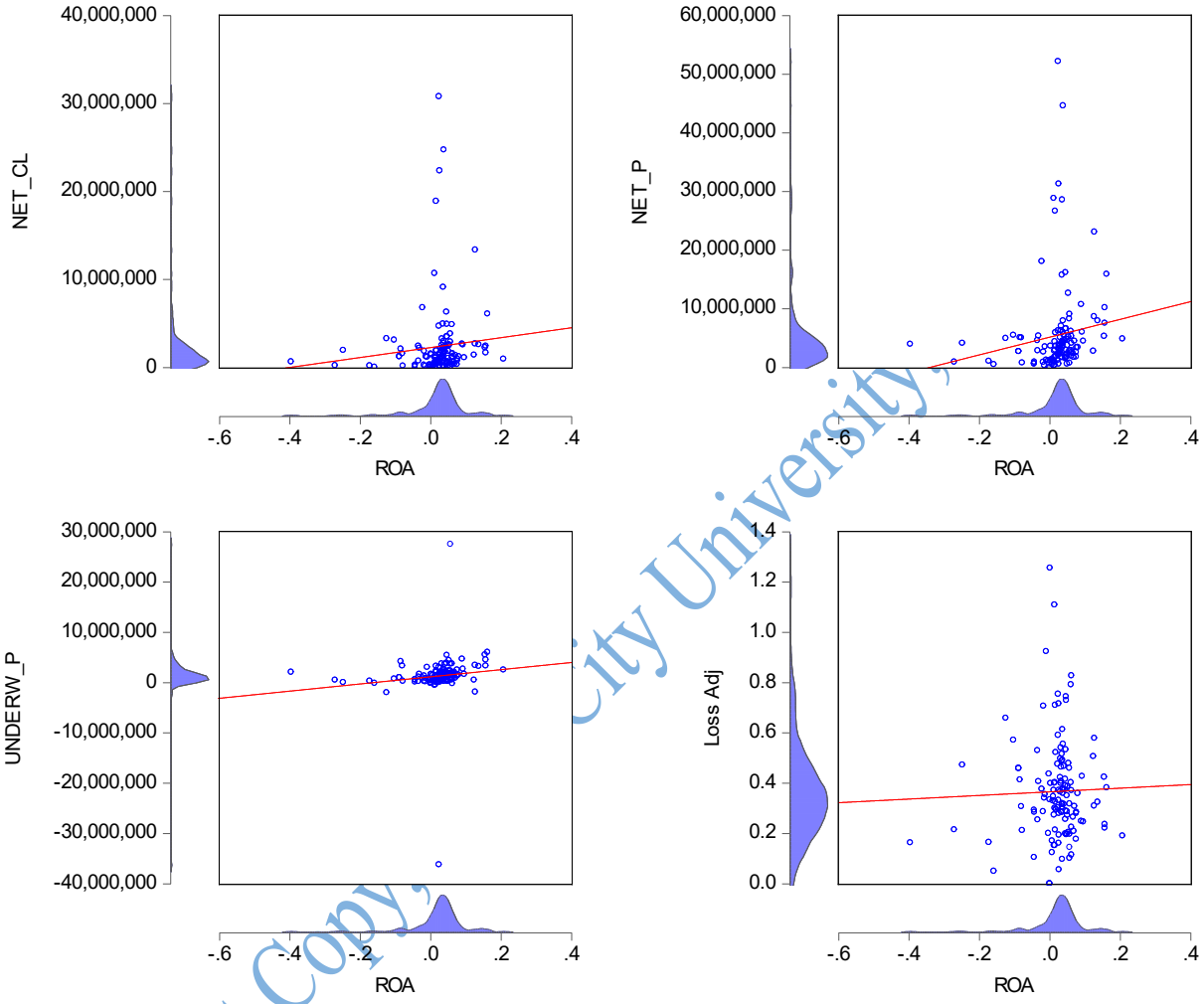
HETEROSKEDASTICITY TEST

Dependent Variable: RESID02
Method: Panel Least Squares
Date: 03/08/23 Time: 01:09
Sample: 2011 2020
Periods included: 10
Cross-sections included: 13
Total panel (unbalanced) observations: 127

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9.61E-17	0.014330	6.70E-15	1.0000
NET_CL	4.69E-23	4.96E-09	9.46E-15	1.0000
NET_P	-2.45E-23	2.63E-09	-9.34E-15	1.0000
UNDERW_P	3.43E-24	1.46E-09	2.35E-15	1.0000
LOSS_ADJ	-2.17E-16	0.032780	-6.63E-15	1.0000

R-squared	0.000000	Mean dependent var	-1.64E-18
Adjusted R-squared	-0.032787	S.D. dependent var	0.061364
S.E. of regression	0.062362	Akaike info criterion	-2.673149
Sum squared resid	0.474460	Schwarz criterion	-2.561173

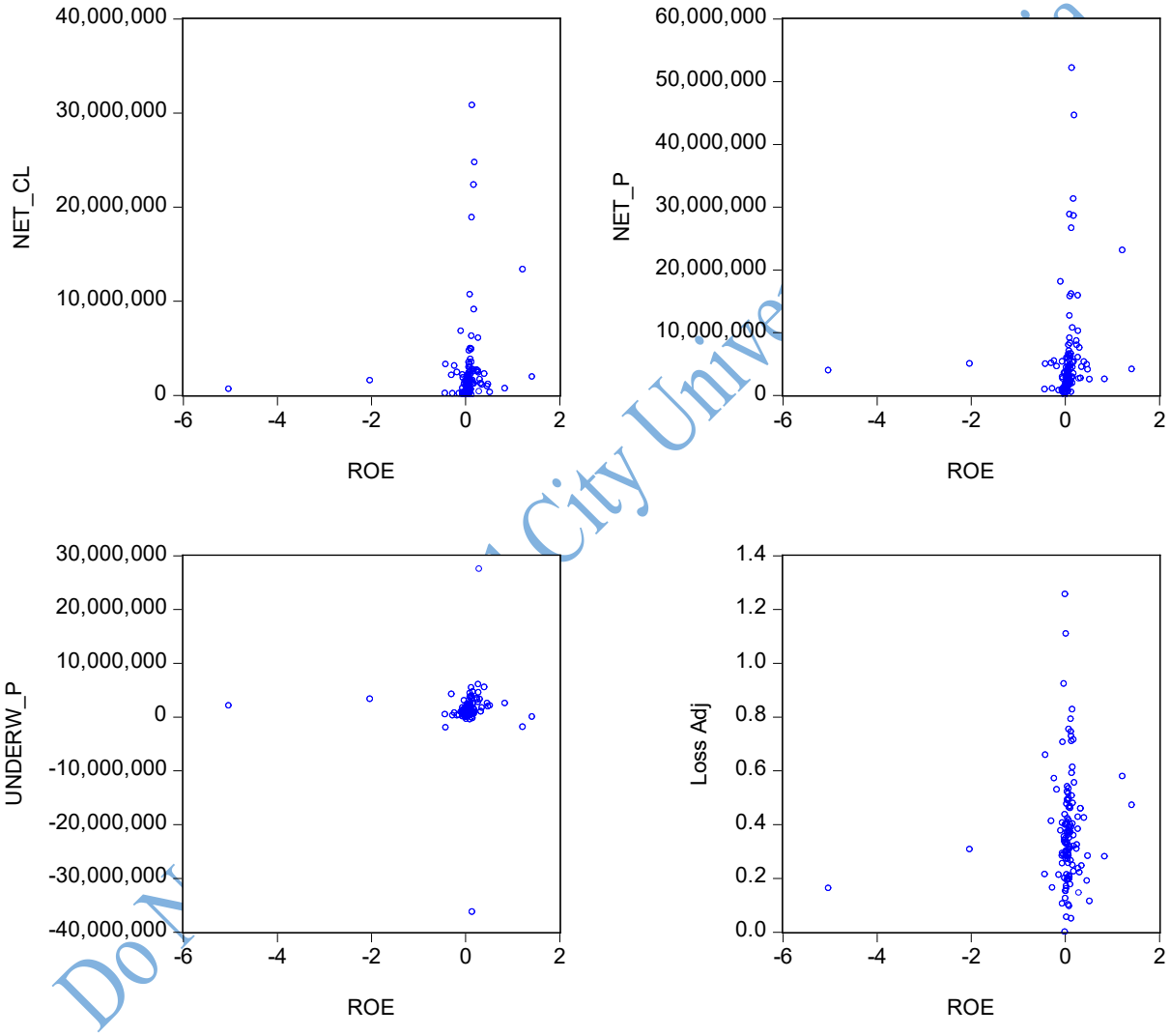
Log likelihood	174.7449	Hannan-Quinn criter.	-2.627654
F-statistic	0.000000	Durbin-Watson stat	1.269376
Prob(F-statistic)	1.000000		



Dependent Variable: RESID06
Method: Panel Least Squares
Date: 03/08/23 Time: 01:15
Sample: 2011 2020
Periods included: 10
Cross-sections included: 13
Total panel (unbalanced) observations: 127

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.40E-16	0.124554	1.12E-15	1.0000
NET_CL	1.33E-22	4.31E-08	3.08E-15	1.0000
NET_P	-7.10E-23	2.28E-08	-3.11E-15	1.0000
UNDERW_P	8.44E-24	1.27E-08	6.66E-16	1.0000
LOSS_ADJ	-2.42E-16	0.284924	-8.49E-16	1.0000

R-squared	0.000000	Mean dependent var	-9.83E-18
Adjusted R-squared	-0.032787	S.D. dependent var	0.533384
S.E. of regression	0.542058	Akaike info criterion	1.651686
Sum squared resid	35.84686	Schwarz criterion	1.763662
Log likelihood	-99.88206	Hannan-Quinn criter.	1.697180
F-statistic	0.000000	Durbin-Watson stat	0.716522
Prob(F-statistic)	1.000000		



Bio-data

A. Personal Data

Full Name:	Olugbenga Adedayo FALADE
Address:	No. 1, Falade Close, Off Ayodele Avenue, Isa Ilu, Ipaja, Lagos.
E-mail:	gbengfal@yahoo.co.uk
Phone No:	+234802 301 3980, 0802 305 7794
Date of Birth:	August 20, 1968
Place of Birth:	Ikole LG, Ekiti State
Nationality:	Nigeria
Next of Kin:	Olakunbi Elizabeth Falade
	No. 1, Falade Close, Off Ayodele Avenue, Isa Ilu, Ipaja, Lagos

B. Educational Background

Educational Institutions Attended with Dates and Qualifications

- PhD in Insurance & Risk Management – Lead City University — In View
- MA. – Peace and Conflict – University of Ibadan — 2019
- BL – The Nigerian Law School (Abuja) — 2018
- MSc. in Insurance & Risk Management – Lead City, University — 2017
- L.LB – University of Ibadan — 2016
- B.Sc in Business Administration - University of Lagos — 2011
- MBA in Marketing – Obafemi Awolowo University — 2009
- HND in Insurance and Actuarial Science - Lagos State Polytechnic — 1992
- OND in Insurance and Actuarial Science – The Polytechnic Ibadan — 1989
- WASC/SSCE – Methodist High School, Ibadan — 1986

C. Working Experience with Dates

- The Nigerian Council of Registered Insurance Brokers (AES) — June 2021-Till Date

- Peakthrust Insurance Brokers (GM Technical) Jan 2014-Nov 2021
- Law Union & Rock Insurance (Regional Manager West) Jan 2010–Jan 2014
- Custodian and Allied Insurance (Head Financial Institution) May 2004–Dec 2009
- Unitrust Insurance Co. Ltd (Manager General underwriting) Sep 200–Apr 2004
- Lombard Insurance Co. Ltd (Asst Manager Underwriting) Mar 1994 – Aug 2001

D. Awards and Fellowships

- Best Branch Chairman – Chartered Insurance Institute of Nigeria
- Most Outstanding Lecturer (back-to-back for 3 years) - Ondo State Polytechnic Now Rufus Giwa Polytechnic, Egbeda Campus, Lagos
- Award of Excellence – Offices Representatives Committee of the Chartered Insurance Institute of Nigeria
- Class "Glown" Award – Law Students Society, University of Ibadan
- Staff of the Month Award – Lombard Insurance Company Ltd

E. Membership of Academic and Professional Bodies

- Fellow, The Nigerian Council of Registered Insurance Brokers FCIB
- Fellow, Chartered Insurance Institute of Nigeria FIIN
- Fellow, Chartered Institute of Finance and Control of Nigeria FIFCN
- Associate, Chartered Insurance Institute of Nigeria AIIN
- Associate, Chartered Institute of Pensions of Nigeria ACIPN
- Associate, Institute of Chartered Mediators and Conciliators AICMC
- Associate, Nigerian Institute of Management (Chartered) ANIM
- Associate, Society for Peace Studies and Practice ASPSP

F. Publications

- G. E. Oyedokun, & O. A. Falade, *Loss Adjusters and Insurance Customers Retention in the Nigerian Insurance Industry.* **International Journal of Economics, Commerce and Management,** 10(3), 2022, 43-65

- O. A. Falade, & G. E. Oyedokun, *Claims Payment and Financial Performance of Listed Insurance Companies in Nigeria.* **Himalayan Journal of Economics and Business Management,** 3(2), 2022, 37-48.

G. Major Conferences Attended with Dates

- Lead City University Faculty of Management and Social Sciences 2nd International Conference, 2023.

H. References

Mr. Bola Temowo
Managing Director/CEO
International Loss Adjusters
250, Ikorodu Road, Lagos
08023128024

Barr. Bolarin Aliyu-Faniyan
Chief Executive Officer,
Bondwell Insurance Brokers
Abuja
08187877777

_____ _____

Signature **Date**

The University Compliance Certification

This is to verify that the thesis written by Olugbenga Adedayo FALADE with matriculation number LCU/PG/001714, in the Department of Management and Accounting, Faculty of Management and Social Sciences, Lead City University, Ibadan, Oyo State, is in full compliance with the approved University format and style.

_____ _____

Signature **Date**

Olugbenga_FALADE LCU LI3RARY

ORIGINALITY REPORT

4%	5%	8%	5%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	Submitted to University of Lincoln Student Paper	3%
2	ulspace.ul.ac.za Internet Source	2%

Exclude quotes	Off	Exclude matches	< 2%
Exclude bibliography	On		