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An Empirical Evaluation of Existing Fraud Risk Management Practices in Nigerian Insurance Businesses: A Focus on Motor Insurance Fraud

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By

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Research Thesis: Declaration of Authorship

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I declare that this thesis and the work presented in it is my own and has been generated by me as the result of my own original research.

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3. Where I have consulted the published work of others, this is always clearly attributed;

4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;

5. I have acknowledged all main sources of help;

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7. Parts of this work have been published as:

    a. ***An assessment of experts' risk perceptions of motor insurance fraud in Nigeria*** - 2022 annual conference of the Society for Risk Analysis (U.S.A), Tampa, Florida (Dec. 4-8)
    b. ***An empirical analysis of factors responsible for motor insurance fraud in Nigeria*** - 14th international conference on Trade, Business, Economics, and Law 2023 at University of British Columbia, Vancouver, Canada (17-19 April 2023).
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Abstract

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An Empirical Evaluation of Existing Fraud Risk Management Practices in Nigerian Insurance Businesses: A Focus on Motor Insurance Fraud

Olatokunbo Sunday Shoyemi

This thesis presents an empirical evaluation of fraud risk management practices in Nigerian insurance businesses, focusing specifically on motor insurance fraud. The research comprises three interconnected papers aimed at comprehensively understanding and addressing the challenges posed by fraudulent claims in the Nigerian motor insurance industry. The first paper assesses experts' perceptions of motor insurance fraud in Nigeria, which point towards a problematic level of fraud that could significantly impact the insurers' solvency. The second paper analyses the factors contributing to fraudulent claims, highlighting the prevalence of internal, external, and connivance fraud in the Nigerian insurance market. It also identifies shortcomings in current fraud control measures, and recommendations are made for improvements that could deter fraud occurrences. The third paper evaluates the effectiveness of anti-fraud strategies in Nigerian motor insurance companies. Surprisingly, while these strategies are perceived as effective by industry professionals, they do not wholly correlate with reductions in fraudulent claims (i.e., preventive and detective strategies), indicating there is a gap between perception and reality. Recommendations in the third paper include continuous policy reviews, enhanced staff training, flexible anti-fraud measures, holistic risk assessment, and increased legislative support. Overall, this research contributes to bridging the gap between theoretical concepts and practical challenges in managing motor insurance fraud in Nigeria, with potential implications for enhancing fraud risk management practices both locally and globally.

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Review of the literature

Being one of the compulsory insurance policies in Nigeria, motor insurance (also known as auto insurance) has made popular the practice of insurance in the country. Vehicle owners, users and dealers are expected to have, and be aware of the existence of one form of motor insurance policies or the other by virtue of its compulsory nature. Hence, it is of high popularity amidst of all other insurance products in Nigeria. The increased popularity of motor insurance policy in Nigeria had been beneficial to the motor insurers and entire insurance industry in terms of gross premium income and contribution to Gross Domestic Product (GDP) respectively (Ntiedo and Emem, 2016, Oke, 2012). In recent times however, the Nigerian motor insurers have experienced high volume of motor insurance claim pay-outs (Market statistical publication, 2014-2018) and insignificant contribution to the gross premium income of the Nigerian market, which has been a major concern for the shareholders/stakeholders. It has been argued that there are many factors that have brought about the recent increase in motor insurance claims (Soye and Momoh, 2021, Adesina et al., 2018). However, anecdotal evidence (ongoing debates among industry practitioners) suggests prevalence of fraud due to poor practices in motor insurance business. This study (i.e., Paper 1) is therefore aimed to carry out an assessment of fraud in motor insurance claims as perceived by experts in the Nigerian insurance market. Although, few studies have been carried out on motor insurance fraud, none is yet to assess the level of fraud in motor insurance claims using experts' judgements. According to Yusuf and Babalola (2009), neither the industry nor the Nigerian government currently record accurate data on insurance fraud. This is why we have to rely on experts' judgements.

Importance of the study (Paper 1)

Studies have shown that the global impact of insurance fraud is highly devastating on the entire insurance industry (Akomea-Frimpong et al., 2016, Bashir et al., 2013, Hoyt, 1990, Gour and Gupta, 2012, Yusuf and Babalola, 2009) and given that motor insurance is the most popular insurance product in Nigeria (Ajemunigbohun and Oreshile, 2014), the level of fraud in this context must be assessed. More so, studies on insurance fraud within the Nigerian context have not been comprehensive due to lack of reliable data (Yusuf and Babalola, 2009).

To address this issue, this study assesses, through experts' opinions, the level of fraud in motor insurance claims and its impacts on insurers' solvency in Nigeria.

Moreover, previous studies have shown that motor insurance is one of the most-purchased insurance policies in the emerging countries like Nigeria (Getinsurance, 2022, Aduloju, 2021). Its growing contribution to the global GDP is well acknowledged among the economic analysts (Afejuku, 1988, Ugwuanyim et al., 2021). In most climes, commuting with motor vehicles is practically impossible without a valid motor insurance policy (Homeapproved, 2022, Morrissey, 2022). Despite the high cost of purchasing motor insurance especially for the new drivers and bad insureds (policyholders with significant number of fault claims - accidents), the rate at which motor insurance policies are being sold has not been significantly reduced. This however suggests the significance of motor insurance in the day-to-day activities. To the motor insurers, the primary cost of production is the 'claims paid' or 'claims payable' where profit is technically underwritten (earned) when the total claims amount is less than the written premium. In recent times, the Nigerian insurance market for example, has been experiencing an increasing number/cost of motor insurance claims which had been a serious concern for the motor insurers. A recent study has confirmed the existence of fraudulent activities in the claims administration of motor insurance business in Nigeria, but the root antecedents of these frauds were not discussed. This study (i.e., Paper 2) therefore analysed the factors responsible for fraudulent claims in motor insurance business in Nigeria. Although, a series of related motor insurance frauds had been investigated by other researchers but not in the Nigerian context, and none specifically focused on motor insurance claims. To the best of my knowledge, as at the time of writing this report, there is no data on motor insurance claims frauds in Nigeria insurance market held by the Nigerian government or other stakeholders. Therefore, I relied on the perceptions of the senior/experienced employees of motor insurance companies in Nigeria to gather the data.

Importance of the study (Paper 2)

This study contributes to the on-going debates on insurance frauds by fraud researchers. Its contribution to new knowledge is evidenced by being one of the few studies investigating the root antecedents of fraudulent motor claims in the Nigerian insurance market and hence, would enable the motor insurers and other stakeholders in Nigeria, to put in place, controls to

reduce/prevent the occurrence of frauds in motor insurance claims administration. Though researchers are shunned away from fraud related studies in the Nigeria insurance market due to lack of reliable data, this study is therefore able to rely on the opinions of the experienced/ senior employees in the Nigerian motor insurance companies. A few related studies focused on either life insurance or non-life insurance business or combination of the duo; this study details its investigation on the most popularly sold insurance policy (with high propensity to fraud) in Nigeria insurance market – motor or auto insurance.

More importantly, motor insurance fraud is seen as a prevalent problem in Nigeria that has been plaguing the insurance business for years (NAICOM, 2019). Insurers and policyholders have both experienced substantial financial losses due to this issue. The Nigerian Insurers Association (NIA) report posits that insurance fraud is remarkably prevalent in the country, reaching an estimated 70% (NIA, 2019). Motor insurance fraud stands as a significant factor contributing to this problem. Customers have become increasingly dissatisfied with insurance products due to concerns about fraud, which has contributed to the low level of insurance penetration (i.e., policy purchases) in the country (Octavy, 2022). This issue has also contributed to the low level of insurance contribution to the country's GDP (PwC, 2020).

The insurance sector plays a pivotal role in any economy. It makes it possible for individuals and organisations to transfer their risks to insurance companies, reducing the financial fallout that can result from unfavourable occurrences such as accidents, theft, and the destruction of property (i.e., IRMI, 2023, III, 2020, Federal Reserve Bank of Minneapolis, 2017). However, the widespread presence of fraudulent actions within the insurance industry significantly erodes clients' overall trust in the system. This, in turn, leads to low policy purchases, which eventually has an influence on economic growth. Motor insurance fraud can take many different forms, including, but not limited to, staged accidents, inflated claims, fraudulent policies, and "ghost brokers". Both staged accidents and inflated claims encompass individuals who deliberately orchestrate accidents with the intention of obtaining insurance benefits. Nevertheless, it should be noted that staged accidents specifically involve individuals purposefully causing accidents to secure insurance benefits, whereas inflated claims pertain to individuals who exaggerate the extent of damage inflicted upon their vehicles to procure greater compensation. Fictitious policies are policies that have never been issued, and ghost brokers are those who offer false insurance to customers who are unaware that they are being taken advantage of and then pocket the premiums (Theaa, 2022).

The prevalence of motor insurance fraud in Nigeria has been attributed to a number of factors, such as inadequate regulatory oversight, weak internal control, unfair treatment of employees, falsified documents, lack of standardised approach in conducting brokerage business by insurance brokers, weak enforcement of existing laws, and a lack of public awareness about insurance and its associated benefits (Akomea-Frimpong et al., 2016, Insurance-Europe, 2019, Zanghieri 2017). According to Yusuf and Babalola (2009) and Inaya and Isito (2016), the effects of automobile insurance fraud in Nigeria are enormous and have far-reaching ramifications for all parties involved in the industry. Fraud in the Nigerian motor insurance industry results in huge financial losses for insurers, which in turn leads to fewer earnings and lower returns on investment. Due to the possibility of being denied the compensation to which they are lawfully entitled, clients who become victims of fraudulent practices in the domain of motor insurance may be subject to substantial financial losses. In other instances, consumers can completely lose their vehicles, which would result in an additional load on their finances. The impact that fraudulent insurance claims have on the economy of Nigeria is also considerable (Yusuf et al., 2017). The lack of insurance patronage by consumers in the country is a consequence of insurance fraud, which hinders the development and growth of the sector. As stated by Inaya and Isito (2016), the pervasiveness of fraudulent activities within the Nigerian motor insurance sector prevents the industry from realizing its complete potential, despite its capacity to significantly contribute to the expansion of the economy. Dealing with fraud has become a major concern for Nigeria's insurance sector because of the high occurrence of fraudulent activities in the country's motor insurance market.

According to Akinbola and Adetunmbi (2020), "…*there is a dearth of information regarding the anti-fraud frameworks and strategies currently employed in the Nigerian motor insurance industry"* (p. 104). In a comparable manner, the National Insurance Commission (NAICOM) released a report declaring that the supervisory authority had issued guidelines and regulations with the aim of augmenting the governance and risk management practices of insurance firms in Nigeria (NAICOM, 2019). These guidelines and regulations encompass measures (i.e., approaches for managing operational risks) aimed at the prevention and detection of fraudulent activities applicable to all players in the insurance industry. Still, there's doubt about whether these preventive measures will actually reduce the widespread occurrence of insurance fraud in Nigeria (Eme et al.,2016).

In other countries and industries, the development and implementation of anti-fraud frameworks/strategies have proven effective in reducing insurance fraud. In United States for example, it's worth noting that the National Insurance Crime Bureau (NICB) in the US has implemented a thorough programme to combat fraud. This program effectively utilizes sophisticated data analytics, the creation of internal controls, as well as the establishment of robust legal and regulatory systems in order to discourage and prevent fraudulent activities. This programme has effectively reduced the incidence of insurance fraud in the United States. For example, in 2021, NICB has assisted their members to (i) recover 224,722 vehicles (with a total value of $661 million), (ii) mitigate loss of $46M (iii) recover $10.5M through restitution orders, and (iv) complete 924 hours of insurance fraud education (inclusive of law enforcement bodies) (NICB, 2021).

Importance of the study (Paper 3)

With insurance fraud being widespread in Nigeria and considering the benefits that anti-fraud frameworks/strategies can bring, there could be many benefits to creating a thorough plan to combat fraud in the Nigerian motor insurance sector. This framework could encompass (a) the establishment of a dedicated unit responsible for preventing fraud within each insurance company, (b) the utilization of data analytics and artificial intelligence for the purpose of detecting fraudulent activities and (3) the creation of robust legal and regulatory frameworks aimed at deterring such activities. Hence, such a framework could help insurance companies enhance their ability to prevent and detect fraudulent activities, resulting in reduced losses and lower premiums.

This study (i.e., Paper 3) therefore aims to uncover the effectiveness of perceived anti-fraud strategies in the management of motor insurance fraud in Nigeria. To do this, (1) we analyze claim ratios and total claims spanning 2017-2022 obtained from the National insurance commission (NAICOM) and (2), in the absence of data on the effectiveness of anti-fraud measures in the industry, we survey senior employees' perceptions of anti-fraud strategy effectiveness. Insights gained from this process enabled us to make recommendations for enhancing the effectiveness of anti-fraud strategies within the Nigerian motor insurance industry. The framework incorporates preventative, detective, and responsive methods to deter fraudulent activity in the Nigerian motor insurance industry.

While earlier studies have mostly concentrated on the broader scope of insurance businesses (i.e., general insurance), this study focuses specifically on the motor insurance sector. Also, in contrast to the previous research (i.e., Gitau, 2018, Gobet and Gürtler, 2017, Li et al., 2023), the present study specifically examines the Nigerian motor insurance sector and utilises the perceptions of the industry's experts to access data on motor insurance fraud when no other relevant data (e.g., frequency and severity of insurance fraud) currently exists in Nigeria.

Chapter One

Introduction

Preface

The overarching theme of the Ph.D. thesis, "An empirical evaluation of existing fraud risk management practices in Nigerian insurance businesses," revolves around examining fraud risk management practices in the Nigerian insurance industry. This research is conducted through the investigation of three interconnected but independent papers: Paper 1 focuses on assessing the extent and impact of motor insurance fraudulent claims in Nigeria, Paper 2 analyses the factors responsible for fraudulent claims in motor insurance in Nigeria, and Paper 3 uncovers the effectiveness of anti-fraud strategies in Nigerian motor insurance market by exploring the perceptions of the experts.

The logical connection among these papers stems from the objective of understanding and addressing fraud risk management in Nigerian insurance businesses. Each paper contributes to this objective by examining different aspects of motor insurance fraud and its management. In Paper 1, the researcher assesses the extent and impact of motor insurance fraudulent claims in Nigeria. This paper aims to quantify the prevalence and consequences of fraudulent claims, providing a foundational understanding of the problem.

Building upon the findings of Paper 1, Paper 2 delves into the analysis of factors responsible for fraudulent claims in motor insurance in Nigeria. By identifying and analysing these factors, the research aims to gain better insights into the root antecedents of motor insurance fraud, such as socioeconomic factors, organizational vulnerabilities, and regulatory deficiencies.

Lastly, Paper 3 examines the perceived effectiveness of anti-fraud strategies in managing motor insurance fraud in Nigeria. This framework is designed to address the identified factors from Paper 2 and proposes strategies and practices for mitigating fraud risks. It considers the specific context of the Nigerian insurance industry and aims to enhance fraud prevention, detection, and response mechanisms.

The research context of this thesis is therefore centred around the examination of fraud risk management practices in the Nigerian insurance industry, with a specific focus on motor

insurance fraud. This context acknowledges the significance of addressing fraud risks in insurance businesses and the need for effective strategies to mitigate such risks.

The extant literature surrounding the thesis provides a foundation for the research and highlights existing knowledge and gaps in the field of fraud risk management in Nigerian motor insurance businesses. Prior studies and scholarly works on fraud risk management (e.g. (Amasiatu and Shah, 2018a, Baldock, 1997, CGMA, 2012, Clarke, 1989, Derrig, 2002a, etc.), insurance fraud, and the Nigerian insurance industry contribute to the understanding of the research problem and set the stage for the empirical evaluation conducted in the thesis.

The literature review in the studies covers various topics related to fraud risk management in the insurance sector. It explores existing theoretical frameworks, models, and practices used to manage fraud risks in insurance companies globally. This review aids in establishing a theoretical foundation for the subsequent empirical investigation and offers insights into best practices that can be applied in the Nigerian context.

Moreover, the literature review examines prior research studies on insurance fraud, specifically motor insurance fraud, in Nigeria. It provides an overview of the prevalence, impact, and consequences of fraudulent claims in the motor insurance sector, emphasizing the need for effective fraud risk management strategies tailored to the Nigerian context. The review also explores the factors contributing to motor insurance fraud, such as socioeconomic factors, organizational vulnerabilities, and regulatory deficiencies.

The existing literature further reveals gaps and limitations in the current understanding of fraud risk management practices in Nigerian insurance businesses. These gaps highlight the need for empirical research that goes beyond the theoretical frameworks and provides evidence-based insights into the extent, factors, and possible solutions to motor insurance fraud in Nigeria.

The three interconnected but independent papers within the thesis are designed to address these research gaps systematically. Paper 1 focuses on assessing the extent and impact of motor insurance fraudulent claims in Nigeria by providing a comprehensive understanding of the problem. Paper 2 analyses the factors responsible for fraudulent claims in motor insurance in order to uncover the root antecedents of fraud in the Nigerian insurance industry. Finally, Paper 3 uncovers the effectiveness of anti-fraud strategy framework in managing motor insurance fraud from experts' opinions, based on the findings from the previous two papers.

The research context of the Ph.D. thesis considers the specific characteristics of the Nigerian insurance industry. Nigeria, being one of the largest economies in Africa (Ojo et al., 2020), has a rapidly growing insurance sector that plays a crucial role in the country's economic development. However, like many other countries, Nigeria faces significant challenges related to fraud in the insurance sector, particularly in the domain of motor insurance.

Motor insurance fraud has been a persistent issue in Nigeria (Yusuf et al., 2017b), leading to financial losses for insurance companies, increased premiums for policyholders, and a general lack of trust in the insurance industry (Yusuf et al., 2017b, Zanghieri, 2017b). Therefore, there is a pressing need to evaluate and improve the fraud risk management practices employed by Nigerian insurance businesses.

The literature review conducted as part of the thesis reveals several key findings and research gaps. It highlights the limited empirical research on fraud risk management practices in Nigerian insurance businesses, especially within the context of motor insurance fraud. While some studies have examined insurance fraud in Nigeria, they often lack a comprehensive analysis of the factors contributing to fraud and do not provide practical frameworks for managing fraud risks.

Furthermore, the extant literature identifies various challenges and complexities specific to the Nigerian insurance industry that affect fraud risk management. These challenges include issues related to governance, regulations, law enforcement, societal attitudes, and cultural factors. The literature also emphasizes the importance of adopting a holistic approach to fraud risk management, which considers prevention, detection, and response strategies, as well as the need for collaboration between insurance companies, regulators, law enforcement agencies, and other stakeholders.

Additionally, the research context of the Ph.D. thesis acknowledges the significance of empirical evaluation in the field of fraud risk management. While theoretical frameworks and conceptual models provide valuable insights, empirical research adds a layer of evidence-based (Marlene, 2007, Dickson et al., 2018, Marlene, 2007, Joan, 2020) understanding to the practical challenges faced by Nigerian insurance businesses in managing fraud risks.

By adopting a multidimensional approach through the three interconnected papers, the thesis aims to provide a comprehensive understanding of motor insurance fraud in Nigeria and its management. The research contributes to the extant literature by bridging the gap between

theoretical concepts and real-world challenges faced by Nigerian insurance businesses in combating fraud. The empirical evaluation allows for the identification of specific issues and vulnerabilities within the Nigerian insurance industry and offers practical recommendations to enhance fraud risk management practices.

Furthermore, the research context recognizes the broader implications of the findings and proposed framework. Effective fraud risk management practices not only benefit insurance companies in Nigeria but also contribute to the overall development and stability of the insurance industry (Joshua, Muhammad, and Maiturare, 2012, Yusuf et al., 2013). By reducing fraud-related losses and improving trust and confidence in the sector, the research outcomes can facilitate sustainable growth, attract investment, and promote a healthier insurance market in Nigeria (Tajudeen et al., 2009, Sunday et al., 2019, etc.)

The research context also acknowledges the potential for the findings to have implications beyond the Nigerian insurance industry. While the focus is on the specific context of Nigeria, the insights gained from this research can provide valuable lessons for insurance businesses in other countries facing similar challenges in managing motor insurance fraud. The anti-fraud framework proposed in Paper 3, although tailored to the Nigerian context, can serve as a reference for developing or enhancing fraud risk management practices in other regions or industries.

Hence, the research context and extant literature of the Ph.D. thesis emphasize the importance of empirical evaluation in understanding and improving fraud risk management practices in Nigerian insurance businesses, particularly in the domain of motor insurance fraud. The logical connection among the three papers ensures a systematic investigation of the problem, while the research outcomes have the potential to contribute to the advancement of fraud risk management practices in Nigeria and beyond.

In summary, the Ph.D. thesis addresses the research gap in the empirical evaluation of fraud risk management practices in Nigerian insurance businesses, focusing on motor insurance fraud. By conducting a systematic investigation through three interconnected papers, the thesis aims to contribute to the advancement of fraud risk management practices in the Nigerian insurance industry. The research findings and proposed anti-fraud framework strategies have the potential to enhance the effectiveness of fraud prevention and mitigation efforts, thereby improving the overall performance and trustworthiness of Nigerian insurance

businesses. More specifically, the motivations behind the Ph.D. thesis include addressing a significant problem, filling research gaps, enhancing fraud prevention and management, contributing to industry development, and advancing academic and professional knowledge (Pat and Heath, 2008, Janne, 2011, Robyn et al., 2016). These motivations collectively drive the researcher's commitment to conducting empirical research and providing practical recommendations for improving fraud risk management practices in Nigerian insurance businesses.

Fraud Issues in the Nigerian Insurance Sector

Fraud in the insurance sector represents a significant challenge globally, and the situation in Nigeria is particularly dire. The insurance industry in Nigeria faces multifaceted fraud issues, which impede its growth and stability. This section delves into the various types of fraud prevalent in the sector, their contributing factors, and the resultant impacts on the economy and stakeholders.

Types of Insurance Fraud

1. **Motor Insurance Fraud**: This is one of the most rampant forms of fraud in Nigeria, with an estimated 90% of Third-Party Insurance certificates being fake. Fraudsters often operate from business centres, issuing counterfeit certificates that bear the names and logos of legitimate insurance companies without their knowledge or approval. The premiums for these fake certificates are pocketed by the fraudsters instead of being remitted to the insurance companies (Moshood, 2016; Yusuf and Babalola, 2009).
2. **Travel Health Insurance Fraud**: Syndicates produce fake Travel Health Insurance certificates required for visa applications. This fraud is particularly common in Lagos and Abuja, where fraudulent certificates are sold to unsuspecting travellers (Moshood, 2016).
3. **Marine Insurance Fraud**: Marine insurance fraud is akin to motor insurance fraud, as it also includes the creation of counterfeit marine insurance certificates. The prevalence of this type of fraud is exacerbated by the high demand for marine insurance in major shipping hubs like Lagos (Moshood, 2016).

Contributing Factors

Several factors contribute to the high incidence of fraud in the Nigerian insurance sector:

1. **Lack of Awareness and Education**: Many Nigerians are unaware of the benefits of legitimate insurance, which makes them vulnerable to fraudsters. There is a widespread misconception that insurance is a means of extorting money, which deters people from seeking legitimate services (Moshood, 2016)
2. **Economic Conditions**: The challenging economic conditions, including low wages and high cost of living, force many individuals to seek cheaper, albeit fraudulent, insurance options. This economic pressure also drives some practitioners to engage in fraudulent activities to make ends meet (Moshood, 2016).
3. **Regulatory and Enforcement Challenges**: The regulatory environment is often criticized for its lack of stringent enforcement mechanisms. There is a perceived lack of serious attitude from regulatory authorities and insurance companies towards addressing the enormity of the fraud problem. This is compounded by the absence of clear-cut sanctions for offenders and inadequate mechanisms for enforcement (Oluwalami, 2018; Yusuf and Babalola, 2009).
4. **Technological Deficiencies**: The insurance sector in Nigeria also suffers from inadequate technological tools for fraud detection and prevention. This includes a lack of dedicated forensic technology and insufficient resources for thorough investigations (Oluwalami, 2018).

Impact on the Sector

The high levels of fraud have profound negative impacts on the insurance sector and the broader economy:

1. **Financial Losses**: Fraudulent activities result in substantial financial losses for insurance companies, which undermines their financial strength and stability. These losses can lead to higher premiums for legitimate customers as companies attempt to recoup their losses (Moshood, 2016; Yusuf and Babalola, 2009).

2. **Erosion of Trust**: Persistent fraud erodes public trust in the insurance sector. This lack of trust can deter potential customers from purchasing insurance, thereby stiffening the sector's growth and development (Yusuf and Babalola, 2009).
3. **Regulatory Burden**: The need to combat fraud places an additional burden on regulatory bodies, which must allocate resources to enforcement and oversight activities. This can divert attention from other critical regulatory functions, further hampering the sector's effectiveness (Oluwalami, 2018).

Strategies for Mitigation

Addressing fraud in the Nigerian insurance sector requires a multifaceted approach:

1. **Public Awareness Campaigns**: There is a need for extensive public education campaigns to raise awareness about the benefits of legitimate insurance and the dangers of engaging with fraudulent providers (Moshood, 2016; Yusuf and Babalola, 2009).
2. **Strengthening Regulatory Frameworks**: Enhancing the regulatory frameworks to include clear sanctions and robust enforcement mechanisms can deter fraudulent activities. Regulatory bodies need to be empowered and equipped with the necessary resources to enforce compliance effectively (Oluwalami, 2018).
3. **Technological Investments**: Investing in advanced technological tools for fraud detection and prevention is crucial. This includes deploying forensic accounting tools and establishing dedicated fraud investigative teams ((Oluwalami, 2018).
4. **Collaboration with Law Enforcement**: Enhancing cooperation among insurance firms, regulatory authorities, and law enforcement agencies can enhance the identification and legal action against perpetrators of fraud. This collaborative approach can help create a more secure and trustworthy insurance environment (Oluwalami, 2018).

Economic Theories Explaining the Existence of Fraud and their Mechanisms

Existing studies have confirmed that insurance fraud is a multifaceted issue influenced by a combination of economic and behavioural elements. (i.e., Marija, 2023; José et al., 2021; Raquel et al., 20207; Mudzamir, 2013, etc.). Understanding the underlying mechanisms that lead to fraudulent behaviour is crucial for developing effective fraud risk management strategies. This section explores four established economic theories—Information Asymmetry Theory, Principal-Agent Theory, Theory of Planned Behaviour, and Institutional Theory—in order to offer a thorough comprehension of the reasons behind the existence of fraud and the enabling mechanisms. These theories offer valuable insights into the drivers of fraud and inform the development of robust anti-fraud strategies within the Nigerian motor insurance industry.

1. Information Asymmetry Theory

Information asymmetry occurs when one party in a transaction has more or better information than the other, leading to imbalances that can be exploited for fraudulent purposes. This theory, initially proposed by Akerlof (1970) in his seminal work on the market for "lemons," highlights two main aspects relevant to insurance fraud: adverse selection and moral hazard.

Adverse Selection: Adverse selection arises before the transaction when potential customers have more information about their risk levels than the insurers. Individuals at a high risk are more likely to purchase insurance, as they are aware of their need for it , hence, increasing the insurer's vulnerability to fraud. For instance, individuals who intend to commit fraud might be more inclined to buy comprehensive coverage to maximize potential fraudulent claims (Rothschild & Stiglitz, 1976).

Moral Hazard: Moral hazard occurs after the transaction when insured individuals may take greater risks or engage in fraudulent activities because they do not bear the full cost of their actions. This is particularly pertinent in motor insurance, where policyholders might exaggerate damages or fabricate incidents to receive pay-outs (Pauly, 1968).

Mechanisms:

Adverse Selection: High-risk individuals disproportionately seek insurance coverage. Moral Hazard: Insured individuals engage in riskier behaviour or fraudulent activities due to reduced personal cost.

In the context of Nigerian motor insurance, information asymmetry significantly contributes to fraud. The industry's lack of comprehensive data on policyholders' risk profiles exacerbates adverse selection, while inadequate monitoring and enforcement mechanisms lead to moral hazard. The thesis addresses these issues by recommending continuous policy reviews and enhanced data analytics to reduce information gaps and mitigate fraud risks.

2. Principal-Agent Theory

Principal-Agent Theory explores the conflicts that arise when one party (the principal) delegates work to another (the agent), who has different incentives and access to more information. This theory, extensively discussed by Jensen and Meckling (1976), is highly relevant in understanding internal fraud within insurance companies.

Employees, also known as agents, may engage in fraudulent behaviour when their motivations, including performance-based rewards or prospects for career progression, are not in line with the organization's objectives to combat fraudulent activities. For example, if sales targets are prioritized over claim verification, employees might overlook or even facilitate fraudulent claims to meet their targets (Eisenhardt, 1989).

Monitoring Costs: Effective monitoring of employees to prevent fraud is costly and often imperfect. Insufficient oversight can create opportunities for internal fraud, where employees manipulate claims or collude with external parties (Ross, 1973).

Mechanisms:

Incentive Misalignment: Employees prioritize personal gain over organizational goals. Monitoring Costs: High costs and challenges in effectively monitoring employees lead to lapses that can be exploited.

This thesis highlights the prevalence of internal fraud in Nigerian motor insurance. Principal-agent theory underscores the need for better alignment of employee incentives with anti-fraud objectives and improved monitoring systems. Recommendations such as enhanced staff

training and flexible anti-fraud measures aim to address these principal-agent issues, thereby reducing the incidence of internal fraud.

3. Theory of Planned Behaviour

The Theory of Planned Behaviour (TPB), developed by Ajzen (1991), posits that individual behaviour is driven by intentions, which are influenced by attitudes, subjective norms, and perceived behavioural control. This theory offers a framework for comprehending the psychological and social elements that lead to deceitful conduct.

Attitudes: The perspectives held by individuals towards fraudulent activities, including regarding them as advantageous or permissible in specific situations, significantly impact their propensity to engage in fraudulent behaviours (Ajzen, 1991).

Subjective Norms: Social influences and societal norms exert a pivotal influence on human conduct. It becomes a norm when fraud is seen as widespread or culturally accepted in a specific industry or group, people are more likely to engage in such behaviours (Fishbein & Ajzen, 1975).

Perceived Behavioural Control: An individual's confidence in their capability to carry out fraudulent actions successfully without detection represents a key determinant. High perceived control increases the likelihood of fraud (Ajzen, 2002).

Mechanisms:

Attitudes: Personal evaluations of the benefits and acceptability of fraud. Subjective Norms: Influence of social and professional norms on fraud behaviour. Perceived Behavioural Control: Belief in one's capability to commit fraud undetected.

This thesis’s findings on the discrepancy between the perceived effectiveness of anti-fraud strategies and actual fraud reduction can be explained by TPB. Enhancing measures to prevent fraud should not solely concentrate on enhancing controls but also on changing the industry's attitudes, norms, and perspectives towards fraud. This comprehensive approach can lead to more effective fraud prevention and a reduction in fraudulent activities.

4. Institutional Theory

Institutional Theory examines how institutional structures, norms, and cultures influence organizational behaviour. In the insurance industry, institutional pressures can shape fraud management practices and attitudes towards fraud. DiMaggio and Powell (1983) opine three main elements relevant to this theory, namely - regulative, normative, and cognitive.

Regulative Pillar: Legal and regulatory frameworks mandate specific anti-fraud measures. Compliance with these regulations can reduce the incidence of fraud by establishing clear rules and consequences (Scott, 2008).

Normative Pillar: Social and professional norms influence behaviour within organizations. Strong ethical norms and professional standards can deter fraudulent activities (Meyer & Rowan, 1977).

Cognitive Pillar: Shared beliefs and values within the organization shape perceptions and actions regarding fraud. A culture that prioritizes integrity and ethical behaviour can reduce the propensity for fraud (Zucker, 1987).

Mechanisms:

Regulative: Enforcement of laws and regulations to deter fraud. Normative: Influence of ethical standards and professional norms. Cognitive: Internalization of values and beliefs that discourage fraud.

This thesis discusses the need for increased legislative support and a holistic risk assessment approach. Institutional Theory suggests that strengthening the regulative pillar through enhanced legislation and enforcement can improve fraud prevention. Additionally, fostering a culture of integrity and ethical behaviour (normative and cognitive pillars) within insurance companies can further deter fraudulent activities. The thesis's recommendations align with these principles, advocating for a comprehensive approach to fraud risk management that incorporates institutional reforms and cultural shifts.

In all, these theories together show that fraud is not just caused by individual wrongdoing but is ingrained in systemic problems like insufficient regulatory frameworks, weak internal controls, and the psychological tendencies of people looking to take advantage of these weaknesses for their own benefit. Recognizing these mechanisms is key to creating

successful measures for preventing and detecting fraud, such as improving transparency, aligning incentives, promoting ethical cultures, and fortifying institutional controls.

Justification for motor insurance fraud

This research focuses on motor insurance fraud as against the general "insurance fraud" due to the following factors:

I. Significance of Motor Insurance Fraud: Motor insurance fraud is a prevalent and costly problem in many countries, including Nigeria (Akomea-Frimpong et al., 2016, Clarke, 1989). It poses significant challenges for insurance companies, policyholders, and the overall insurance industry. According to Adeoye and Adeniran (2020), motor insurance fraud accounts for a substantial portion of fraudulent claims in the Nigerian insurance sector, leading to financial losses and eroding public trust.

II. Vulnerability of Motor Insurance: Motor insurance is particularly vulnerable to fraud due to various factors. These include the frequency of claims, the complexity of assessing damages, the involvement of multiple parties (insurers, policyholders, repair shops), and the prevalence of opportunistic fraudsters (Paul et al., 1989; Luca, 2023; Rohan et al., 2019, etc.). It was argued that motor insurance presents unique fraud risks due to the potential for staged accidents, inflated claims, and false information provided by policyholders (Clarke, 1989).

III. Financial Impact: Motor insurance fraud has a substantial financial impact on both insurance companies and policyholders (Arezo et al., 2018; Feride, Hayirsever, and Bas¸türk, 2020; Meixuan et al., 2023, etc.). Fraudulent claims lead to increased costs for insurers, which are often passed on to policyholders in the form of higher premiums. According to the Association of British Insurers (ABI, 2018), fraudulent motor insurance claims contribute to rising premiums and increased costs for honest policyholders.

IV. Industry-Specific Challenges: Motor insurance fraud presents unique challenges compared to other insurance lines. The nature of motor insurance policies, the involvement of third parties (e.g., repair shops, medical providers), and the regulatory framework specific to motor insurance necessitate a targeted and specialized approach to fraud prevention and detection. As highlighted by (Tennyson and Salsas-Forn, 2002, Zanghieri, 2017b), the complexities of motor insurance claims handling require industry-specific strategies to effectively combat fraud (Robert, 2004, Stijn et al., 2007, etc.)

V. Policy and Regulatory Relevance: Motor insurance fraud has policy and regulatory implications. Addressing fraud in this specific line of insurance requires the collaboration of insurance companies, regulators, law enforcement agencies, and other stakeholders (Morley et al., 2006). The Financial Conduct Authority (2019) emphasizes the need for robust fraud prevention and detection measures in the motor insurance sector to protect consumers and maintain the integrity of the insurance market.

VI. Research Gap: While insurance fraud, in general, is a topic of research, there are limited understanding of the specific dynamics and challenges within the motor insurance context in Nigeria (Ajemunigbohun, 2018, Queensley, 2019). By narrowing the focus to motor insurance fraud, this study fills a research gap and contributes to the existing literature by providing in-depth insights into this particular aspect of insurance fraud. This aligns with the findings of a study (CAIF, 2021c), which identified a need for more research specific to motor insurance fraud.

Justification for use of experts' perceptions

Previous studies on fraud or crime related issues have relied on the use of experts' perceptions on different grounds as follows:

I. Access to Sensitive Data: Fraud and crime-related studies often involve sensitive and confidential data that may be difficult to access for research purposes due to privacy concerns or legal restrictions (Akkeren et al., 2017). In such cases, researchers may

rely on experts' perceptions or opinions as a valuable source of information (Mumpower and Stewart, 1996).

II. Expertise and Experience: Experts in fraud or crime-related fields possess valuable knowledge and expertise gained through practical experience and investigations (Akkeren et al., 2017). Their insights and opinions can provide valuable contextual information and enrich the understanding of the subject matter (Lachapelle et al., 2014).

III. Exploratory Research: In cases where actual data is limited or insufficiently available, experts' perceptions or opinions can serve as a starting point for generating hypotheses and identifying research gaps (Mumpower and Stewart, 1996). This approach is particularly useful in exploratory research aiming to uncover new insights or trends.

IV. Emerging or Understudied Phenomena: Experts' perspectives are valuable when studying emerging or understudied fraud or crime-related phenomena (Mumpower and Stewart, 1996). They can provide insights into new fraud schemes, changing criminal behaviours, and trends that may not be adequately captured by existing data sources.

V. Contextual Understanding: Experts' perceptions or opinions can provide valuable insights into the cultural, socio-economic, and contextual factors that influence fraud or crime-related activities (Ackermann and Chen, 2013). This understanding helps researchers interpret available data effectively and design targeted interventions or prevention strategies (Ackermann and Chen, 2013).

Hence, this study relies on experts' perceptions as a valuable source of information, given the limited availability of actual data on insurance fraud in the Nigerian insurance industry. The scarcity of existing studies on insurance fraud in the Nigerian insurance industry further justifies the use of experts' perceptions.

Demonstration of coherent body of work

This thesis comprises three research papers that collectively investigate motor insurance fraudulent claims in Nigeria and propose an anti-fraud framework for effective management. Paper 1 assesses the extent and impact of motor insurance fraudulent claims, Paper 2 analyses the factors responsible for fraudulent claims, and Paper 3 unveils the effectiveness of anti-fraud strategies in the Nigerian motor insurance companies. This coherent body of work provides valuable insights into the challenges posed by fraudulent claims, identifies contributing factors, and offers practical solutions for fraud prevention, detection, and deterrence in the Nigerian motor insurance industry.

The Nigerian motor insurance industry plays a vital role in the country's economy by providing protection against risks associated with vehicle accidents and theft (Yusuf et al., 2017b). However, motor insurance fraud has become a significant concern, leading to financial losses for insurers and higher premiums for policyholders (Insurance-Europe, 2019). This thesis aims to address this issue by examining the extent and impact of fraudulent claims, exploring the factors that contribute to such claims, and unveiling the effectiveness of anti-fraud strategies framework in Nigeria motor insurance industry.

Paper 1: An Assessment of the Extent and Impact of Motor Insurance Fraudulent Claims in Nigeria. In this paper, a comprehensive assessment of the extent and impact of motor insurance fraudulent claims in Nigeria was conducted. The research utilized a quantitative analysis of insurance data (i.e., experts' perceptions). The quantitative analysis revealed a substantial prevalence of fraudulent claims in Nigeria motor insurance industry. More specifically, the study found that Nigerian insurance experts (i) largely agree (about 94% of respondents) that there is a high level of fraud in the Nigerian motor insurance industry; (ii) perceive soft fraud (i.e., exaggeration of genuine losses during a claim process) to be about three times more common than hard fraud (i.e., deliberately creating a loss event that never existed) in the Nigerian motor insurance industry, and (iii) strongly agree that there are problematic impacts from fraud on the solvency of the Nigerian motor insurers. This high occurrence of fraud has severe financial implications for insurance companies, leading to increased claim pay-outs and elevated premiums for honest policyholders.

Paper 2: Analysis of Factors Responsible for Fraudulent Claims in Motor Insurance in Nigeria. This paper focuses on identifying and analysing the factors responsible for

fraudulent claims in the Nigerian motor insurance industry. An extensive literature review was conducted and also collected primary data through surveys administered to insurance experts in Nigeria. The literature review highlighted several factors contributing to motor insurance fraud, such as weak regulatory enforcement, low public awareness, financial motivations, and inadequate data analytics. The quantitative analysis revealed the following: (i) poor remuneration of employees, week internal controls, unfair treatment of employees, forged signatures, and complex organizational structures among others, are the root antecedents of motor insurance fraud in Nigeria; (ii) internal fraud is perceived to be the most prevalent type of motor insurance fraud in Nigeria; (iii) perceived antecedents of motor insurance fraud are capable of influencing the perceived motor insurance fraud types (i.e., internal fraud, external fraud, and connivance fraud); and finally, (iv) internal fraud controls are not effective/capable of moderating the relationship between the perceived antecedents of motor insurance frauds and perceived motor insurance fraud types in Nigeria.

Paper 3: "Perception to Practice: Uncovering the Effectiveness of Anti-Fraud Strategies in Nigerian Motor Insurance Companies". This paper uncovers the effectiveness of the existing anti-fraud strategies framework for managing motor insurance fraud in Nigeria. This framework integrates preventive, detective, and responsive measures to enhance fraud prevention, early detection, and effective response. The preventive measures outlined in the framework include improved public awareness campaigns, stricter regulatory enforcement, and mandatory verification of policyholders' information. Detective measures involve the utilization of advanced data analytics, artificial intelligence, and collaboration between insurance companies and law enforcement agencies. Responsive measures focus on efficient investigation processes, legal reforms, and stringent penalties for offenders. The proposed anti-fraud framework is based on best practices from international jurisdictions and tailored to the specific context of the Nigerian motor insurance industry. Its implementation can significantly reduce fraudulent claims, safeguard the financial interests of insurers and policyholders, and restore public trust in the industry (Jörg, 2006, Victoria, 2019, Özcan, 2022).

Collectively, this thesis forms a coherent body of work by investigating the extent and impact of motor insurance fraudulent claims, analysing the contributing factors, and proposing an anti-fraud framework for effective management in Nigeria. The findings highlight the urgent need for comprehensive measures to combat motor insurance fraud in Nigeria and provide

practical solutions to mitigate its effects. The three research papers collectively contribute to a comprehensive understanding of the issue and offer a holistic approach to addressing motor insurance fraud.

By assessing the extent and impact of fraudulent claims in Paper 1, the research establishes the magnitude of the problem and highlights the financial implications for insurance companies and policyholders. This quantitative analysis provides a solid foundation for understanding the severity of the issue in Nigeria. In Paper 2, the analysis of factors responsible for fraudulent claims builds upon the quantitative findings by examining the underlying causes and facilitating a deeper understanding of the problem. The identified factors, such as weak regulatory enforcement and socio-economic challenges, help contextualize the issue within the Nigerian motor insurance industry. This analysis enables stakeholders to devise targeted strategies to tackle the root causes of motor insurance fraud. Finally, in Paper 3, the examination of the perceived effectiveness of anti-fraud framework offers a comprehensive approach to managing motor insurance fraud in Nigeria. The framework combines preventive, detective, and responsive measures to establish a robust system for fraud prevention, early detection, and effective response. Drawing on international best practices, such as public awareness campaigns, advanced data analytics, and collaboration between stakeholders, the framework provides actionable strategies for insurers, policyholders, regulators, and law enforcement agencies.

Hence, the coherent nature of these three research papers lies in their logical progression. Paper 1 establishes the problem and its impact, Paper 2 delves into the factors contributing to fraudulent claims, and Paper 3 examines the perceived effectiveness anti-fraud framework. Each paper builds upon the previous one, creating a cohesive narrative that addresses different aspects of motor insurance fraud in Nigeria.

Demonstration of systemic acquisition and understanding of a substantial body of knowledge

To demonstrate that the research papers represent a systematic acquisition and understanding of a substantial body of knowledge at the forefront of an academic discipline and/or an area of professional practice, this section highlights the research methodology, literature review, theoretical frameworks, empirical analysis, and contributions made by each paper. Here is an overview:

Paper 1: "An Assessment of the Extent and Impact of Motor Insurance Fraudulent Claims in Nigeria"

Research Methodology: This paper utilizes an explorative research design, mixed in order to allow for a thorough assessment of the extent and impact of motor insurance fraudulent claims.

Literature Review: The paper provides a comprehensive review of relevant literature on motor insurance fraud, encompassing both international studies and specific studies conducted in Nigeria. This review ensures that the research is built upon existing knowledge and considers the latest developments in the field.

Theoretical Framework: The paper establishes a theoretical framework for understanding motor insurance fraud, drawing on theories and concepts from the fields of criminology, insurance, and fraud examination. This theoretical foundation enables a systematic analysis of fraudulent claims and their impact (Kolumban et al., 2004, Jean-Marc et al., 2014, Magerram et al., 2023).

Empirical Analysis: The paper presents quantitative data analysis of motor insurance fraud, allowing for the estimation of the prevalence of fraudulent claims in Nigeria's motor insurance industry. This empirical analysis provides concrete evidence of the extent of the problem and its implications for insurers and policyholders.

Contributions: The paper's contributions lie in its systematic acquisition and understanding of the extent and impact of motor insurance fraudulent claims in Nigeria. By employing an explorative research design, conducting a comprehensive literature review, and providing empirical evidence, the paper contributes to the knowledge base of motor insurance fraud in the Nigerian context.

Paper 2: Analysis of Factors Responsible for Fraudulent Claims in Motor Insurance in Nigeria"

Research Methodology: The paper combines a literature review and primary data collection through surveys administered to insurance professionals in the Nigerian insurance industry. This methodology ensures a comprehensive understanding of the factors contributing to fraudulent claims in motor insurance businesses.

Literature Review: The paper conducts a thorough review of existing literature on the factors responsible for motor insurance fraud. It synthesizes and analyses previous studies conducted in Nigeria and other relevant contexts to identify the key factors contributing to fraudulent claims.

Theoretical Framework: The paper establishes a theoretical framework that integrates various factors influencing motor insurance fraud, including regulatory enforcement, public awareness, financial motivations, and socio-economic factors. This framework guides the analysis and interpretation of survey data.

Empirical Analysis: The paper presents the findings of surveys administered to insurance experts, exploring their perspectives on the factors contributing to fraudulent claims. The data analysis provides insights into the significance of different factors and their interplay in the Nigerian motor insurance industry.

Contributions: The paper contributes to the field by systematically acquiring and understanding the factors responsible for motor insurance fraud in Nigeria. By integrating theoretical frameworks, conducting a comprehensive literature review, and gathering empirical data, the paper adds to the body of knowledge on the drivers of fraudulent claims.

Paper 3: " Perception to Practice: Uncovering the Effectiveness of Anti-Fraud Strategies in Nigerian Motor Insurance Companies"

Research Methodology: The paper employs a theoretical analysis and draws on best practices from international jurisdictions to develop an anti-fraud framework specifically tailored to the Nigerian motor insurance industry. The methodology involves synthesizing existing literature and adapting global frameworks to the Nigerian context.

Literature Review: The paper conducts an extensive review of literature on fraud management in the insurance industry, examining anti-fraud frameworks and strategies employed in various countries. This literature review ensures that the proposed framework aligns with the latest practices at the forefront of fraud management.

Theoretical Framework: The paper examines the effectiveness of anti-fraud framework for the management of motor insurance fraud, integrating preventive, detective, and responsive measures. The framework incorporates insights from previous research on fraud prevention and detection, risk management, and collaboration among stakeholders (e.g., (Octavy, 2022, Tennyson and Salsas-Forn, 2002, Todorović et al., 2020, Zhang et al., 2019, CGMA, 2012, Gobet and Gürtler, 2017). By building upon existing theories and frameworks, the paper unveils the perceived effectiveness of the anti-fraud strategy framework within the Nigerian motor insurance industry.

Impact on academic discipline or professional practice

The research papers presented in this thesis have a significant impact on the academic discipline of motor insurance fraud and the professional practice of the Nigerian motor insurance industry. They contribute to the forefront of knowledge and practice in the following ways:

Advancement of Academic Discipline

The research papers provide a deeper understanding of motor insurance fraud in the Nigerian context, addressing a significant knowledge gap in the academic literature. The systematic acquisition of knowledge, rigorous methodologies, and comprehensive literature reviews contribute to the development of a solid theoretical foundation in the field of motor insurance fraud. By proposing theoretical frameworks and building upon existing theories, the papers contribute to the theoretical advancements in the discipline.

Enhancement of Professional Practice.

The research findings and proposed anti-fraud framework offer practical insights and actionable recommendations for the Nigerian motor insurance industry. The assessment of

the extent and impact of fraudulent claims provides insurers with valuable information to better allocate resources, improve risk assessment, and enhance underwriting processes. The analysis of factors contributing to fraudulent claims helps insurers identify vulnerabilities in their operations and develop targeted strategies to prevent and detect fraud. The proposed anti-fraud framework presents a comprehensive and context-specific approach to managing motor insurance fraud, enabling insurers and regulators to implement effective fraud prevention, detection, and response measures. The research papers also highlight the importance of collaboration between stakeholders, such as insurance companies, regulators, and law enforcement agencies, to combat motor insurance fraud effectively. Overall, the research papers in this thesis contribute to the advancement of the academic discipline of motor insurance fraud by expanding knowledge, developing theoretical frameworks, and employing rigorous research methodologies. They also have a direct impact on the professional practice of the Nigerian motor insurance industry by offering practical insights, recommendations, and an anti-fraud framework that can be implemented to improve fraud management processes.

Recognition and dissemination of research findings

The research papers in this thesis have the potential to make a significant impact beyond the confines of academia and professional practice. Recognizing and disseminating the research findings can contribute to wider awareness, policy development, and industry improvements:

Academic Recognition: The research papers, with their rigorous methodologies, theoretical frameworks, and empirical analyses, are suitable for publication in reputable academic journals. Publishing these papers will contribute to the academic discourse on motor insurance fraud, garner citations, and increase the visibility of the research within the academic community.

Conferences and Presentations: Presenting the research findings at relevant conferences and professional forums will enable the researchers to engage with peers, industry practitioners, policymakers, and other stakeholders. This will facilitate knowledge exchange, discussions, and potential collaborations in addressing motor insurance fraud.

Policy Engagement: The research findings can be shared with regulatory bodies, policymakers, and industry associations involved in motor insurance. These stakeholders can

benefit from the insights provided in the papers to develop evidence-based policies, regulations, and guidelines to combat fraud effectively. Engaging with these entities can contribute to shaping the policy landscape and fostering industry-wide improvements.

Industry Outreach*:* Insurance companies and industry associations can be engaged through workshops, seminars, and training sessions to disseminate the research findings. This can assist in raising awareness about motor insurance fraud, promoting best practices, and encouraging the adoption of anti-fraud measures.

Media Engagement*:* Collaborating with media outlets to raise awareness about the research findings and their implications can reach a broader audience. This can help educate the public about motor insurance fraud, its impact, and the importance of fraud prevention and detection.

Collaboration with Law Enforcement*:* The research findings can be shared with law enforcement agencies responsible for investigating and prosecuting motor insurance fraud. Establishing collaborations with these agencies can facilitate knowledge transfer, improve investigation processes, and contribute to more effective legal measures against fraudsters.

By actively recognizing and disseminating the research findings, the impact of the research can extend beyond academia and professional practice, leading to wider awareness, policy development, and industry improvements.

Hence, the research papers in this thesis have the potential for recognition and dissemination to extend their impact beyond academia and professional practice. Publishing in academic journals, presenting at conferences, engaging with policymakers and industry associations, collaborating with law enforcement, and leveraging media outreach can contribute to wider awareness, policy development, industry improvements, and public education about motor insurance fraud. By disseminating the research findings, the research can make a meaningful contribution to addressing motor insurance fraud in Nigeria.

Practical applications and industry adoption

The research papers in this thesis offer practical applications and recommendations that can be adopted by the Nigerian motor insurance industry to combat fraudulent claims effectively. These applications may lead to tangible improvements in fraud prevention, detection, and management. Key practical applications include:

Implementation of the Anti-Fraud Framework*:* The proposed anti-fraud framework in Paper 3 provides a comprehensive set of preventive, detective, and corrective measures tailored to the Nigerian motor insurance industry. Insurance companies can adopt and adapt this framework to enhance their existing fraud management systems, policies, and procedures (Kenneth et al., 2006).

Integration of Advanced Technology*:* The research findings highlight the importance of leveraging advanced technologies, such as data analytics, artificial intelligence, and machine learning, in combating motor insurance fraud. Insurers can invest in technology solutions and analytical tools to identify suspicious patterns, anomalies, and potential fraud indicators (Thomas, 2003, Thoralf et al., 2022).

Strengthened Regulatory Enforcement: The research emphasizes the significance of regulatory enforcement in deterring fraudulent activities. Regulators can collaborate with insurance companies to ensure compliance, establish stringent penalties for offenders, and conduct regular audits to monitor fraud prevention efforts.

Public Awareness Campaigns*:* The research findings emphasize the role of public awareness in combating motor insurance fraud. Insurance companies and industry associations can launch targeted campaigns to educate policyholders about fraud risks, prevention measures, and the importance of accurate information in insurance claims.

Continuous Training and Education*:* The research highlights the importance of training insurance professionals on fraud detection techniques, claim assessment, and legal aspects of fraud management. Continuous education programs can equip insurance professionals with the necessary skills and knowledge to effectively combat fraudulent claims.

By adopting the practical applications outlined in the present papers' research findings, the Nigerian motor insurance industry can strengthen its defences against motor insurance fraud and mitigate the impact of fraudulent claims.

Evaluation and continuous improvement

Implementing the recommendations and practical applications outlined in the research papers is just the beginning of an ongoing process. Evaluation and continuous improvement are crucial to ensure the effectiveness and relevance of the anti-fraud measures (Huther, 1999, Ezekiel, 2015, John et al., 2018) in the Nigerian motor insurance industry:

Monitoring and Evaluation*:* Establishing a system for monitoring and evaluating the implemented anti-fraud measures is essential (John et al., 2018). Regular assessments should be conducted to measure the impact of the implemented measures on fraud prevention, detection, and reduction, allowing for the identification of areas of improvement and guiding adjustments to the anti-fraud framework.

Industry Collaboration and Learning: Encouraging collaboration among insurance companies, industry associations, regulators, and law enforcement agencies is vital for sharing best practices and lessons learned (Ezekiel, 2015). Collaborative forums, workshops, and conferences can facilitate knowledge exchange, allowing industry stakeholders to learn from each other's experiences and adopt effective strategies (Gitau, 2018).

Feedback Mechanisms*:* Establishing feedback mechanisms with policyholders, insurance professionals, and other stakeholders can provide valuable insights on the effectiveness of the implemented measures (CIMA, 2009). Feedback can help identify potential gaps or areas requiring further attention, enabling industry stakeholders to refine their anti-fraud strategies.

Adaptive Measures*:* The landscape of motor insurance fraud is dynamic, with fraudsters constantly evolving their tactics (Inaya and Isito, 2016). It is crucial to adapt anti-fraud measures accordingly. Regularly reviewing and updating the anti-fraud framework, incorporating emerging technologies, and staying abreast of new fraud trends can enhance the industry's ability to combat evolving fraudulent activities (CGMA, 2012, Eusebio, 2017).

Research Collaboration*:* Encouraging further research collaboration among academia, industry practitioners, and policymakers can contribute to the continuous improvement of fraud management practices, addressing emerging challenges, evaluating the effectiveness of implemented measures, and identifying innovative approaches to combat motor insurance fraud (Ackermann and Chen, 2013).

By establishing a culture of evaluation, continuous learning, and adaptation, the Nigerian motor insurance industry can stay at the forefront of fraud management practices. Ongoing improvements based on feedback, collaboration, and research will ensure that the industry remains resilient against motor insurance fraud and maintains public trust (Amasiatu and Shah, 2018b, CGMA, 2012, Gobet and Gürtler, 2017).

Influence on policy and regulatory frameworks

The research papers in this thesis have the potential to influence policy and regulatory frameworks related to motor insurance fraud in Nigeria. The insights, recommendations, and proposed anti-fraud framework can guide policymakers and regulators in developing and implementing effective measures to combat fraud. Here are the key areas of influence:

Policy Development: The research papers provide insights into the extent and impact of fraudulent claims, contributing factors, and effective anti-fraud strategies. Policymakers can therefore utilize the research findings, including the proposed anti-fraud framework and recommendations, to develop evidence-based policies (CGMA, 2012) that address motor insurance fraud and inform the review and update of relevant laws and regulations.

Regulatory Enforcement: Regulators play a crucial role in ensuring compliance and enforcing anti-fraud measures. The research papers can inform regulators about the specific challenges associated with motor insurance fraud in Nigeria. This knowledge can guide them in enhancing regulatory enforcement mechanisms, conducting regular audits, and establishing penalties for non-compliance with anti-fraud regulations (Boyer, 2002).

Legislative Reforms: The research papers can inform legislative reforms aimed at strengthening legal measures against motor insurance fraud. Policymakers can consider the proposed anti-fraud framework and recommendations when reviewing and updating relevant laws and regulations (CGMA, 2012). This can include provisions for improved investigation processes, enhanced penalties for fraudsters, and streamlined cooperation between regulatory bodies and law enforcement agencies.

By incorporating the research findings into policy and regulatory frameworks, policymakers can establish a more robust and effective ecosystem for combating motor insurance fraud in Nigeria (Lachapelle et al., 2014). This can lead to improved industry practices, reduced

fraudulent activities, and increased confidence among insurers and policyholders (Aibieyi, 2007, CLEV, 2023).

In all, the research papers in this thesis have the potential to influence policy and regulatory frameworks related to motor insurance fraud in Nigeria. Policymakers can utilize the insights, recommendations, and proposed anti-fraud framework to develop evidence-based policies, strengthen regulatory enforcement, foster collaboration between stakeholders, raise public awareness, and introduce legislative reforms. By integrating these research findings into policy and regulatory initiatives, Nigeria can create a more resilient motor insurance industry with heightened protection against fraudulent activities.

Methodological approach of the research

Paper 1: "An Assessment of the Extent and Impact of Motor Insurance Fraudulent Claims in Nigeria"

The research aims to assess the extent and impact of motor insurance fraudulent claims in Nigeria. The study utilizes a quantitative approach to analyze the perceptions of insurance experts on motor insurance fraud in the Nigerian insurance industry. Data on experts' perceptions are collected from a representative of all insurance companies transacting motor insurance business in Nigeria. The primary data for the study consists of the perceptions of motor insurance fraudulent claims obtained directly from experts from all participating insurance companies in Nigeria. The secondary data such as relevant literature and research studies on motor insurance fraud, both in the Nigerian context and internationally, are reviewed to provide a broader understanding of the subject. The collected data are analyzed using statistical techniques to identify patterns and indicators of fraudulent claims in Nigeria. Prevalence rates of fraudulent claims are calculated, and the financial impact on insurance companies and policyholders is assessed.

Paper 2: "Analysis of Factors Responsible for Fraudulent Claims in Motor Insurance in Nigeria".

The objective of the paper is to analyze the root antecedents contributing to fraudulent claims in motor insurance in Nigeria. A comprehensive review of existing literature on motor

insurance fraud is conducted to identify the factors associated with fraudulent claims. Surveys are administered to insurance experts to gather their perspectives on the factors contributing to fraudulent claims in Nigeria. The survey responses are subjected to quantitative analysis to identify the root antecedents contributing to fraudulent claims in the Nigerian insurance industry. Descriptive statistics are used to summarize the survey data, providing an overview of the prevalence and impact of different factors.

Paper 3: " Perception to Practice: Uncovering the Effectiveness of Anti-Fraud Strategies in Nigerian Motor Insurance Companies".

This paper aims to unveil the effectiveness of anti-fraud strategies framework in Nigerian motor insurance companies. A comprehensive review of literature on fraud management, including anti-fraud frameworks and strategies employed in the insurance industry, is conducted. The adapted frameworks and theories are customized to align with the specific requirements and challenges of the Nigerian motor insurance industry. The primary data for this research paper consists of (i) survey on senior /responsible employees of motor insurance companies in Nigeria, and (ii) relevant literature on fraud management, including academic research articles, industry reports, and best practice guidelines. Secondary data are sourced from the *Gross Incurred Motor Insurance Claims* (i.e., Annual reports released by the National Insurance Commission (NAICOM), regulatory documents, policy guidelines, and case studies on fraud management in the insurance industry provide additional insights.

Ethical considerations

This thesis is grounded in a commitment to upholding the highest ethical standards throughout all stages of the research process. Recognizing the profound impact of our work on stakeholders within the Nigerian insurance industry and beyond, we pledge to conduct our research with integrity, transparency, and respect for ethical principles.

Central to our ethical framework is the principle of informed consent (Malardi, 2005, Amrita et al., 2017). We are committed to obtaining explicit and informed consent from all participants involved in our research, ensuring that they understand the purpose, procedures, and potential implications of their involvement. This includes survey participants, expert

interviewees, and any other individuals whose contributions are integral to the research process. We acknowledge the importance of respecting participants' autonomy and ensuring that their rights are protected throughout the research journey.

Furthermore, we are dedicated to safeguarding the privacy and confidentiality of all data collected and analyzed as part of this thesis. We recognize the sensitivity of information related to motor insurance fraud and the potential implications of its disclosure. Therefore, we employ rigorous data protection measures to prevent unauthorized access, use, or disclosure of participants' personal or sensitive information. This includes anonymizing data wherever possible and storing it securely in accordance with established data protection protocols.

In addition to ensuring participant welfare, we are committed to conducting our research in a manner that upholds academic integrity and intellectual honesty (Wcalvin, 2010, Alan, 2022). This entails accurately representing our findings, acknowledging the contributions of others, and avoiding plagiarism or any form of academic misconduct. We adhere to the highest standards of research ethics, following established guidelines and protocols set forth by the University of Southampton ethics policy and relevant regulatory bodies.

Throughout the research process, we strive to maintain open and transparent communication with all stakeholders, including participants, supervisors, colleagues, and the wider academic community. We welcome feedback, critique, and collaboration, recognizing the value of diverse perspectives in advancing knowledge and understanding.

Hence, this thesis is underpinned by a steadfast commitment to ethical conduct, guided by principles of integrity, transparency, respect for participant autonomy, and protection of privacy and confidentiality. By upholding these ethical standards, we aim to ensure the validity, reliability, and ethical integrity of our research, thereby contributing to the advancement of knowledge and the well-being of stakeholders within the Nigerian insurance industry and beyond.

Validation and verification

Verification and validation of the papers are crucial to ensuring the reliability and credibility of their findings (Ahmed, 2004, Weiguo and Libi, 2016). This section validates and verifies the findings in the research papers as follows:

Paper 1

Finding 1: **Nigerian insurance experts largely agree (about 94% of respondents) that there is a high level of fraud in the Nigerian motor insurance industry.** The validity of this finding is supported by the employment of a rigorous research design (i.e., survey), with a representative sample of Nigerian insurance experts. The study ensured proper data collection and analysis procedures, hence, lend credibility to the finding. Additionally, the extent of agreement among the respondents, 94%, suggests a strong consensus among the experts, further supporting the validity of the finding.

Finding 2: **Nigerian insurance experts perceive soft fraud to be about three times more common than hard fraud in the Nigerian motor insurance industry**. To strengthen the credibility of this finding, the study employed appropriate data collection techniques (i.e., survey), through a well-designed questionnaire, and the respondents were representative of the population of insurance experts in Nigeria. The comparison of three times more soft fraud than hard fraud indicates a substantial difference in perceived prevalence, which is supported by previous studies (˘Subelj et al., 2011, Lookman and Balasubramanian, 2013, ABI, 2021).

Finding 3: **Nigerian insurance experts strongly agree that there are problematic impacts from fraud on the solvency of Nigerian motor insurers**. By examining the specific survey questions, the analysis and interpretation of responses, and the sample size and representativeness of the experts, the credibility of the finding was validated. Also, the strong agreement among the experts indicates a consensus on the problematic impacts, lending credibility to the finding. Earlier study by Gour and Gupta (2012) (i.e., "…that the solvency of insurance companies is impacted by fraudulent activities in the insurance market") also validates the finding.

Paper 2

Finding 1: **The frequency of occurrence of perceived internal fraud, perceived external fraud, and perceived connivance fraud is practically the same in the Nigerian insurance industry**. To strengthen the validity of this finding, a comprehensive examination of the research methodology was employed: appropriate sampling techniques was utilised, data were collected from a diverse range of sources, and a robust statistical analysis were carried out. Also, the statement that the frequencies are "practically the same" suggests a similarity in occurrence rates due to on-going connivance fraud in the insurance industry.

Finding 2: **Perceived antecedents of motor insurance fraud are capable of influencing the perceived motor insurance fraud types (i.e., internal fraud, external fraud, and connivance fraud).** Verification of this finding was carried out by the employment of appropriate data collection techniques, such as surveys, and a rigorous statistical analysis method.

Finding 3: **Internal fraud controls are not effective/capable of moderating the relationship between the perceived antecedents of motor insurance fraud and perceived motor insurance fraud types in Nigeria**. By examining the data collection procedures, the analysis techniques used, and the consistency of the findings with existing literature, the validity of this finding was assessed. Also, the identified factors contributing to fraudulent claims in Nigeria was carried out by comparing survey responses with existing literature and conducting statistical analyses to determine their significance.

Paper 3

Finding 1: "**That the perceived effectiveness of anti-fraud strategies (i.e., preventive and detective) are not statistically significant in establishing a negative relationships with the gross incurred motor insurance claims**". To verify this finding, thorough scrutiny was applied to the research methodology, including the selection of appropriate sampling techniques and data collection methods. Additionally, robust statistical analyses were conducted to assess the significance of the perceived differences. The validation process involved comparing these findings with existing literature on fraud perception in the insurance sector, ensuring consistency and alignment with prior research.

Finding 2: **"That the joint perceived effectiveness of anti-fraud strategies does not correlate significantly with motor insurance gross claims in Nigeria**". Verification of this finding involved meticulous examination of the statistical analysis methods employed, ensuring their appropriateness for testing the relationship between perceived effectiveness and actual claims. Validation was achieved through comparisons with similar studies examining the efficacy of anti-fraud strategies in mitigating claims, thus corroborating the findings with existing empirical evidence.

Finding 3: **"That the internal control mechanisms do not moderate the relationship between anti-fraud strategies and gross claims".** To verify this finding, careful scrutiny was applied to the data collection procedures and statistical analyses to ensure their reliability and accuracy. Moreover, comparisons with prior research on organizational age and fraud management practices were conducted to validate the findings and establish their consistency with existing knowledge in the field.

Generalizability and transferability

Paper 1

The findings from Paper 1 provide insights into the extent and impact of motor insurance fraudulent claims in the Nigerian context. While the generalizability of these findings is influenced by specific contextual factors (Kari and Eero, 1995, Darlene, 1996) the transferability of the findings to other similar contexts can be examined. Additionally, theories such as routine activities theory, rational-choice theory, crime pattern theory, and the theory of fraud triangle contribute to understanding the findings and their potential applicability beyond Nigeria.

Generalizability

Agreement on High Level of Fraud: The finding that a significant majority of Nigerian insurance experts agree on the high level of fraud in the Nigerian motor insurance industry suggests a common perception within the industry. According to Mancini, 2009 and William, 2022, this finding may have generalizability to other countries or regions facing similar challenges in their motor insurance sectors, particularly those with comparable socio-

economic conditions, regulatory frameworks, and insurance practices (e.g., UK, South Africa, Ghana, Kenya, etc.).

Prevalence of Soft Fraud: The perception that soft fraud is more common than hard fraud in the Nigerian motor insurance industry may have implications beyond Nigeria. While the specific ratio may vary, the tendency for soft fraud to be more prevalent could be relevant in other regions with similar insurance market dynamics, claims processes, and motivations for fraud.

Impacts on Solvency: The strong agreement among Nigerian insurance experts regarding the problematic impacts of fraud on the solvency of motor insurers may have generalizability to other countries or regions. The financial consequences of fraud and its potential to affect the solvency of insurance companies are universal concerns in the industry, making this finding relevant beyond the Nigerian context.

Transferability

The paper1 findings' have potential for transferability to similar contexts and industries by considering the following:

Similar Insurance Industries: The finding that Nigerian insurance experts largely agree on the high level of fraud in the motor insurance industry can be transferable to other countries or regions with similar insurance industry characteristics (e.g., UK, South Africa, Ghana, Kenya, etc.). There is a likelihood that the high prevalence of fraud may also exist in these settings since they share comparable challenges, such as regulatory frameworks, market dynamics, and customer behaviours (Azevedo, 2017).

Fraud Types: The perception that soft fraud is more common than hard fraud in the Nigerian motor insurance industry may have transferability to other regions with similar insurance practices. If these regions experience comparable incentives and opportunities for fraud, it is reasonable to assume that soft fraud might be more prevalent than hard fraud there as well.

Impacts on Solvency: The strong agreement among Nigerian insurance experts regarding the problematic impacts of fraud on the solvency of motor insurers can be transferable to other countries or regions. Fraudulent activities can have significant financial consequences for

insurers, regardless of the specific market. Thus, the potential impact on solvency may resonate beyond the Nigerian context (Ozcan et al., 2022, Lyudmila and Eduard, 2022).

Adaptation and Contextual Considerations: While the findings may have transferability, it is crucial to consider adaptations and contextual variations. Factors such as regulatory frameworks, cultural norms, legal systems, and market dynamics can differ between contexts (Bishop et al., 2020). Researchers and practitioners should assess the alignment between their own context and the Nigerian findings, making appropriate adjustments to account for these variations.

Comparative Analysis: Conducting comparative analyses between the Nigerian motor insurance industry and other relevant contexts can help assess the transferability of the findings. By examining similarities and differences in industry practices, regulations, and fraud patterns, researchers and practitioners can determine the extent to which the findings align and can be applied in their own context (KPMG, 2014).

Paper 2

Generalizability

The findings of this study shed light on the factors responsible for fraudulent claims in the Nigerian motor insurance industry. While the study focused specifically on Nigeria, the generalizability of the study's results is as follow:

Industry Similarities: The frequency and types of fraud identified in this study may be applicable to motor insurance industries in other countries or regions with similar characteristics. For example, where the insurance practices, regulatory frameworks, and socio-economic conditions are comparable (e.g., UK, South Africa, Ghana, Kenya, etc.).

Conceptual Alignment: The findings of this study align conceptually with similar studies conducted in other countries or regions. These studies have identified common fraud types, such as internal, external, and connivance fraud, suggesting a universal nature of fraudulent activities in the motor insurance sector. The concept of antecedents or underlying factors contributing to fraud, such as economic conditions and weak regulatory frameworks, is also recognized across studies. The impact of fraud on solvency and the challenges of internal fraud controls are consistent themes. These conceptual alignments highlight the broader

relevance of managing and mitigating fraudulent claims in the global insurance industry and provide a foundation for cross-context discussions and the development of effective strategies.

Research Methodology: The potential generalizability of the findings stems a well-designed methodology, including appropriate sampling techniques and rigorous data collection and analysis methods.

Transferability

While the generalizability of the findings may be limited, they can still be transferable to other similar contexts. Transferability refers to the applicability of findings in different but conceptually related situations (Ed et al., 2011). The transferability of the findings is considered as follows:

Comparative Analysis: Conducting comparative analyses between the Nigerian motor insurance industry and other relevant contexts can help assess the transferability of the findings (Ernest, 2016). By examining similarities and differences in industry practices, regulations, and fraud patterns, researchers and practitioners can determine the extent to which the findings can be applied in their own context (Ernest, 2016, Ed et al., 2011).

Theoretical Contributions: The theoretical insights generated by this study, such as the influence of antecedents on different fraud types, can have transferability across contexts (e.g., UK, South Africa, Ghana, Kenya, etc.). These theoretical frameworks can be used as a basis for further research and exploration in other regions or industries facing similar challenges related to motor insurance fraud.

Adaptation and Modification: While the findings may not directly translate to other contexts, they can serve as a foundation for adapting and modifying existing strategies or developing new approaches to address motor insurance fraud. By considering the unique characteristics of their own context, researchers and practitioners can tailor the findings to suit their specific needs (Ernest, 2016, Ed et al., 2011).

Paper 3

The generalizability and transferability of the findings presented in this paper are crucial for understanding their broader implications beyond the specific context of the Nigerian motor insurance industry.

Generalizability

Perceived Effectiveness and Claims Relationship: The result indicating that the perceived effectiveness of anti-fraud strategies (i.e., preventive and detective strategies except responsive strategy) was not significantly related to motor insurance gross claims in Nigeria underscores a potential lack of correlation between perception and reality in fraud management. While this finding is based on the Nigerian context, it raises questions about the effectiveness of anti-fraud strategies in insurance industries globally. Similar patterns may be observed in other countries facing comparable challenges in fraud detection and prevention.

Internal Control Mechanisms and Anti-Fraud Strategies: The finding that the internal control mechanisms of an insurance company are not significant in moderating relationship between anti-fraud strategies and gross claims suggests that the efficacy of these strategies may not be influenced by internal control. While this conclusion is specific to Nigerian motor insurance companies, it prompts further inquiry into whether similar dynamics exist in insurance sectors worldwide, regardless of company age or maturity.

Transferability

Comparative Analysis: Researchers and practitioners can conduct comparative analyses between the Nigerian motor insurance industry and similar sectors in other countries to assess the transferability of the findings. By comparing regulatory frameworks, market structures, and fraud management practices, stakeholders can determine the extent to which the findings apply to different contexts.

Theoretical Contributions: The theoretical insights generated by the study, such as the disconnect between perceived effectiveness and actual claims reduction, have transferability across contexts. These insights can inform discussions and research in insurance industries globally, guiding the development of more effective anti-fraud strategies and risk management approaches.

Adaptation and Modification: While the findings may be specific to the Nigerian motor insurance industry, they can be adapted and modified to suit other contexts with similar challenges. By considering the underlying principles and factors identified in the study, stakeholders can tailor the findings to address fraud prevention needs in their respective insurance sectors.

Hence, the generalizability and transferability of the findings suggest broader implications for insurance industries beyond Nigeria (Ernest, 2016, Ed et al., 2011). By exploring these aspects, stakeholders can leverage the insights gained to enhance fraud prevention measures and risk management strategies in diverse global contexts.

Foundation to the problem

Insurance businesses are ordinarily expected to be underwritten or managed profitably to enhance shareholders' wealth. However, studies have shown that risks of varying degrees (i.e., liquidity, financial, operational, fraud, underwriting, claims, etc.) could hinder the expectations of the shareholders (Baluch et al., 2011, Burca and Batrinca, 2014). To ensure that these risks are identified, analysed, and controlled, effective risk management is essential. It was in this in mind that in 2012 the National Insurance Commission (NAICOM) issued risk management guidelines to be followed by all registered insurance companies in Nigeria. However, studies have shown that since the beginning of insurance practice, one major risk that has consistently threatened the performance (underwriting results) of insurance businesses is fraud (Bashir et al., 2013, Akomea-Frimpong et al., 2016, Hoyt, 1990). Hence, there is a need to embrace fraud risk management framework in insurance business. This doctoral research addresses this important topic by providing "an empirical evaluation of existing fraud risk management in Nigerian insurance businesses". The research is primarily aimed at evaluating fraud risk management practices in motor insurance businesses in Nigeria. One motivation for this line of research is that the Nigerian motor insurance sector has often had the highest number of recorded reported claims (Market statistical publication, 2014-2018) and motor insurance is the most commonly purchased policy type in Nigeria. This thesis follows the research paper route and will present three papers under the following headings:

- **Paper one** (Chapter two)
  An assessment of experts' risk perceptions of motor insurance fraud in Nigeria.
- **Paper two** (Chapter three)
  Analysis of factors responsible for motor insurance fraud in Nigeria.
- **Paper three** (Chapter four)
  Perception to Practice: Uncovering the Effectiveness of Anti-Fraud Strategies in Nigerian Motor Insurance Companies

In consideration of the above-mentioned papers, the overarching relationship between the three themes will be discussed in order to evaluate the efficacy of the existing fraud risk management practices in motor insurance business in Nigeria.

Chapter Two

An assessment of experts' risk perceptions of motor insurance fraud in Nigeria

Abstract

In recent times, Nigerian motor insurers have experienced a high volume of pay-outs for motor insurance claims. This has significantly decreased the net premium income of the Nigerian insurance market, which has become a major concern for their stakeholders. Anecdotal evidence (e.g., ongoing debates among industry practitioners) suggests that numerous pay-outs are for fraudulent claims and that the prevalence of fraud is due to poor practices within the Nigerian motor insurance industry. However, there has not yet been an empirical assessment of the antecedents, extent, and impact of motor insurance fraud in this market. Therefore, we conducted a study that examined fraud risks in motor insurance claims as perceived by experts in the Nigerian insurance industry. A questionnaire was designed and distributed to a representative selection of professionally qualified insurance experts in Nigeria (N=120). The study found that Nigerian insurance experts (i) largely agree (about 94% of respondents) that there is a problematic level of fraud in the Nigerian motor insurance industry; (ii) perceive soft fraud (i.e., exaggeration of genuine losses during a claim process) to be about three times more common than hard fraud (i.e., deliberately creating a loss event that never existed) in the Nigerian motor insurance industry, and (iii) strongly agree that there are problematic impacts from fraud on the solvency of the Nigerian motor insurers. This study provides a comprehensive understanding of the existence, extent, and impact of fraud risks within the Nigerian insurance market based on expert knowledge and insights rather than, as has often been the case, on individual anecdotes.

Keywords: Claims, Fraud, Net Premium Income, Motor insurance, Risk perceptions.

1.1. Introduction

Being one of the compulsory insurance policies in Nigeria, motor insurance (also known as auto insurance) has made popular the practice of insurance in the country. Vehicle owners, users and dealers are expected to have, and be aware of the existence of one form of motor insurance policies or the other by virtue of its compulsory nature. Hence, it is of high popularity amidst of all other insurance products in Nigeria. The increased popularity of motor insurance policy in Nigeria had been beneficial to the motor insurers and entire insurance industry in terms of gross premium income and contribution to Gross Domestic Product (GDP) respectively (Ntiedo and Emem, 2016, Oke, 2012). In recent times however, the Nigerian motor insurers have experienced high volume of motor insurance claim pay-outs (Market statistical publication, 2014-2018) and insignificant contribution to the gross premium income of the Nigerian market (Soye and Momoh, 2021), which has been a major concern for the shareholders/stakeholders. It has been argued that there are many factors that have brought about the recent increase in motor insurance claims (Soye and Momoh, 2021, Adesina et al., 2018). However, anecdotal evidence (ongoing debates among industry practitioners) suggests prevalence of fraud due to poor practices in motor insurance business. This study is therefore aimed to carry out an assessment of fraud in motor insurance claims as perceived by experts in the Nigerian insurance market. Although, few studies have been carried out on motor insurance fraud, none is yet to assess the level of fraud in motor insurance claims using experts' judgements. According to Yusuf and Babalola (2009), neither the industry nor the Nigerian government currently record accurate data on insurance fraud. This is why we have to rely on experts' judgements.

1.1.1 Importance of the present study

Studies have shown that the global impact of insurance fraud is highly devastating on the entire insurance industry (Akomea-Frimpong et al., 2016, Bashir et al., 2013, Hoyt, 1990, Gour and Gupta, 2012, Yusuf and Babalola, 2009) and given that motor insurance is the most popular insurance product in Nigeria (Ajemunigbohun and Oreshile, 2014), the level of fraud in this context must be assessed. More so, studies on insurance fraud within the Nigerian context have not been comprehensive due to lack of reliable data (Yusuf and Babalola, 2009).

To address this issue, this study assesses, through experts' opinions, the level of fraud in motor insurance claims and its impacts on insurers' solvency in Nigeria.

1.1.2. Purpose and objectives of study

The purpose of this study is to carry out an assessment of fraud in motor insurance claims as perceived by experts in the Nigerian insurance market. The specific objectives are to assess (i) the extent to which experts perceive there to be a problematic level of fraud in the Nigerian motor insurance industry; (ii) experts' perceptions of the proportion of motor insurance claims that constitute soft and hard fraud; (iii) the extent to which experts perceive problematic impacts from fraud on the solvency of the Nigerian motor insurers.

1.2. Literature Review

1.2.1 Insurance, fraud, motor insurance, and insurance fraud

According to Michael Clarke (1989), insurance is defined as: "… a civil contract whereby the insurer undertakes to cover specified risks incurred by the insured and to pay out on agreed terms to compensate for losses incurred under those risks". The contract in which one party (insured) having paid certain amount of money, obtains benefits or compensation for unfortunate event from the other party (insurer) is insurance (Lookman and Balasubramanian, 2013). Insurance as a contract, is being governed under the principle of utmost good faith – that parties are expected to disclose all necessary facts about the proposed risk and policy being offered; and it usually arises out of curiosity in managing people's risks (Michael Clarke, 1989).

Cambridge dictionary defines fraud as "the crime of getting money by deceiving people". Fraud is yet to be in its maturity stage (not yet attained a significant recognition) because it is still not as popular as theft (Page, 2007). Fraud is born with human beings, and most individuals, organizations and government's parastatals are always on the lookout for ways in managing the risk of fraud they are exposed to (Pavel Pešout and Andrle, 2011).

Motor insurance also be known as car insurance, vehicle insurance or automobile insurance, is an insurance policy meant to provide cover for all categories of vehicles (cars, trucks,

ambulance, etc.,) that ply the road (Epetimehin and Akinselure, 2016). It is an insurance policy purchased to protect the owner of the vehicle, the vehicle and other road users in case of any eventuality (nidirect, 2021). Motor insurance is a necessity for all vehicle owners (Murcko, 2013); failure of which (being neglected) could make the vehicle owners involve in an unexpected loss in monetary terms (Soye and Momoh, 2021).

From the aforementioned, three circumstances must be established to establish insurance fraud: "(i) material misrepresentation (in the form of concealment, falsification or lie), (ii) intent to deceive, and (iii) aim of gaining an unauthorized benefit" (Viaene and Dedene, 2004b). An insurance claim is not fraudulent until – (i) the claimant accepts admission of fraud and (ii) the insurer repudiates or refuses to make payment on such claim (Derrig, 2002b). Insurance fraud may be committed by anyone trying to make claims under the insurance contract (Insurance Europe, 2013). It can take different forms ranging from the nature to source of the fraud (Lesch and Byars, 2008). In motor insurance however, there are two major types of insurance fraud: the soft fraud and hard fraud. Soft fraud is the most common type of motor insurance fraud and it occurs opportunistically through the exaggeration - of genuine losses during a claim process (i.e., the claimant files more than one claim on a single loss, the exaggeration of repairs estimates, cost of replacement parts, etc.)(Lookman and Balasubramanian, 2013). Fraudsters considered it easy to commit, difficult to detect and not being considered as a serious crime (ABI, 2021). It is also argued that soft frauds are not planned but are committed while genuine claim is being pursued. Some of its perpetrators are not aware that they are committing fraud as they believe it is justifiable against large deductible/excess from insurer (˘Subelj et al., 2011). By contrast, hard fraud involves deliberately creating a loss event in order to make gains from insurance contract (Lookman and Balasubramanian, 2013). International Association of Insurance Supervisors ((IAIS), 2007) identified three categories of hard insurance fraud – internal fraud, policyholder fraud/claims fraud and intermediary fraud. The internal fraud is being perpetrated by staff of insurance companies against their employers, policyholder/claim fraud is committed by policyholders against their insurers while intermediary fraud is being perpetrated by insurance brokers and/or agents against the insurance companies mostly in connivance with policyholders. Insurance fraud is considered a major concern to the global insurance market as billions of dollars are being lost to it on yearly basis (ABI, 2021, Yusuf and Babalola, 2009). For this reason, some parts of the Italian market had stopped accepting insurance covers beyond the minimum legal requirement (third party liability cover). In the

United states, funds are being sourced from insurers' other portfolios to tackle the risk of insurance fraud threatening the solvency of insurance companies (Dixon, 2007). Thus, the first research question is raised to establish, if any, the problematic level of fraud in the Nigerian motor insurance industry in order to (i) have an empirical justification, if any, that fraud exists and in some problematic level; and (ii) justify the extent of controls to be put in place by motor insurers:

> *To what extent do experts perceived there to be a problematic level of fraud in the Nigerian motor insurance industry?*

According to InsuranceResearchCouncil (2015), hard and soft frauds constitute up to 17% of claims payments made under motor insurance coverages in USA in 2012. With this, we are motivated to explore the finding within the Nigerian context using experts' judgements (due to lack of data) in order to – (i) have a preliminary understanding of the proportions (if any) of soft and hard fraud in motor claims in Nigeria; and (ii) if any, inform the Nigerian motor insurers of the seriousness of the state -of-affair and the need to employ best control strategies. Hence, our second research requestion is posed as stated below:

> *What are experts' perceptions of the proportion of motor insurance claims that constitute soft and hard fraud in Nigeria?*

1.2.2 Impact of insurance fraud

Bashir et al. (2013) confirmed that insurance fraud has a significant impact on insurance providers and insured public. Bashir et al. also observed that the "*the average household pays higher insurance premiums to cover the cost of fraud; the prices of consumer goods rise as businesses are paying higher premiums due to increased cost of insurance claims; cost of motor insurance rises due to fraudulent accident claims; innocent insureds are scrutinized more carefully and may incur longer periods to settle claims while under investigation".* However, they observed the following instances to show how insurance providers could be impacted by insurance fraud: "e*very dollar that is spent on insurance fraud directly impacts the profitability for the company as claim costs rise; insurance companies incur increased human resource costs by employing fraud units to Investigate claims; insurance companies that do not effectively prevent fraud may lose; insurance companies also lose investment income when a fraudulent claim is filed, as they need to make reserves for the filed claims".*

More specifically, Akomea-Frimpong et al. (2016) found out that insurance fraud has an adverse effect on the return on assets of insurance providers in Ghana. They argued that this was, however, due to: (i) losing control over their internal affairs; (ii)an inability to remunerate well and/or pay employees as-and-when due; (iii) the policyholders motive to make a gain from the insurance contracts; and (iv) a failure to train their autonomous intermediaries (insurance agents and/or brokers that sell insurance products of more than one insurers) as-and-when due. Hoyt (1990) noted that the United States Chamber of Commerce had estimated 10% of claims submitted to insurance companies constitute fraud. Hoyt noted that about 25% of insurance premium income is being used to manage the cost of fraud in United States, where up to $40 billion is being lost to insurance fraud annually. The Association of British Insurers (ABI, 2020) noted that in the year 2016, 125,000 fraudulent claims were uncovered in the U.K. costing £1.3 billion, and this is estimated to go undetected in every other year; while about £200 million is being set aside by British insurers to investigate fraudulent claims on yearly basis. The ABI also observed that costs of fraudulent claims and /or investigating fraudulent claims in the insurance market are being passed to society (including honest policyholders) in the form of a higher rate of premium. Moreover, in their study of "solvency margin in Indian insurance companies", Gour and Gupta (2012) observed that the solvency of insurance companies is usually impacted by fraudulent activities in the market. This has therefore informed our current study to raise another research question in order to explore, via experts' opinions (due to lack of actual statistical data), how fraudulent practices in motor insurance contract has impacted on the solvency of the Nigerian insurance companies:

> *To what extent do experts perceive problematic impacts from fraud on the solvency of the Nigerian motor insurers?*

1.2.3. Evolution of insurance in Nigeria

The evolution of insurance in Nigeria can be traced back to the emergence of British trading companies in the 20th century (Boma, 2019). This trading brought about an increase in economic activities in Nigeria whereby regions started to relate with one another in a more business-like manner. The risks that result from these trading activities were being protected by the British traders locally, in the first instance, and internationally, in the form of risk

transfer mechanism using insurance. The British merchants were fronting foreign insurance firms in Nigeria by way of agency licensing that enables them to provide cover and manage reported claims. In 1918 however, Royal Exchange Agency was formed among other agencies in Africa while in 1921, the foremost insurance company in Nigeria emerged (insure, 2021). Although, some sorts of informal indigenous practice of managing risks among Nigerian traders existed before the arrival of the British merchants and they include: isusu, akawo, family system, and others. It took about 28 years from when the first indigenous company was formed to form three other indigenous insurance companies (Norwich Union Fire Insurance Society, now Guinea Insurance Company; the Tobacco Insurance company and the Legal and General Assurance society limited) in Nigeria after the establishment of Royal exchange insurance company (Boma, 2019). Between 1921 and 1949, the second world war II really affected the growth rate of insurance in Nigeria and UK (Oke, 2012); but the business started to grow when Motor Third Party Insurance was made compulsory in 1940, and afterwards, insurance contribution towards the nation's GDP became significant (Boma, 2019). According to Oke (2012), the major landmark in the Nigeria insurance industry occurred when the National Insurance Commission (NAICOM – established in 1997) took control of NICON (the biggest insurance company in Nigeria as at then); the powers and roles of NAICOM are explicitly contained in the Insurance Act 2003. This Act started the foremost recapitalization exercise in Nigeria which ended in February 2004, leaving the then insurance companies' minimum capital base to be reviewed upward to about 650% of their existing value (Oke, 2012). Yet, the number of insurance companies and reinsurance firms still stood at 107 with less efficiency and performance, hence, the need for 2005 recapitalization exercise that ended in February 2007; leaving the number of insurance companies to 49 and reinsurers to 2 after merger and acquisition. In recent times, efforts have been made by the national insurance commission to move the industry to risk-based capitalization from the existing minimum capital-based approach. More specifically, in 2018, general insurers minimum paid-up capital now stood at NGN10bn from NGN3bn, life insurers minimum paid-up capital now stood at NGN8bn ($20.2m) from NGN2bn, while reinsurers minimum paid-up capital now stood at NGN20bn from NGN10bn; to take effect from 20 May 2019 but due to stakeholders' feedbacks and Covid-19 pandemic, it is now being suspended till further notice (MEIR, 2021).

1.2.4. Theoretical review

The present study is guided by various crime theories. In his work on – "rational swindlers avoid crime when risk not worth the reward", Skiba (2015) posited that crime theory is relevant in determining the motivating factors for criminals as well as what discourage them. The crime theories relevant to insurance fraud are mostly derived from the school of environmental criminology: routine activities theory, rational-choice theory, crime pattern theory and the theory of fraud triangle.

Routine activities theory was propounded in 1979 by Lawrence Cohen and Marcus Felson. It describes how the societal factors influence the routine activities of the people in society, and how the people's routine activities influence the variation in crime at a particular point in time (Blackwell, 2016).This theory asserts three conditions that must exist for crime to take place – crime target (victim), motivated offender and reliable guardians. In his work, (Skiba, 2015) applied this theory to insurance fraud. Skiba could relate the targets to insurance fraud victims (insured and/or insurer); the motivated offender to potential insurance fraudster and the guardians, those involving in connivance activity (aiding in the perpetration) with the motivated offender (i.e. the insurance brokers, agents, insurer's personnel, etc.).

In his handbook of criminological theory, Blackwell (2016) observed that Rational-choice theory was credited to Clarke and Cornish in 1985 being the first detailed analysis of the theory. This theory proposes that crime is a choice and the criminal's choice of the crime is rational. In essence, the choice of a crime is based on the cost-benefit analysis carried out by the criminal. In its application to insurance, Skiba (2015) opined that organizations should have systems that make crimes difficult to commit and ensure criminals have slim choices to commit crimes.

According to (Brantingham and Brantingham, 1981), crime pattern theory rules that crime does not occur randomly but is the result of the intersection of the routes (paths) of the potential offenders and targets. According to Blackwell (2016), in crime pattern theory, coming together of potential offenders in order to identify or locate probable opportunities for fraud is part of their routine criminal activities. More specifically, insurance fraud could only be committed by parties to an insurance contract (either the buyer or seller or agent of insurance product). It follows that someone who never bought an insurance policy will not be able to defraud or being defrauded of such policy.

In 1950, while investigating what motivates people to commit fraud, Donald Cressey postulated the fraud triangle theory. In his work titled - "The criminal violation of financial trust", he argued that:

> *"Trust violators when they conceive of themselves as having a financial problem which is non-shareable, have knowledge or awareness that this problem can be secretly resolved by violation of the position of financial trust, and are able to apply to their own conduct in that situation verbalisations which enable them to adjust their conceptions of themselves as trusted persons with their conceptions of themselves as users of the entrusted funds or property".*

From the above conclusion, Cressey deduced the three main factors that suggest why people commit fraud, namely: non-shareable financial pressure, opportunity, and rationalization. Financial pressure arises from when potential offenders have need for money to pay bills; being in position that triggers fraud to be committed is opportunity; while justifying the reasons why the fraud is being committed is rationalization (Cressey, 1950). In insurance fraud, rationalization could include among other factors – an increase in premium payment and deduction of policy excess. Opportunity could include the option for insurance personnel in claims unit to manipulate data (connivance of fraud) or having the chance to exaggerate a genuine claim (soft fraud). Financial pressures could arise from circumstances such as the need of a policyholder to pay outstanding premium or the need to meet other personal commitments such as paying accommodation rent, or school fees.

Hence, it can be deduced from the routine-activities theory and fraud triangle that three conditions are typically necessary for fraud to take place. While routine-activities theory places a primary emphasis on human participation in fraud, fraud triangle theory hinges on external factors influencing human participation in fraud. Rational choice theory is indirectly inculcated in the fraud triangle (rationalization, i.e., weighing the cost-benefit of committing a fraud will justify its commitment). Hence, the combination of routine-activities theory and fraud triangle appears most relevant to this current study for two main reasons. First, both identify human participation in insurance fraud (i.e., insurance fraud perpetrators, insurance fraud connivers and victims of insurance fraud). Second, they draw attention to the importance of identifying key motivating factors for human participation in insurance fraud.

1.2.5. Earlier studies

In their study, Salaton et al. (2019a) aimed to investigate the influence of macroeconomic factors, institutional factors and individual factors on motor insurance fraud risks among Insurance Companies in Kenya using descriptive research design. The results of the findings show that macroeconomic (i.e., high interest rate, inflation, and high cost of living) and individual factors (i.e., perceived economic gain, greed, etc.,) have significant influence on motor insurance fraud risks while institutional factors (i.e., connivance between policyholders and staff of insurance companies, failure to carry out due diligence at the policy inception period, etc) do not have significant impact on motor insurance fraud risks. Also, the findings from study conducted by Zanghieri (2017a), using econometric analysis, showed that economic conditions, contract terms and social capital are three major drivers of insurance fraud. However, Salaton et al. (2019a) study fails to provide reasons why institutional factors are not statistically significant in influencing motor insurance fraud risks. We hereby suggest expanding the sample size since 28 insurance firms (population) are large enough to provide up to 3 times the sample used in the study. Hence, complete representativeness can be achieved with reliable findings.

In order to investigate the magnitude of the problem and methods to prevent and control fraud in motor insurance in India, a conceptual review approach was adopted by Bashir et al. (2013). The study found that about 40% of motor insurance frauds are caused by vehicles that are not covered (i.e., through 'hit'- and - 'run' incidents involving uninsured drivers) and that the negative economic impact (in terms of cost or frequency of claims) of motor insurance fraud is not expected to reduce in the nearest future. Bashir et al. (2013) suggested a - "centrally administered mechanism" (i.e., where a there is a central point for sharing of data on insurance fraud in the industry for controlling purposes) - to combat the menace of fraud in motor insurance contracts.

Yusof and Razak (2018) carried out a study that examined the relationship between customers' individual attitudes and subjective norms on intention to commit motor insurance fraud. The study data were analysed using correlation and regression statistic within the context of Selangor, Malaysia. The findings showed that individual attitudes and subjective norms are two main factors indicating why people commit fraud. They argued that individual attitudes of policyholders to third parties fronting for the insurers (insurance agents, motor workshop, etc.,) will affect commission of fraud if the customer's attitude is positive and vice

versa. In this case, positive attitude towards third parties discourages commission of fraud while negative attitude encourages its commission. The subjective norm at the other side is the societal pressure influencing the need to commit fraud by the policyholders. The result of this study is although confirmed from the research of Salaton et al. (2019a) – where individual factors (i.e., perceived economic gain, greed, etc.,) have significant influence in commission of motor insurance fraud. However, this study failed to explain the relationship between the two factors – individual attitude and subjective norms - in relation to the commission of motor insurance fraud.

In order to gain an understanding of the offence and the offenders involved in motor theft fraud (i.e., fraudulent activities with regards to motor theft claims), Herzog (2002) found that Motor vehicle theft (MVT) increased in 1990s compared with other offences in Israel and other developed countries and caused by increased professionalism in MV thieves. Herzog's work is related to this current study since one of the eight mentioned topologies in the study is insurance fraud. Hence, it can be deduced that increasing skill or proficiency of the perpetrators has called for the need to check for fraud element in MVT.

Yuriy and Tatiana (2019) conducted a study using qualitative analysis to examine the current trends in the insurance industry in Russia with focus on fraud prevention. The researchers relied on experts' opinions (due to the sensitivity of the issue, and the level of expertise required in tackling such issue) and found that: legislative loopholes and a failure to work with the police were the main reasons why fraud prevention failed to be efficient in Russian insurance market. They also found that fraudulent motor insurance claims were common in compulsory third party liability motor insurance in Russia. In order to manage these problems, Yuriy and Tatiana (2009) suggested cooperation with police and other related governmental agencies or institutions, the use of big data analysis tool and developing insurance history bureau to combat insurance fraud. We actually agree with these recommendations - as a pro-active control strategy in managing motor fraud risks.

In a nutshell, this study had been able to review different literature relevant to achieve its objectives and most importantly, three research questions were developed from the reviewed literature. Although, most of the literature reviewed in the present study centred on insurance fraud yet, the following gaps were discovered, justifying the need for this research:

First, some of the related literature reviewed centred on factors influencing motor insurance fraud and customers intention to insurance fraud, but none assessed the extent of fraud in motor insurance claims within different contexts of their studies. Second, all related studies reviewed in this study used both primary and secondary data (due to their availability) collected from different sources to report their findings. However, none of them solely relied on insurance experts' opinions. This is of particular important due to lack of empirical data. Third, although very few studies were carried out on insurance fraud within the Nigerian context, the few studies that had been conducted did not determine, due to lack of official data, the state of affairs with regard to the existence, extent, and impact of fraud in motor insurance claims. Yet, for the first time, this study tries to assess the state of affairs with regards to motor insurance claims fraud in Nigeria by relying on experts' judgements.

1.2.6 Restatement of research questions (RQ)

i. RQ1- To what extent do experts perceived there to be a problematic level of fraud in the Nigerian motor insurance industry?
ii. RQ2 -What are experts' perceptions of the proportion of motor insurance claims that constitute soft and hard fraud?
iii. RQ3 - To what extent do experts perceived there to be problematic impacts from fraud on the solvency of the Nigerian motor insurance industry?

1.3. Methodology

1.3.1. Evaluation of research approaches and strategy

This section aims to critically evaluate the research approaches, philosophical assumptions, and strategies relevant to this study in order to inform the researcher on the best way to address the research questions posed in this research. Research approach is described as the sum total of all activities involved from when a researcher starts to make a philosophical assumptions about their study, to providing a suitable research method, for finding how data will be collected, analysed and interpreted in order to provide a reliable answer to the research question (s) (Creswell, 2014b). In his book titled: "Research design: qualitative, quantitative, and mixed methods approach", Creswell identified three approaches to research

study, namely – quantitative, qualitative, and mixed research approach. Literarily, while quantitative approach deals with numbers, qualitative deals with words and mixed approach combines the use of numbers and words. Creswell argued that quantitative research approach is deductive in nature while qualitative approach is inductive because quantitative approach involves investigation of concepts or beliefs by examining the relationship among dependent and independent variables that are capable of being measured, analysed, and interpreted. In qualitative approach, researcher tries to understand how individuals see things in his environment, explore it, and assign meaning based on the researcher's judgement. The mixed approach is a kind of investigation that involves gathering both quantitative and qualitative data, combining the two types of data, and employing different designs that may include philosophical assumptions and theoretical frameworks. The centre idea of this frame of inquiry is that the combination of subjective (qualitative) and quantitative approaches gives a more complete understanding of the issue being investigated than either approach alone (Creswell, 2014b). Meanwhile, Saunders et al. (2015) suggested the two wide approaches to research as the deductive and inductive. Deductive approach works from the more generalized perception or theory to the more particular, meaning that it begins with a hypothesis, and after those theories are created, then an investigative technique is planned to test the theories. But inductive approach moves from a particular perception to broader generalizations and hypotheses, meaning hypotheses are created from the information collected.

Despite the fact that philosophical thoughts stay generally covered in research, they are still quite relevant and needed to be included in research (Slife and Williams, 1995). In their book titled –"Research methods for business students", Saunders et al. (2009) defined research philosophy as – "the development of knowledge and the nature of knowledge". In the 2015 edition of their book, research philosophy is described as a combination of "beliefs" and "assumptions" about knowledge (Saunders et al., 2015). While the four widely used research philosophical assumptions were identified by Creswell (2014b), namely – post-positivism, constructivism, transformative, and pragmatism; but Saunders et al. (2015) identified five research philosophies in use - positivism, critical realism, interpretivism, postmodernism, and pragmatism. However, to distinguish between the identified philosophies, Saunders et al. suggested three assumptions to justify their uniqueness – ontology, epistemology, and axiology. While ontology deals with the nature of reality, epistemology deals with knowledge and how it is being validated and considered acceptable; axiology addresses values and

ethical issues in the ordinarily course of research process (Saunders et al., 2015). According to Krauss (2005), technical relationship exists between ontology, epistemology and methodology. Krauss argued that ontology addresses reality of nature while epistemology shows how the reality comes to being through knowledge, and methodology explains how researchers came about the knowledge -usually through some conscious practices. But Meyer (2020) identified two ways in which research methods could be distinguished. First, based on whether it is qualitative or quantitative and second, based on relevant philosophical assumptions – ontology, epistemology, and axiology. With reference to the research philosophies earlier identified by Creswell (2014) and Saunders et.al (2015), post-positivist denotes the conventional style of research, and these assumptions hold genuine more for quantitative research than the subjective inquiry (qualitative). This worldview or paradigm is sometimes called the logical strategy or doing scientific research. Post-positivists are concerned with establishing relationship between causes and effects. They opined that "there are laws or theories that govern the world, and these need to be tested or verified and refined so that we can understand the world" (Creswell, 2014b). Constructivism or interpretivism relates to qualitative approach to research unlike post-positivism which is quantitatively based. They assume that people look for understanding of the world in which they find themselves and create subjective implications of their experiences. The researcher aims to depend as much as conceivable on the participants' views of the circumstances being considered. the more open-ended the questions, the way better, as the researcher tunes in carefully to what people say or do in their life setting (Creswell, 2014b). The transformative paradigm stems from "people who thought that post-positivist position compelled basic laws and theories that did not fit marginalised individuals in our society, or issues of control and social fairness, separation, and persecution that needed to be addressed, developed this perspective in the 1980s and 1990s" (Creswell, 2014b). The pragmatic view "arises out of actions, situations, and consequences rather than antecedent conditions as in Post-positivists" Creswell (2014). Creswell argued further that: pragmatic view relates to mixed research, there is freedom of choice to researchers, researchers decide what and how to research based on circumstances and, research works well in any situation be it social, historical, etc. In terms of typical methods however, Saunders et al. (2015) show that positivism is deductively structured with large sample size while data collection, analysis, and interpretation can be done quantitatively; critical realism accommodates range of data types and methods; interpretivism is inductively structured with small sample size -to enhance in-depth study or

investigation and also suits range of data types; postmodernism favours range of data types with qualitative analysis, in-depth investigation and de-constructively structured.

It is paramount that researchers choose appropriate research strategy to ensure that the research questions are provided with suitable answers (Walshe et al., 2004). Research strategy is described as the technique being adopted by researchers in carrying out their research works (Saunders et al., 2009, Creswell, 2014b). Research strategies are applicable to quantitative and qualitative research. In quantitative research, the main strategies in use are experimental, survey and case study research strategies (Saunders et al., 2009). The survey strategy is popular among business and management researchers; it involves the use of structured questionnaires or interviews and favours collection of huge amount of data from population sample; experimental strategy is popular among natural and social scientists to explain relationship among dependent and independent variables, and as well, suitable for answering questions –'why' and 'how'; qualitative research however supports many strategies and include: action research, grounded theory, case study research, ethnography and narrative inquiry. It is worthwhile to note that there is no superior strategy among strategies as the choice of strategies depends on the field of research and the reality being studied; and also, one research strategy is not necessarily sufficient for one research study be it quantitative or qualitative (Saunders et al., 2019).

In consideration of the above, the researcher adopts positivism philosophy; this is because the researcher sees the organisations (motor insurance companies) as "…real in the same way as physical objectives and natural phenomenon are real" (Saunders et al., 2015); also, in order to obtain facts and consistent figures that can be observed and measured which in the opinion of Crotty (1988), will lead to generation of " …credible and meaningful data". Moreover, the researcher wishes to use existing theory to develop some hypotheses; and to remain neutral from the study and data being collected in order to prevent unwanted biases by influencing results or findings (Crotty, 1988). The positivists assumptions are followed to ensure our "…data, evidence and natural considerations shape knowledge"(Creswell, 2014b). According to the research onion developed by Saunders et.al (2015), research approach is usual informed by the chosen research philosophy. Therefore, the research in this study adopts a deductive research approach as general laws are obtained from experts perceived factors (Saunders et al., 2015); and to enable the researcher to establish a relationship among

variables (Creswell, 2014b) i.e. motor insurance claims (dependent variable) and insurance fraud (independent variable), and to describe the level of fraud in motor insurance contracts as perceived by insurance experts in Nigeria. Hence, a survey research strategy is adopted for describing or quantifying opinions, attitudes, or trend within a population by studying a sample of the population (Creswell, 2014b); and it involves collection of data through structured questionnaires or interviews (Saunders et al., 2019). In their study on –"Delphi survey of experts' opinions on strategies used by community pharmacists to reduce over-the-counter drug misuse", McBride et al. (2002) argued that a survey strategy (using a 3-stage postal questionnaires) is more appropriate to identifying issues at hand, gathering opinions and agreeing to realities where there has been no empirical data or seems to be no answer to a long debate. Although, there had been long debate and criticism that a more evidenced based research strategy should be engaged, however, points raised by McBride et al. (2002), were justified to a reasonable extent.

1.3.2. Data collection

To assess the extent and impact of fraud in motor insurance claims in the Nigerian insurance market, our analysis was built on a survey among insurance experts in Nigeria. To collect the data, a questionnaire was developed and administered with combination of open-ended and close-ended questions. The questionnaire was designed to gather data on insurance experts' perceptions of insurance fraud rather than to gather statistical data on actual fraud cases. Qualtrics survey software was used to design and administer the questionnaire online.

1.3.3. Participants / Sampling process

Population and Sample Size: The target population for this study comprises employees in the motor insurance industry in Nigeria. Specifically, the population includes professionals at various levels within insurance companies (i.e., who are directly involved in handling motor insurance claims), including insurance brokerage firms, loss adjusting firms, reinsurance companies, and regulatory bodies (NAICOM - National Insurance Commission, NIA - Nigeria Insurers Association, etc.), as well as insurance consultants in Nigeria.
Sample Representativeness: To ensure that the sample is representative of the broader population, a stratified sampling approach was initially planned, dividing the population into

different strata based on roles and experience levels. However, due to the challenges in obtaining a comprehensive list of all employees in the industry, a combination of purposive and snowball sampling methods was employed.

Purposive Sampling: Purposive sampling was used to target key individuals known for their expertise and extensive experience in motor insurance fraud management. This method is appropriate when a diverse sample is necessary or when the opinion of experts in a particular field is the topic of interest (Martinez-Mesa et al., 2016). The researcher used their judgment to select experts with the requisite experience, skills, and qualifications. These participants were identified through industry contacts, professional networks, and recommendations from senior management within insurance firms. Out of the total sample, 70 participants were selected from insurance companies.

Snowball Sampling: To supplement the purposive sampling, a snowball sampling technique was used. Initial purposively selected participants were asked to refer other potential respondents who possess relevant experience and knowledge. This approach was necessary because the target audience—professionally qualified insurance experts with at least 7 years of post-professional qualification experience in the Nigerian insurance market—may not be easily accessible. Through snowball sampling, an additional 50 participants were recruited from non-insurance companies (i.e., from insurance brokers, loss adjusters, reinsurance companies, insurance consultants, etc.)

Data Screening: From the 155 responses received, the following screening criteria were applied to ensure the quality and relevance of the data:

- **Incomplete Responses:** 6 responses were excluded due to being incomplete.
- **Disqualification on the Basis of Professional Knowledge:** 15 responses were disqualified as the participants failed to meet the required level of professional knowledge (specifically, they did not answer the 3 knowledge questions in the questionnaire correctly).
- **Less Than 7 Years of Professional Work Experience:** 15 responses were excluded because the participants had less than the minimum required 7 years of professional work experience.

After applying these criteria, the total number of responses considered valid for analysis was 120.

Ensuring Representativeness: While the exact total number of employees (i.e., insurance experts) in the Nigerian motor insurance industry is not publicly available, efforts were made

to ensure the sample's representativeness by including participants from various companies and regions within Nigeria. The demographic characteristics of the sample, including job roles, years of experience, and company size, were analyzed to confirm that a diverse and representative cross-section of the industry was achieved.

Hence, all our respondents were professionally qualified insurance practitioners in Nigeria and were aged between 35 and 62. All participants had minimum of 7 years work experience, with some having accumulated up to 37 years post-professional qualification experiences within various technical units in insurance companies (motor and non-motor claims & underwriting, risk management, marketing, and others). 67.5% of participants are male and 32.5% were female, which is consistent with the industry's gender distribution (NAICOM, 2021). The sample also varying academic qualifications (about 44% and 3% hold bachelor and doctorate degrees respectively).

1.3.4. Materials

A majority of the questions in the survey used a five-point Likert-response scales ranging from Strongly disagree (coded as 1) to Strongly Agree (coded as 5). It also included other response scales like - supply of number in percentage for open-ended questions, single choice, multiple choice, etc. The questionnaire consisted of 6 sections. The first section contains 3 professional knowledge (PK1 to PK3) with the following response scales -PK1 (supply of number in %), PK2 (supply of number in %) and PK3(multiple-choice). These questions were asked to confirm experts' awareness of the common professional knowledge in motor insurance practices in Nigeria – informed by Rowe and Wright (2001) ecological validity and learnability concepts. 15 (representing 9.68%) out of the total participants failed to answer the 3 professional questions correctly. Hence, records of experts that missed any of the 3 questions (PK1 to PK3) were expunged from the dataset to ensure that only experts with requisite skills and knowledge are recruited. The second section contains 4 questions (EF1 to EF4) measuring the perceived existence of fraud in motor insurance claims in Nigeria insurance market – using a five-point Likert-response scales. Section 3 contains 5 questions (SF1 to SF5) aimed to measure the perceived proportion of claims that constitute soft fraud (SF) - using a five-point Likert-response scales. Section 4 contains 4 questions (HF1 to HF4) aimed to measure the perceived proportion of claims that constitute hard fraud (HF) - using a

five-point Likert-response scales. Section 5 contains 5 questions but used 2 questions (FI4 – 'impact on solvency' & FI5- 'cost of investigation impact') to measure the perceived impact of fraudulent (FI) claims on the insurance industry - using a five-point Likert-response scales. Section 6 contains questions on respondents' demographics (i.e., gender, age, year of work experience, etc.) using varying response scales – see Appendix S1 for details.

1.4. Data analysis

This section presents the analysis of the questionnaire data. Descriptive statistics were employed to get a preliminary understanding of the results.

1.4.1 Analysing the data set addressing research question No.1:

To what extent do experts perceived there to be a problematic level of fraud in the Nigerian motor insurance industry?

1.4.2. Description of frequency distribution.

Table 1 illustrates the frequency distribution (in percentages) of the 120 responses received from the four measuring items (EF1 to EF4 under the construct/theme – 'existence of fraud in motor insurance') in order to address research question 1 – *To what extent do experts perceived there to be a problematic level of fraud in the Nigerian motor insurance industry?*

It can be observed from Table 1 that none of the respondents do not 'strongly disagree' with any of the questions raised under the four measuring items (EF1 to EF4) while more than 55% of all respondents agree with all the questions.

Table 1. Summary of frequency distribution from the data set measuring research question No.1.

Questions	**Responses**	**Frequency**	**Percent**
EF1: To what extent do you agree that there is a high level of fraud in Nigerian motor insurance contracts?	Agree	82	68.3
	Strongly disagree	0	0
	Disagree	1	0.8
	Neutral	2	1.7
	Strongly agree	35	29.2
	Total	120	100
	Responses	**Frequency**	**Percent**
EF2: To what extent do you agree that the complexity of motor insurance contracts can cause policyholders to perceive the contract as a means of extorting money from them?	Agree	72	60.0
	Strongly disagree	0	0
	Disagree	1	0.8
	Neutral	7	5.8
	Strongly agree	40	33.3
	Total	120	100
	Responses	**Frequency**	**Percent**
EF3: To what extent do you agree that the 2007-2008 global economic crisis has caused an increase in motor insurance fraud in Nigeria?	Agree	74	61.7
	Strongly disagree	0	0
	Disagree	1	0.8
	Neutral	3	2.5
	Strongly agree	42	35.0
	Total	120	100
	Responses	**Frequency**	**Percent**
EF4: To what extent do you agree that in the last 15 years, there has been an increase in fraud in Nigerian motor insurance and this has led to an increase in total claims pay-outs by motor insurers?	Agree	69	57.5
	Strongly disagree	0	0
	Disagree	1	0.8
	Neutral	4	3.3
	Strongly agree	46	38.3
	Total	120	100

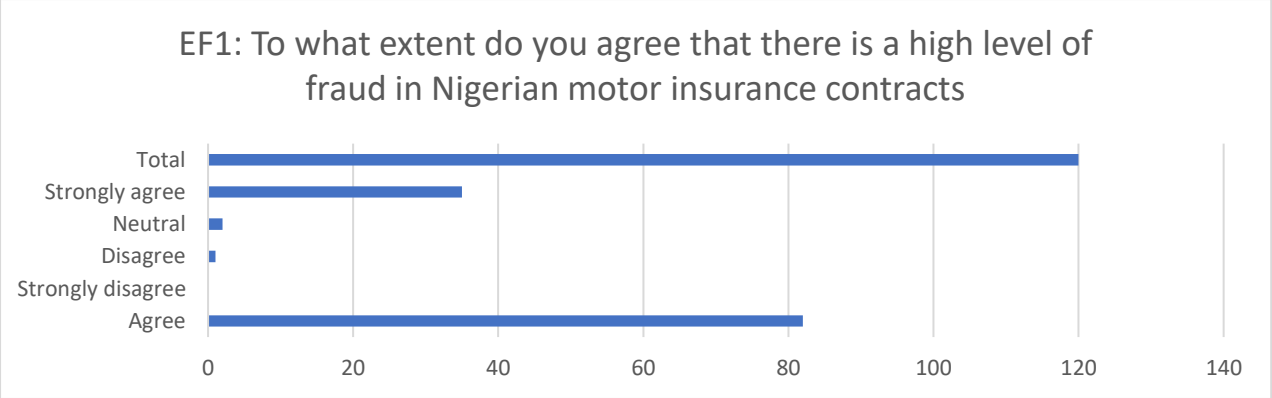

Figure 1: Summary of respondents' responses on item 1 of the data set measuring research question No.1

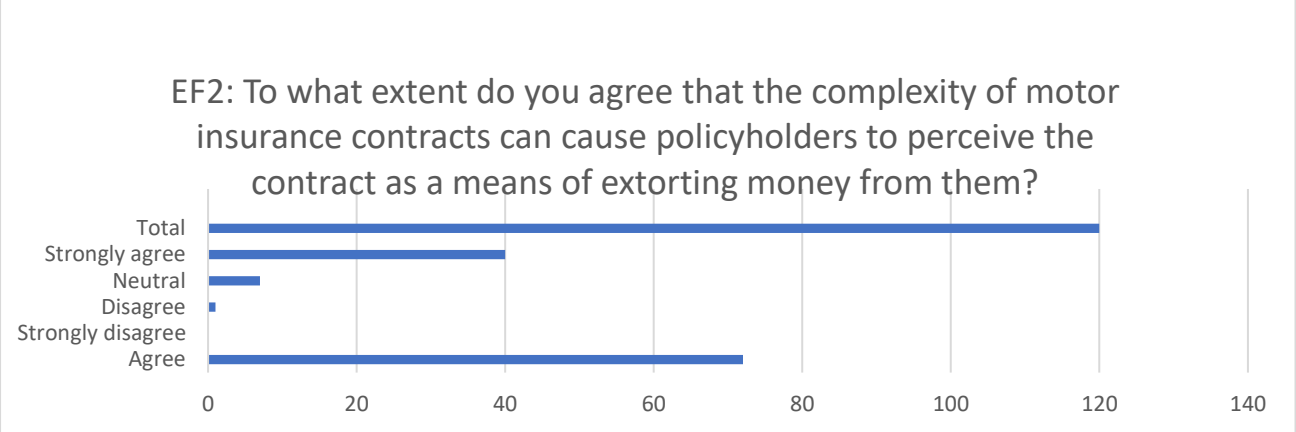

Figure 2: Summary of respondents' responses on item 2 of the data set measuring research question No.1.

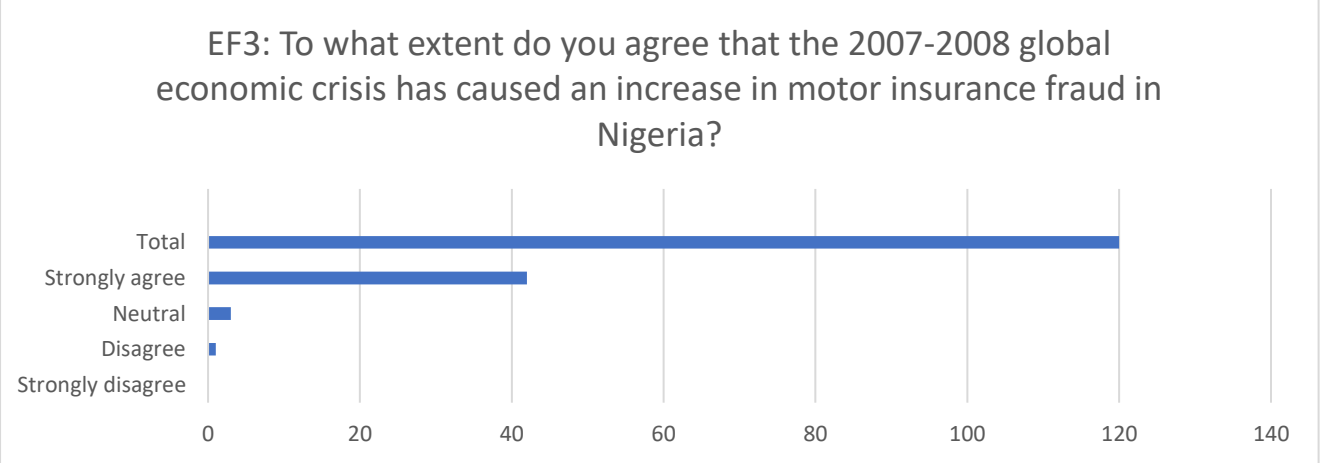

Figure 3. Summary of respondents' responses on item 3 of the data set measuring research question No.1

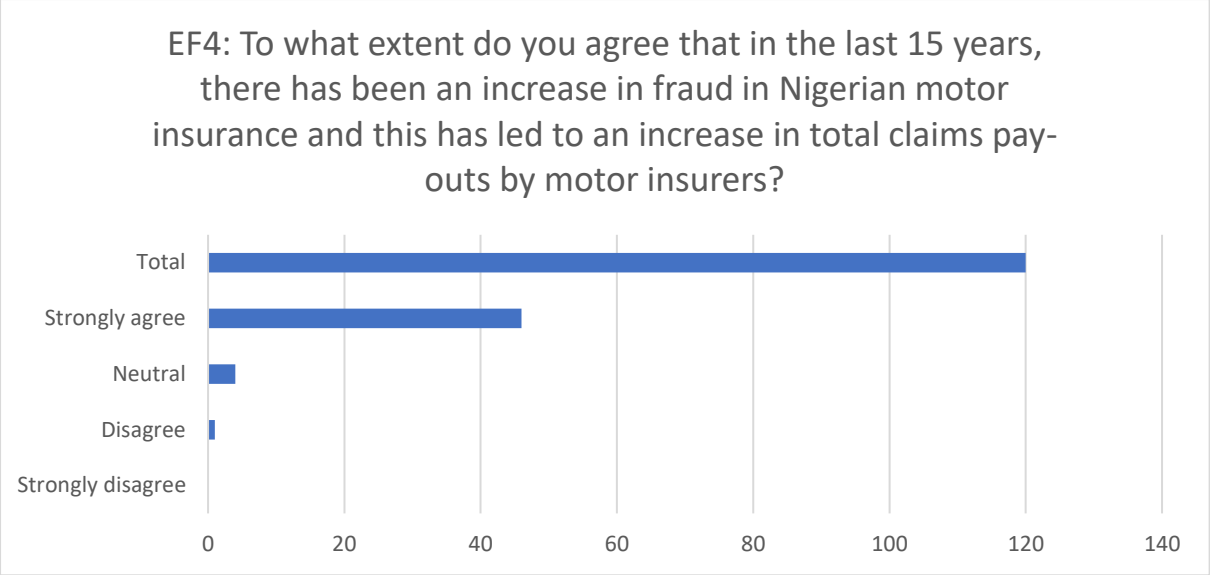

Figure 4. Summary of respondents' responses on item 4 of the data set measuring research question No.1.

1.4.3. Measuring response directions using descriptive statistics

In order to determine the actual direction of responses from the dataset collected, a Likert scale guide for descriptive statistics is adopted (Pimentel, 2010) as given in Table 2.

In Table 2, Primentel explained that the mean responses of each measuring item are checked with the 'range column' to determine the direction of all responses. Hence, mean response that falls within the range of 1.00 – 1.85, is described as 'strongly disagree'; mean response that falls within the range of 1.86 – 2.71, is described as 'disagree', and so on.

Table 2. Likert scale guide for descriptive statistics by Primentel, J. (2010).

scale	Responses	Range	Levels
1	Strongly disagree	1.00 - 1.85	Very low
2	Disagree	1.86 -2.71	Low
3	Neutral	2.72 - 3.27	Medium
4	Agree	3.28 - 4.43	High
5	Strongly agree	4.44 - 5.29	Very High

Table 3 summarises the 120 responses from the 4 measuring items in the survey questionnaire (EF1 – EF4) addressing research question No.1.

Table 3. Summary of mean responses addressing research question No.1.

Measuring items	N	Minimum response	Maximum response	Mean response	Std. Deviation
EF1: To what extent do you agree that there is a high level of fraud in Nigerian motor insurance contracts?	120	2	5	4.26	0.527
EF2: To what extent do you agree that the complexity of motor insurance contracts can cause policyholders to perceive the contract as a means of extorting money from them?	120	2	5	4.26	0.601
EF3: To what extent do you agree that the 2007-2008 global economic crisis has caused an increase in motor insurance fraud in Nigeria?	120	2	5	4.31	0.562
EF4: To what extent do you agree that in the last 15 years, there has been an increase in fraud in Nigerian motor insurance and this has led to an increase in total claims pay-outs by motor insurers?	120	2	5	4.33	0.585

Interpretation of results:

Table 2 and Table 3 are put to use in describing the actual position of the 120 responses received in addressing the research question No.1. Thus, the 'mean data' from Table 3 (4.26, 4.26, 4.31 and 4.33) are checked with Table 2 (range column); it can be observed that each item (EF1 to EF4) falls within scale No. 4 (3.28 – 4.43) in Table 2. This suggests that: ***all respondents agree to each item of the measuring construct***. Also, if the mean responses in Table 2.3 (4.26, 4.26, 4.31 and 4.33 for EF1, EF2, EF3 and EF4 respectively) are averaged, it

becomes 4.29 (dummy variable) which also falls within scale No.4 in Table 2. Therefore, it can thus be interpreted/described that **– based on their perceptions, insurance experts do agree there to be a problematic level of fraud in the Nigerian motor insurance industry.**

1.4.4. Analysing the data set addressing research question No.2:

> ***What are experts' perceptions of the proportion of motor insurance claims that constitute soft and hard fraud?***

In addressing the research question No.2, descriptive statistics were used and the summary of the 120 responses are as provided in Table 4.

Explanation/Interpretation of results:

Table 4 below illustrates experts' individual perceptions of what constitute soft and hard fraud with regard to motor insurance claims in Nigeria. From the median and mode data in Table 4, soft fraud is approximately 3 times more than the hard fraud. However, mean data suggest that soft fraud is about 2.8 times more than the hard fraud. Hence, it is evidenced through experts' judgements that motor insurance claims constitute more of soft fraud than hard fraud in the Nigerian insurance industry.

Table 4. . Illustration of expert's opinions of what constitute soft and hard frauds in motor insurance claims in Nigeria.

		Soft Fraud Estimate	**Hard Fraud Estimate**
N	Valid	120.00	120.00
	Mean	55.66	19.00
	Median	65.00	20.00
	Mode	70.00	20.00
	Std. Deviation	22.78	13.50
	Minimum	8.00	1.00
	Maximum	90.00	90.00

For further analysis, we carried out a paired t-test statistic to find out whether the difference in means of soft fraud and hard fraud (as in Table 4 above) is statistically significant. The results of the analysis are as given in

Table 5 and Table 6. The results in

Table 5 show that (i) mean of soft fraud is higher than hard fraud; and (ii) the level of significance at 95% confidence interval (0.000 in Table 6) is less than the 0.05 benchmark. Hence, there is statistically significant difference in means of soft fraud and hard fraud based on the Nigerian insurance experts' estimates.

Table 5. Paired descriptive statistics of soft fraud and hard fraud based on Nigerian insurance experts' estimates.

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Part 1	Soft Fraud	55.66	120	22.777	2.079
	Hard Fraud	19.004	120	13.5002	1.2324

Table 6. Paired t-test results on soft fraud and hard fraud based on Nigerian insurance experts' estimates.

Paired Samples Test									
Paired differences									
					95% Conf. interval of the Difference				
		Mean	Std. dev	Std. Error Mean	Lower	Upper	*t*	df	Sig. (2-tailed)
Part 1	Soft fraud - Hard fraud	36.6542	24.1690	2.2063	32.2854	41.0229	16.613	119	.000

Also, we extended our analysis to understand the interaction of participants' roles and their perceptions about insurance fraud (soft fraud and hard fraud). To do this, an 'independent samples test' were carried out as given in Table 7 and

Table 8. We compared the fraud perceptions (soft/hard fraud) of insurance experts working for insurance companies and reinsurance companies respecively. The results of our findings as summarised in Table 7 show that the mean response of experts working for insurance and reinsurance companies in Nigeria regarding their perceptions of soft fraud are 50.41 and 62.13 respectively. Hence, professionals in insurance companies estimated that about 51% of fraud committed in motor insurance claims in Nigeria are soft frauds while professionals in reinsurance companies estimated soft fraud at about 62%. The difference in the means however, is not statistically significant at 5% level of significance (since 0.058 sig. is greater than the bench mark of 0.05 in

Table 8). Therefore equal variances is assumed for soft fraud. As regards their perception about hard fraud, their mean responses are 18.850 and 16.133 for experts working insurance and reinsurance companies respectively. Hence, professionals in insurance companies estimated that about 19% of fraud committed in motor insurance claims in Nigeria are hard frauds while professionals in reinsurance companies estimated hard fraud to be about 16%. Again, the difference in their mean responses is not statistically significant at 5% significanc level (since 0.478 sig. in

Table 8 is greater than 0.05). Therefore, equal variances assumed.

Table 7. Group descriptive statistics illustrating fraud perceptions of the professionals working for insurance and reinsurance companies.

Group Statistics					
	D3	N	Mean	Std. deviation	Std. Error Men
Soft Fraud	Professionals in insurance companies	70	50.41	21.676	2.591
	Professionals in re-insurance companies	15	62.13	20.021	5.169
Hard Fraud	Professionals in insurance companies	70	18.850	14.2786	1.7066
	Professionals in re-insurance companies	15	16.133	7.6051	1.9636

Table 8. Paired descriptive statistics of soft fraud and hard fraud based on Nigerian insurance experts' estimates.

Independent Sample Test										
							T-test for equality of means			
									95% Conf. interval of the diff.	
		F	Sig.	t	df	Sig.(2-tailed)	Mean Diff.	Std. Error Diff	Lower	Upper
Soft Fraud	Equal variances assumed	2.102	.151	-1.924	83	.058	-11.719	6.091	-23.833	.395
	Equal variances not assumed			-2.027	21.640	.055	-11.719	5.782	-23.722	.284
Hard Fraud	Equal variances assumed	1.407	.239	.713	83	.478	2.7167	3.809	-4.8598	10.2931
	Equal variances not assumed			1.044	38.662	.303	2.7167	2.601	-2.5471	7.9804

1.4.5. Analysing the data set addressing research question No.3.

To what extent do experts perceived there to be problematic impacts from fraud on the Nigerian motor insurance industry?

In address this research question, Table 2 and

Table 5 were put to use.

Table 5 summarises the 120 responses from the two measuring items in the survey questionnaire (FI4 – 'impact on solvency' and FI5 – 'cost of fraud investigation impact') addressing research question No.3.

Explanation/interpretation of results

Table 2 and Table 9 were put to use in describing the actual position of the 120 responses received in addressing the research question No.3. Measuring items in Table 9 are FI4 (impact on solvency) and FI5 (cost of fraud investigation impact). Thus, the 'mean data' from Table 9 (4.52 and 4.18 for FI4 and FI5 respectively) were checked with Table 2 (range column) and fell within scale No.5 (4.44 – 5.29) and scale No.4 (3.28 – 4.43) respectively. Therefore, it can thus be interpreted/described as follows:

- Based on their perceptions, the Nigerian insurance experts strongly agree there to be problematic impact from fraud on the solvency of the Nigerian motor insurers.
- Based on their perceptions, the Nigerian insurance experts agree there to be problematic impact from fraud in raising the premium payable by law-abiding policyholders?

Table 9. Summary of experts' perceived impact from fraud on the Nigerian motor insurance industry.

	N	Minimum	Maximum	Mean	Std. Deviation
Solvency impacted (FI4)	120	3	5	4.52	0.534
Cost of fraud investigation raises premium (FI5)	120	1	5	4.18	0.661
Valid N (listwise)	120				

1.5 Discussion

Our analysis confirms the potential utility of experts' judgements when actual data are not readily available. Despite unavailability of data on insurance fraud in Nigeria, we explored experts' judgements in assessing the extent and impact of fraud in motor insurance claims in Nigeria. To the best of our knowledge, no study had been able to tell the state-of-affair as regard the level of fraud in motor insurance claims in Nigeria. Hence, the study contributes to filling the need to assess, the existence, extent, and impact of fraud in motor insurance claims in the Nigerian motor insurance industry.

In addressing the first research question – ("***To what extent do experts perceived there to be a problematic level of fraud in the Nigerian motor insurance industry?")*** our analysis shows that Nigerian insurance experts agree there to be a problematic level of fraud in the Nigerian motor insurance industry. This suggests that the existence of fraud in the Nigerian insurance industry may be high and damaging. This also confirms the outcome of earlier studies on insurance fraud – that there is a high level of fraud in the insurance market (Bashir et al., 2013, Akomea-Frimpong et al., 2016).

In addressing the second research question – ("***What are experts' estimates of the proportion of motor insurance claims that constitute soft and hard fraud?")*** our analysis shows that experts perceived soft fraud to be more (about 3 times) common than hard fraud. This suggests and confirms why soft fraud is argued (˘Subelj et al., 2011, Lookman and Balasubramanian, 2013, ABI, 2021) to be easy to commit and less likely to be detected (due to its opportunistic nature - usually committed when a genuine claim is being filed); and in most cases, when policyholders commit soft fraud, they do justify it with their payment of high excess (an amount of every claim that the insured is meant to bear on his own account) (ABI, 2021). According to Lookman and Balasubramanian (2013), the frequency of hard fraud is low because it requires a planned effort and usually being committed by professional fraudsters. Moreover, our analysis confirmed that the difference between the means of soft fraud and hard fraud is statistically significant at 95% confidence level. Since two types of fraud are assumed (hard and soft), the two percentage estimates are expected to add up to 100% but they do not. This suggests that there is still some bias in the experts' judgements – they are either over or underestimating fraud. Thus, an avenue for further research has been identified in which the reasons for experts' bias in estimating perception of fraud in insurance could be identified.

In addressing the third research question, our analysis finds that the Nigerian insurance experts do strongly agree there to be problematic impact from fraud on the solvency of the Nigerian motor insurers. This confirms the position of an earlier study carried out in India by Gour and Gupta (2012) that the solvency of insurance companies is impacted by fraudulent activities in the insurance market. Also, analysis from this study shows that the Nigerian insurance experts agree there are problematic impacts from fraud in raising the premium payable by law-abiding policyholders. Our study still corroborates with the outcome of the study carried out by Hoyt (1990), which argued that the cost of investigating a fraudulent claim is passed to policyholders in form of premium increases. The result of the present study shed some further light why insurance fraud is often regarded as a "victimless crime". This is specifically due to the fact that a fraudster who defrauds insurance companies, is not only liable, but other law-abiding policyholders still suffer from the cost of fraud they never committed through increase in their premium payments (Ehrlich, 1981).

Considering the theories examined in the present study - (i) routine activities theory, (ii) rational-choice theory, (iii) crime pattern theory, and (iv) the theory of fraud triangle, Skiba (2015) noted that they are all relevant to insurance fraud; but we are of the opinion that rational-choice theory is indirectly inculcated in the fraud triangle theory (under 'rationalization', i.e., weighing the cost-benefit of committing a fraud justifies its commitment). Hence, it is not needed to be mentioned (rational choice) separately where fraud triangle is already considered. Likewise, crime pattern theory, to us, has also, technically been dealt with in the routine-activities theory – where human participation in fraud is the main focus. These humans (potential offenders) usually decide which pattern is to be considered in perpetrating the fraud. However, the routine-activities and fraud triangle theories appear most relevant to the present study for two main reasons. First, both identify human participation in insurance fraud (i.e., insurance fraud perpetrators, insurance fraud connivers and victims of insurance fraud). Second, they draw attention to the importance of identifying key motivating factors for human participation in insurance fraud.

1.6 Conclusion

Our study contributes to the developing body of knowledge on insurance fraud, which remains in its infancy largely because there is a lack of actual data for analysis. In assessing the extent and impact of fraud in motor insurance claims in Nigeria, our study examined

experts' judgements. This has provided a preliminary understanding of the existence, extent, and impact of fraud in the Nigerian motor insurance contracts as a whole. Specifically, the study found that Nigerian insurance experts (i) largely agree that there is a problematic level of fraud in the Nigerian motor insurance industry; (ii) perceive soft fraud to be about 3 times more common than hard fraud in the Nigerian motor insurance industry; and (iii) strongly agree there are problematic impacts from fraud on the solvency of the Nigerian motor insurers and that this leads to be problematic impacts from fraud on the solvency of the Nigerian motor insurers and that this leads to increases in premium payable by law-abiding policyholders.

We, therefore, recommend that the Nigerian motor insurers, through NAICOM, employ more proactive control strategies in managing their motor portfolio. For example, we suggest establishing a motor insurance bureau for the purpose of (i) exchanging data on motor insurance claims; (ii) giving important attention to the roles of in-house motor loss-adjusters; and (iii) ensuring that due diligence always takes place - with regard to motor insurance underwriting and claims; and ensuring that this commences from the inception of motor insurance contracts through until when the claims are fully settled).

However, the present study has been somewhat constrained by the limited literature and the lack of available data on actual motor insurance fraud from the government of Nigeria. Nonetheless, this paper has provided an empirical understanding of the existence, extent, and impact of fraud risks within the Nigerian insurance market based on expert knowledge and insights rather than, as has often been the case, a reliance on individual anecdotes.

Bridging to chapter 3

After conducting a comprehensive assessment of experts' risk perceptions of motor insurance fraud in Nigeria in Paper1 (Chapter 2), it became evident that while there is a widespread acknowledgment of the problem, there remains a lack of understanding regarding the underlying factors contributing to fraudulent claims. The findings from Paper 1 underscored the urgent need to delve deeper into the root causes of motor insurance fraud in Nigeria, beyond mere perceptions. Therefore, Paper 2 (Chapter 3) aims to bridge this gap by conducting a rigorous analysis of the factors responsible for fraudulent claims in the Nigerian motor insurance industry. By building upon the insights gained from Paper 1, Paper 2 seeks to provide a more nuanced understanding of the antecedents of motor insurance fraud, thus laying the groundwork for the development of targeted interventions and effective fraud risk management strategies.

Chapter Three

Analysis of factors responsible for fraudulent claims in motor insurance business in Nigeria

Abstract

In the insurance industry studies have consistently confirmed the existence of fraud claims by policyholders. This has created a serious concern to the global insurance market and has become of focal topic for fraud researchers. For example, the net premium income of the Nigerian motor insurers has been significantly reduced due to this issue. This study was conducted in order to analyse the perceived antecedents of fraudulent claims in motor

insurance business in Nigeria. A survey of representative selection of experienced employees (*N*=167) of motor insurers in Nigeria was used to gather the data for analysis. The study found that (i) the frequency of occurrence of perceived internal fraud, perceived external fraud, and perceived connivance fraud is practically on the same level in Nigeria insurance market, (ii) perceived antecedents of motor insurance fraud are capable of influencing the perceived motor insurance fraud types (i.e., internal fraud, external fraud, and connivance fraud); and finally, (iv) internal fraud controls are not currently effective/capable of moderating the relationship between the perceived antecedents of motor insurance frauds and perceived motor insurance fraud types in Nigeria. In light of these findings, it is recommended that (i) employees of insurance companies in Nigeria should be duly rewarded and fairly treated in line with the international best practices in order to reduce the frequency of occurrence of the fraud types; (ii) to make internal fraud controls effective/efficient, the heads of internal fraud control units should be truly independent in carrying out their job functions (i.e., report directly to the board of directors of insurance companies rather than as usually be the case, being checked by management staff); and (iii) to deter the occurrence of internal fraud, the latter recommendation should be strictly monitored with applicable sanctions by the national insurance commission of Nigeria (NAICOM).
Keywords: Claims, Claimants, Insurance Fraud, Internal control, Motor insurance.

2.1. Introduction

Over the years, studies have shown that motor insurance is one of the most-purchased insurance policies in the emerging countries like Nigeria (Getinsurance, 2022, Aduloju, 2021). Its growing contribution to the global GDP is well acknowledged among the economic analysts (Afejuku, 1988, Ugwuanyim et al., 2021). In most climes, commuting with motor vehicles is practically impossible without a valid motor insurance policy (Homeapproved, 2022, Morrissey, 2022). Despite the high cost of purchasing motor insurance especially for the new drivers and bad insureds (policyholders with significant number of fault claims - accidents), the rate at which motor insurance policies are being sold has not been significantly reduced. This however suggests the significance of motor insurance in the day-to-day activities. To the motor insurers, the primary cost of production is the 'claims paid' or 'claims payable' where profit is technically underwritten (earned) when the total claims amount is less than the written premium. In recent times, the Nigerian insurance market for example, has been experiencing an increasing number/cost of motor insurance claims which

had been a serious concern for the motor insurers. A recent study has confirmed the existence of fraudulent activities in the claims administration of motor insurance business in Nigeria, but the root antecedents of these frauds were not discussed. This study therefore analysed the factors responsible for fraudulent claims in motor insurance business in Nigeria. Although, a series of related motor insurance frauds had been investigated by other researchers but not in the Nigerian context, and none specifically focused on motor insurance claims. To the best of my knowledge, as at the time of writing this report, there is no data on motor insurance claims frauds in Nigeria insurance market held by the Nigerian government or other stakeholders. Therefore, I relied on the perceptions of the senior/experienced employees of motor insurance companies in Nigeria to gather the data.

2.1.1. Importance and objectives of the present study

This study contributes to the on-going debates on insurance frauds by fraud researchers. Its contribution to new knowledge is evidenced by being one of the few studies investigating the root antecedents of fraudulent motor claims in the Nigerian insurance market and hence, would enable the motor insurers and other stakeholders in Nigeria, to put in place, controls to reduce/prevent the occurrence of frauds in motor insurance claims administration. Though researchers are shunned away from fraud related studies in the Nigeria insurance market due to lack of reliable data, this study is therefore able to rely on the opinions of the experienced/ senior employees in the Nigerian motor insurance companies. A few related studies focused on either life insurance or non-life insurance business or combination of the duo; this study details its investigation on the most popularly sold insurance policy (with high propensity to fraud) in Nigeria insurance market – motor or auto insurance.

This study analysed the factors responsible for fraudulent motor insurance claims in Nigeria with the following specific objectives: (i) understanding the most prevalent antecedent of motor insurance fraud in Nigeria; and (ii) investigating the perceived influence of different fraud antecedents on the types of motor insurance fraud in Nigeria.

2.1.2. Scope of the study

The study primarily investigated the root causes of fraudulent motor insurance claims within the Nigerian insurance industry. Its source of data collection was also limited to the

experienced employees of motor insurance companies in Nigeria. The results of this study would be of great benefit to motor insurance providers in Nigeria, fraud researchers with bias interest in the Nigerian insurance industry, investors (existing and potential) with keen interest in the Nigerian insurance business, the national insurance commission, Nigeria (NAICOM), and reinsurance companies (both local and foreign) that have trade agreements with motor insurers in Nigeria.

2.2. Review of literature

This section reviewed the existing literatures relevant in achieving the objectives and aims of this study. It was further divided into sub-sections namely – conceptual framework of the study, motor insurance fraud and claims, forms of motor insurance frauds, types of motor insurance frauds, causes of motor insurance frauds, internal controls and its effectiveness, earlier studies, and the restatement of hypotheses.

2.2.1 Motor insurance fraud and insurance claims

Motor or car insurance fraud is described as any act or process that involves deceiving the motor insurance provider or motor policyholder, for personal gain or otherwise. It is usually committed against the motor insurers and in some cases, by motor insurers - where they knowingly withhold certain vital information from their policyholders or failed to provide benefits for a legitimate claim (Theaa, 2022, III, 2022). According to Macedo et al. (2021), motor insurance fraud is a multi-faceted system that brings together different players namely – motor insurer, policyholder, claim adjuster and motor vehicle repair workshops in order to commit a fraud. Salaton et al. (2019b) opined that motor insurance fraud includes all fraudulent activities that motor policyholders are engaged in, in order to make a profit from the contract; and usually include – "*withholding material facts at the time of proposing for cover, misrepresentation of facts at the time of a claim, rip-offs, backdating of covers, staging of accidents and exaggerated damage*".

Some researchers described an insurance claim as a demand on insurer to fulfil its part of the contract after the occurrence of an agreed incident or peril - cause of a loss. They also see an

insurance claim as a statement of a loss incurred that becomes payable by the insurer under the terms of the insurance policy (Yusuf et al., 2017a, Yadav and Mohania, 2015, Vaughan and Vaughan, 2008).

2.2.2 Forms of motor insurance frauds

Over the years, studies have shown how fraudsters used different techniques in perpetrating motor insurance frauds. According to the Automobile Association Developments (Theaa, 2022), the following are the common forms/techniques used by fraudsters to perpetrate motor insurance frauds namely – application fraud, fronting, crash-for-cash, made up or exaggerated claims, imaginary passengers, vehicle dumping, and faked accidents. Application fraud occurs when an applicant for motor insurance deliberately provides an incorrect or inaccurate information about their age, driving experience, policy/claims history, etc., in order to reduce their premium (cost of insurance cover) payable to the motor insurer rather than paying the actual premium based on their individual circumstances. Fronting occurs when a driver with high risk (i.e., new driver, existing driver with bad claims history, etc.,) is insured as a 'named driver' under a policy held by a low-risk driver (i.e., parents of a new driver, friend of a high-risk driver with years of driving experience with no claims, etc.,) in order to short-change the motor insurer by paying an otherwise a reduced premium. Crash-for-cash (also known as swoop and squat) comes to play where two drivers work as a team to set up an accident for a claim. Here, one driver pulls his vehicle in front of an innocent driver's vehicle and the other accomplice alongside, blocking the victim (innocent driver). While the driver (lead accomplice) stops all of a sudden causing the victim to hit him from the rear end, the other accomplice at alongside blocks and prevents the victim from avoiding a collision. The two participating drivers then file a fraudulent insurance claim for alleged injuries. Made up or exaggerated claims is perceived to be the most frequent form of motor insurance fraud. Here, the accident or loss is actually real, but the extent of loss or damages is over-stated in order to make a gain from the claims at hand. Imaginary passengers occurs when the claimant deliberately includes passengers that were not part of the incident in order to defraud the motor insurer. In the case of vehicle dumping, a claimant deliberately sets his vehicle on fire, or selling it to overseas buyers, or abandoning it where it is difficult to locate, yet reports it to the insurer as being stolen. Faked accidents occurs where drivers intentionally plan an accident that never existed in order to make a profit from the insurance contracts. According

to the Insurance Information Institute and National Consumer Law Centre (III, 2022, NCLC, 2022), Salvage fraud is another common technique being used by fraudsters in the sense that vehicles that are already considered salvage by the motor insurer due to a total loss or constructive total loss damage, arising from accidents, (i.e., storm flooding, fire, collision, etc.,) are subsequently being found in "used car lots and auction sales" – mended and sold to unwary buyers. Lemon laundering scam is usually committed by the vehicle manufacturers. Here, the manufacturer buys back a lemon vehicle (vehicles with several manufacturing faults affecting its safety, uses, etc.,) from an existing buyer and sell to another buyer (victim) without letting them know about their lemon history. Odometer fraud occurs when a vehicle odometer is tampered with (usually by reducing the mileage covered – say from 250,000 to 50,000) by some vehicle dealers in order to raise the selling value of the vehicles. A reduced mileage will attract lower premium payable, thereby short-changing the insurance provider (NCLC, 2022).

2.2.3 Types of motor insurance frauds

Researchers have different views regarding the various types of fraud and how fraud should be categorized in the insurance industry. For example, according to Viaene and Dedene (2004a), insurance fraud is categorized into three groups, namely – (i) internal/external, (ii) underwriting/claim fraud, (iii) soft/hard fraud. For other researchers, insurance fraud is categorized to include – internal fraud, policyholder fraud, intermediary fraud, and insurer's fraud (Yusuf, 2011), etc. In this study however, insurance fraud with specific focus on motor insurance is categorized into three, namely – (i) internal fraud, (ii) external fraud, and (iii) connivance fraud. With this categorization, the researcher is able to capture all other's views on insurance frauds into three main types as discussed below.

i. **Internal fraud –** Fraud being perpetrated from within the insurance company. It could be committed by any member of staff against the insurance company. i.e., claim officer, underwriting staff, marketers, accountant, etc., (Yusuf, 2011, Akomea-Frimpong et al., 2016, (IAIS), 2007, Viaene and Dedene, 2004a).

ii. **External fraud** – Fraud being perpetrated from outside of the insurance company but by those, who have some contractual relationship/obligations with the insurance company. i.e., policyholder (claimant), intermediaries, loss adjusters, motor garages, etc.,(Yusuf, 2011, Akomea-Frimpong et al., 2016, (IAIS), 2007, Viaene and Dedene, 2004a).

iii. **Connivance fraud** – this is committed under the agreement between two or more parties that have some contractual obligations/relationships with the insurance company. Here, there could be a collusion between the internal and external perpetrators to defraud an insurance company. i.e., collusion between - the claimant and employee of the insurance company; the claimant and car dealers; the claimant and an intermediary (i.e., broker or agent); etc.(Picard and Wang, 2015, III, 2022).

2.2.4 Causes of motor/automobile insurance fraud

The causes of insurance fraud with respect to motor/automobile insurance are widely investigated by social scientists. In this study however, some of the related literatures were reviewed as discussed below.

From various investigated causes of insurance fraud (Yusuf, 2011, Dionne and Gagné, 2000, NCLC, 2022, CAIF, 2021b, Derrig, 2002b, Avortri and Agbanyo, 2020), Akomea-Frimpong et al. (2016) identified the three dominant causes of internal fraud in the Ghanaian insurance market as - (i) poor remuneration of employees or managers (ii) weak internal controls, and (iii) dubious relationship between employees or managers and outsiders. Other identified causes of internal fraud from their studies are – unfair treatment of employees, forged signatures/documents, unsatisfied answers to auditor's questions by directors and managers, display of dominant management style company's directors/managers in order avoid being challenged or criticized, complex organizational structure, poor records of transactions, exhibition of extreme greed by members of staff, report of sale of company's assets at below

the actual selling price, and unusual transactions as to time (i.e., day of the week, season, etc.,), frequency (too many, too few), place (too near, too far out), amount (too high, too low, too consistent, too different) and parties (related parties, strange relationships). For external insurance frauds (usual committed by the claimant or policyholder, intermediaries, etc.,), Akomea-Frimpong et al. (2016) identified the following as the root antecedents, namely - falsified documents, attitude to defraud insurers, characteristics of the losses, nature and history of the policyholder or claimant, lack of standardized approach in conducting brokerage business by insurance brokers, intermediaries (independent brokers and insurance agents) proven difficult to detect and report of their wrongdoings, and inadequate trainings given to by intermediaries. In recent times however, 'sunk cost fallacy' had been identified as another major cause of motor insurance fraud (Ma, 2021, Ho et al., 2018). It was noted by Ma (2021) that some policyholders may perceive that as their insurance policies are being expired (usually in the last month of the policy year or period), the premiums already paid may be seen wasted if they fail to report any incident (claims) during that insurance period. Since they know that premiums paid are non-refundable (sunk costs), for this reason, they intentionally create an event (i.e., accidents) that never existed to enable them to get back all already premiums paid. In the same way, Dionne and Gagné (2000) have identified a '*replacement cost endorsement*' as a further cause of motor insurance fraud. With endorsement of replacement cost, motor policyholders are given the opportunity to be indemnified (compensated) for a new vehicle when the insured (existing) vehicle is damaged beyond repairs or stolen. It was claimed that replacement cost endorsement had been in use in Canada and France since late 1980's while some insurers in the United States are beginning to think in the same direction. The fraud element comes into play when the policyholders of an endorsed replacement cost start to think of getting their vehicles replaced (usually 2 years after the existing vehicle had been in use) by engaging in any wrongdoing that may lead to a replacement rather than renewing their existing old cars (Dionne and Gagné, 2000). Again, according to CAIF (2021b), '*third-party solicitation*' was claimed to be another root antecedent towards motor insurance fraud. Here, third parties to insurance contracts (i.e., lawyers, unlicensed claim adjusters, restoration companies, etc..,) may needlessly involve themselves in the claims to be or being processed by the policyholders (claimants) usually after a road accident for a fee (mostly a percentage of claimed amount and sometimes, a fixed amount). These third parties ensure the claimant signs off a document to prove their right of access to the insurance claim. Once this has been done, the third parties therefore begin to

manipulate the claims (by raising the amount claimable) for their selfish interests. Thus, this study raises the following research questions in order to (i) offer the opportunity to gain insights into the specific factors that contribute to motor insurance fraud in Nigeria, benefiting various stakeholders and contributing to the academic understanding of fraud in the insurance industry and (ii) establish the technical relationship (s) if any, that exist between root antecedents of fraud and motor insurance fraud types:

Research question No.1 (RQ1) - ***What is the most prevalent antecedent of motor insurance fraud in Nigeria?***

Research question No.2 (RQ2) - ***What is the perceived influence of different fraud antecedents on the level of fraudulent motor insurance claims in Nigeria?***

2.2.5 Internal controls and their effectiveness

According to Committee of Sponsoring Organisations of the Treadway Commission (COSO, 2013a), internal control is defined as "…a process, effected by an entity's board of directors, management, and other personnel, designed to provide reasonable assurance regarding the achievement of objectives relating to operations, reporting, and compliance". Internal control is aimed to achieve three main objectives namely – (i) to ensure organizational plans towards operations and finances are effectively efficient (operations objectives); (ii) to ensure prompt reporting of financials as and when due (reporting objectives); and (iii) to ensure organizational compliance with all relevant regulations (compliance objectives). Nawawi and Salin (2018), (COSO, 2013b) argued that for an internal control to be effective it is expected to have a strong backing of the management, be adequate, and complete. Hence, this would be able to prevent or curtail to a reasonable extent, the fraudulent activities within the organisation by enhancing a good sense of responsibility and accountability among employees; and also, by avoiding risk-taking habits that can be detrimental to the assets of the organization. Otherwise, fraudsters (internal or external to the organization) could leverage this weakness (internal control) to commit frauds, which could lead to the following: (i) reduction in the organization's income, (ii) reduction in investment ability, (iii) reduction in market share, (iv) increase in audit fee, (v) negative market perception, and (vi) poor reporting of company's financials (Bakarich and Baranek†, 2021, Chalmers et al., 2018, E. Lokanan, 2014, Lobo et al., 2017, COSO, 2013b, Nawawi and Salin, 2018).

2.2.6. Theoretical review

The present study is guided by three theoretical foundations in order to explain further, the root antecedents of frauds in the Nigerian motor insurance industry, namely – (i) Fraud triangle theory/ Diamond fraud theory, (ii) Adam's equity theory, and (iii) Diffusion innovation theory.

2.2.6.1 Fraud Triangle Theory (FTT)/Diamond Fraud Theory (DFT)

Donald Cressey, a criminologist, pioneered the study of fraud in 1950, claiming that everything humans do must have a cause. Specifically, his research focused on what motivates people to break trust. In a five-month period, he interviewed 250 criminals whose actions fitted two criteria: (i) people accept trust duties in good faith at first, and (ii) circumstances forced them to break the trust. He identified that for a crime to occur three variables (pressure, opportunity, and rationalisation) were present. Cressey's three aspects of fraud, are as depicted in Figure 5. The pressure/motivation to commit fraud is represented at the top of the figure, while perceived opportunity and reasoning are represented at the bottom (Abdullahi and Mansor, 2015b). Wolfe and Hermanson published the diamond fraud theory (DFT) for the first time in December 2004 in the CPA Journal. It's thought to be a more comprehensive version of the fraud triangle theory (Abdullahi and Mansor, 2015a). The diagram for DFT is shown in Figure 6 . The three initial fraud components of the FTT have been supplemented by a capability element in this theory. According to Wolfe and Hermanson (2004), fraud is unlikely to occur unless the fourth criterion (i.e., capability) is also present.

The notions of opportunity, pressure, rationalisation, and capacity in motor insurance fraud

Opportunity: In the Fraud Triangle Theory and Diamond Fraud Theory, opportunity refers to the existence of favourable conditions or circumstances that make motor insurance fraud possible (Cressey, 1950, Wolfe and Hermanson, 2004). These conditions could include weaknesses in the insurance system, such as inadequate controls, insufficient monitoring, or loopholes in claim procedures. For instance, if an insurance company lacks robust

verification processes or fails to implement effective fraud detection mechanisms, it creates an environment where individuals perceive an opportunity to exploit the system without getting caught.

Pressure: Pressure represents the factors that drive individuals to engage in fraudulent activities (Cressey, 1950, Wolfe and Hermanson, 2004). In the context of motor insurance fraud, these pressures may stem from financial difficulties, personal or business-related financial obligations, or the desire for monetary gain through fraudulent means. For example, someone facing significant financial distress might be tempted to stage a car accident or inflate a claim to obtain a larger insurance pay-out, driven by the pressure to alleviate their financial burdens.

Rationalization: Rationalization refers to the cognitive process through which individuals justify their fraudulent actions to themselves. It allows them to reconcile their behaviour with their personal values or beliefs (Cressey, 1950, Wolfe and Hermanson, 2004). In the case of motor insurance fraud, rationalization might involve convincing oneself that the insurance company is financially stable enough to absorb the loss or that the fraudulent act is justified due to perceived grievances against the insurer. Rationalization helps individuals mitigate guilt or ethical concerns associated with their fraudulent actions.

Capacity: Capacity refers to an individual's ability to carry out motor insurance fraud successfully. It encompasses the necessary skills, knowledge, resources, and access required to commit the fraudulent act (Cressey, 1950, Wolfe and Hermanson, 2004). For instance, capacity might involve technical know-how to stage accidents, manipulate evidence, or forge documents. It could also involve having connections or access to networks involved in fraudulent activities, such as a network of individuals willing to collaborate in a fraudulent insurance claim.

Hence, these notions of opportunity, pressure, rationalization, and capacity provide a framework for understanding the underlying factors that contribute to motor insurance fraud according to the Fraud Triangle Theory and Diamond Fraud Theory. By identifying and addressing these factors, insurers and policymakers can develop preventive measures, implement effective fraud detection systems, and improve the overall integrity of the motor insurance industry.

More specifically, The Fraud Triangle Theory (FTT) and Diamond Fraud Theory (DFT) can provide valuable insights in addressing the research questions raised in the study as follows:

Research question No.1 - **"*What is the most prevalent antecedent of motor insurance fraud in Nigeria*?"**

The Fraud Triangle Theory and Diamond Fraud Theory can help in identifying and understanding the most prevalent antecedent of motor insurance fraud in Nigeria. These theories emphasize the presence of three key factors: opportunity, pressure, and rationalization. By examining these factors within the Nigerian context, researchers can assess the specific circumstances, conditions, and motivations that contribute to motor insurance fraud. This analysis can provide insights into the primary antecedent or combination of antecedents that are most prevalent in driving fraudulent activities within the motor insurance industry in Nigeria.

The Fraud Triangle Theory and Diamond Fraud Theory can also aid in understanding the perceived influence of different fraud antecedents on the level of fraudulent motor insurance claims in Nigeria. These theories highlight the interplay between the three elements of opportunity, pressure, and rationalization, as well as the capacity factor. By exploring these factors and their perceived impact on fraudulent motor insurance claims, researchers can gain insights into how each antecedent contributes to the occurrence and severity of fraud. This understanding can help in determining the relative significance of different antecedents and their influence on the overall level of motor insurance fraud in Nigeria.

In both research questions, the FTT and DFT provide conceptual frameworks that guide the investigation and analysis of the antecedents of motor insurance fraud. These theories offer a systematic and structured approach to understanding the underlying factors that contribute to fraudulent activities, allowing researchers to explore and interpret the prevalence and perceived influence of these factors in the specific context of motor insurance fraud in Nigeria.

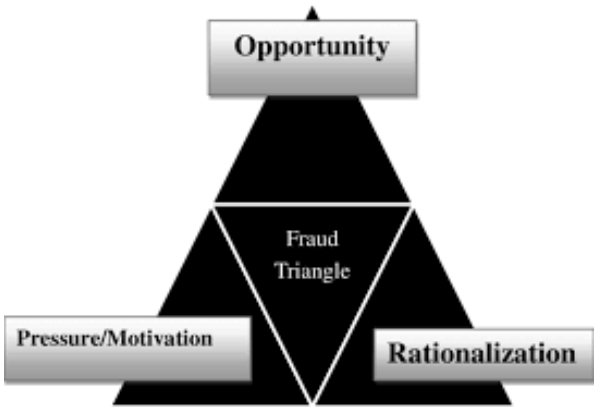

Figure 5. Fraud triangle (Cressey, 1971).

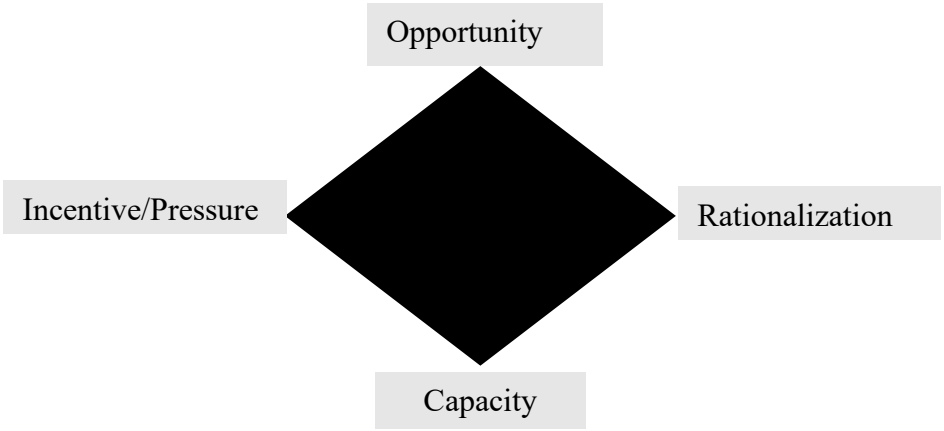

Figure 6. Fraud Diamond Theory (Wolfe and Hermanson, 2004).

2.2.6.2 Adam's equity theory

John Stacey Adams established Equity Theory in 1963 to demonstrate the probable behaviours of employees who believe they are treated unfairly or rewarded unfairly in the workplace. Since then, the theory has been applicable in the management setting to assist in the resolution of employee complaints. It suggests that employees may limit their performance to the level that they consider commensurate with the type of compensation they receive if they believe there is injustice in the organisation (Akomea-Frimpong et al., 2016, AlFayez, 2016, Al-Zawahreh and Al-Madi, 2012). In a case of the insurance market, customers' perceptions of fairness are an important ingredient in the survival of the market. Akomea-Frimpong et al. (2016) opined that where an insurance firm's customers (including their employees) perceive that they have not been treated equally (i.e., preferential treatment

in claims settlement, premium payment, policy acceptance, differential payment of staff salaries and wages, etc.) compared to how others in the same position are being treated, could lead to 'fraud and unethical' issues within this system. Also, Tseng and Kuo (2014) argued that customers who have bad attitudes toward insurance companies (due to how bad their previous claims settlements were handled) are more inclined to consider insurance fraud to be a common occurrence. Hence, the inclusion of this theory in the present study has therefore supported our inquisitiveness towards root antecedents of fraud in the Nigerian motor insurance industry. Specifically, this theory suggests that some motor insurance policyholders (i.e., those with less expensive vehicles) could be involved in fraud at the time of making claims if they believe they have not been treated fairly when compared with the ways and manners in which others (i.e., those with extremely expensive vehicles) are being treated by insurance providers.

2.2.6.3 Diffusion innovation theory

One of the earliest social science theories is E.M. Rogers' Diffusion of Innovation (DOI) Theory, which he developed in 1962. It was first coined in the field of communication to describe how an idea or product develops traction and diffuses (or spreads) through a certain population or social system over time. People adopt a new idea, behaviour, or product as part of a social system as a result of diffusion. The eventual outcome of this dissemination is that people adopt a new concept, habit, or product as part of a social system. Adoption entails a person doing something different from what they previously did (i.e., purchase or use a new product, acquire, and perform a new behaviour, etc.). Adoption depends on the person's perception of the idea, behaviour, or product as novel or unique. Diffusion is conceivable as a result of this (Health, 2019, Akomea-Frimpong et al., 2016, Arunga, 2012). Taking a scenario of the insurance market, fresh ideas are vital to the industry's continued growth. Hence, large financial claims are common, and if not handled properly with innovative ideas and approaches, an insurance company's viability may be jeopardised. This is because if the participants in the insurance market are not adequately controlled, many false claims and fraudulent actions could be performed against the insurance companies. We are therefore informed by this theory that failure of the insurance firms to embrace fresh ideas and the use of contemporary technological tools could grind them to a standstill. Hence, we hope to find in this study that fraudulent insurance claims would be highly experienced where the

insurance market fails to invest in human capital and technological tools in detecting and preventing motor insurance fraud.

2.2.7. Earlier studies

Akomea-Frimpong et al. (2016) conducted a study to investigate the causes, effects, and deterrence of insurance fraud in Ghana with three major findings. First, they found out that insurance fraud has a negative impact on the financial performance of insurance companies in Ghana. Second, the major causes of insurance fraud in Ghana includes – poor internal controls, poor employees' satisfaction (i.e., remuneration), documents falsification, inadequate training for insurance intermediaries (i.e., insurance brokers and agents), and the willingness of the policyholders to deliberately make gains from the insurance contracts. Lastly, they found that the effective ways to deter insurance fraud in Ghana are an effective internal control systems with a careful assessment of insurance policies and documentation, both at the inception of the policy and at the time of claim; adequate training for the insurance intermediaries; and the application of the modern technologies for detecting and prevention of insurance frauds. Although their study was carried out in Ghana and still, able to tell us the root antecedents of fraud in the Ghanian insurance industry but first, the scope of their study covered the entire insurance portfolio - making their study failed to investigate the specifics in the motor insurance market. Second, the sample size of 39 from 39 insurance companies seems to be ridiculously low considering the average number of senior members of staff in a typical insurance company. Hence, the representativeness of the sample size could be questionable. Third, investigating three different problems: (i) causes of fraud, (ii) effects of insurance frauds, and (iii) fraud deterrence, in one study, within a limited time frame, could raise an issue on the robustness of the study. Similarly, Zanghieri (2017a) conducted a study on what causes insurance fraud with evidence on motor third party liability in Italian provinces and found out the three main drivers to include: (i) the terms of the contract upon which the cost of insurance is determined, (ii) the social norms, and (iii) the economic environment. Zanghieri argued that when the policyholders perceive the cost of insurance (premium) to be too high, it creates an opportunity for either soft or hard fraud. In addition, Zanghieri opined that the social norms are ordinarily expected to discourage insurance fraud but could become less effective due to business cycle or unfavourable economic conditions (i.e., 2008/2009 economic recession, unemployment, etc.). Although the

research was conducted within the Italian context, Zanghieri used secondary data to establish the root incidents of motor insurance fraud. In the same vein, Dionne and Gagné (2000) showed in their study how replacement cost endorsement can lead to an opportunistic or soft fraud in motor insurance business.

From the ongoing, various literatures had been reviewed to achieve the objectives of this study and four research questions had been raised, yet the ensuing gaps were revealed to justify the necessity for this study. First, none of the reviewed literatures focused on motor claims fraud within the Nigerian context. Second, although a more closely study was investigated within the Italian context, the researchers relied on secondary data (due to availability of data) to establish root antecedents of fraud. However, our study relies on primary data (i.e., perceptions of employees of Nigeria motor insurers due to lack of empirical data).

2.2.8. Conceptual framework

Model 1

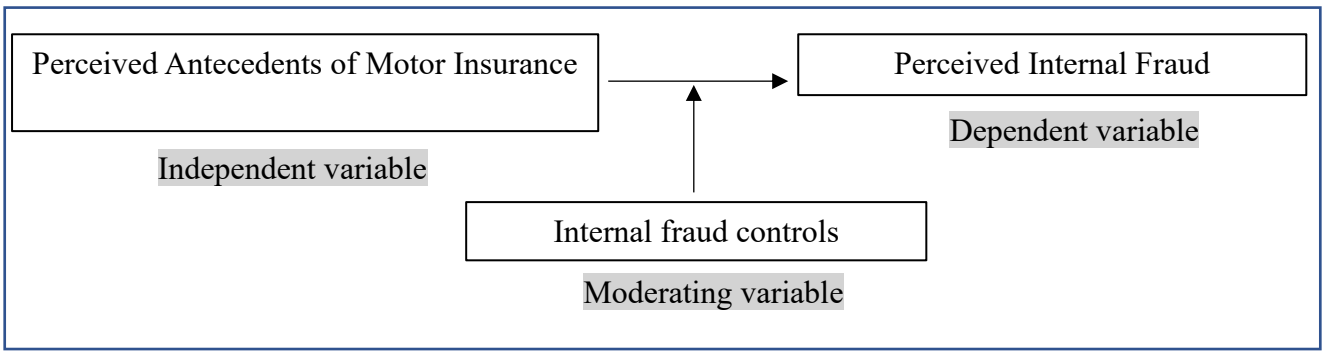

Figure 7. Conceptual framework for model 1, Paper 2.

Model 2

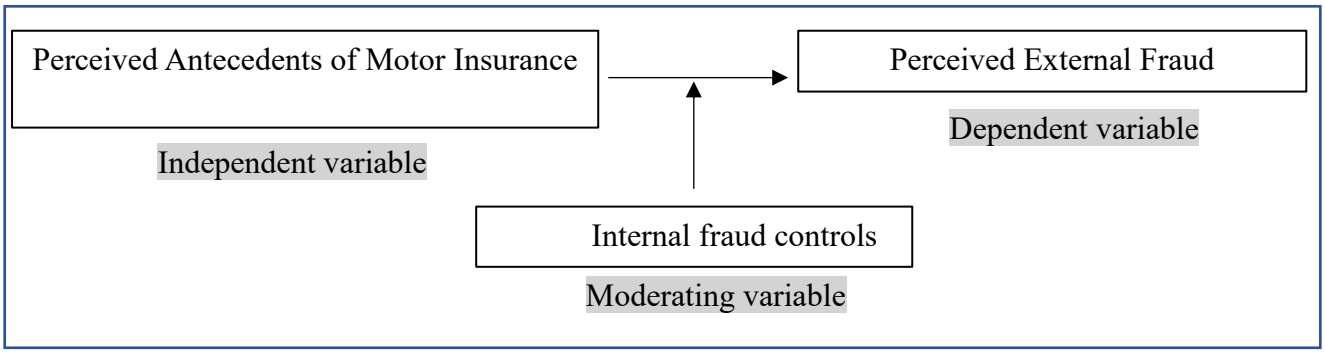

Figure 8. Conceptual framework for model 2, Paper 2.

Model 3

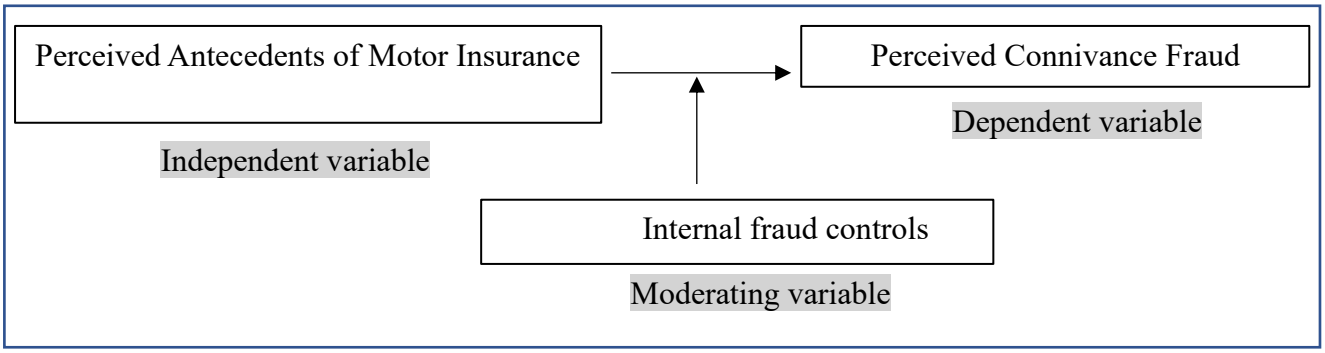

Figure 9. Conceptual framework for model 3, Paper 2.

Figure 7 presents the conceptual framework of the study (model 1). It involves three variables, namely - independent variable (i.e., perceived antecedents of motor insurance fraud), dependent variable (i.e., perceived internal fraud), and moderating variable (effectiveness of internal fraud controls). Figure 7 depicts the relationship between the three variables – it shows that the perceived antecedents of motor insurance fraud (IV) have influence on the perceived internal fraud (DV) while internal fraud control (MV) is capable of moderating the relationship between the IV and DV. Figure 8 illustrates the conceptual framework of the study (model 2). It involves three variables, namely - independent variable (i.e., perceived antecedents of motor insurance fraud), dependent variable (i.e., perceived external fraud), and moderating variable (effectiveness of internal fraud controls). Figure 8 depicts the relationship between the three variables – it shows that the perceived antecedents

of motor insurance fraud (IV) have influence on the perceived external fraud (DV) while internal fraud control (MV) is capable of moderating the relationship between the IV and DV. Figure 9 also depict the conceptual framework of the study (model 3). It involves three variables, namely - independent variable (i.e., perceived antecedents of motor insurance fraud), dependent variable (i.e., perceived connivance fraud), and moderating variable (effectiveness of internal fraud controls). Figure 9 depicts the relationship between the three variables – it shows that the perceived antecedents of motor insurance fraud (IV) have influence on the perceived connivance fraud (DV) while internal fraud control (MV) is capable of moderating the relationship between the IV and DV.

2.2.9. Statement of hypothesis

Having reviewed the various literatures as discussed in the previous sections of this study, the following hypotheses were proposed:

H1: There is a statistically significant difference in the perceptions of various departmental groups in the Nigerian motor insurance market regarding perceived internal fraud.

H2: The influence of perceived fraud antecedents of motor insurance fraud on perceived internal fraud will be moderated by internal fraud controls.

H3: The influence of perceived fraud antecedents of motor insurance fraud on perceived external fraud will be moderated by internal fraud controls.

H4: The influence of perceived fraud antecedents of motor insurance fraud on perceived connivance fraud will be moderated by internal fraud controls.

2.3. Methodology

This section details the tools used for the collection and analysis of data for this study, to enable the researchers to address the research questions raised in the study. The following sub-headings were captured in this section – data collection, participants, and materials.

2.3.1. Data collection

We built our analysis on a survey of employees of motor insurance companies in Nigeria. Hence, a questionnaire was designed and administered to collect our data – i.e., perceptions of our participants on the root antecedents of motor insurance frauds in Nigeria.

2.3.2. Participants

The sample ($N = 167$) consisted of a representative selection of all employees of motor insurance companies in Nigeria. These participants were selected from different departments within the Nigerian insurance companies (i.e., motor claims, motor underwriting, marketing, accident, and others) using purposive and snowball sampling. I approached the participants via a social media professional forum (i.e., WhatsApp group) with an initial message of my intending survey sent to the group (having gotten the permission of the administrators). We employed purposive sampling due to my judgement in selecting participants with good knowledge, experience, and skills in motor insurance claims fraud in Nigeria. Also, purposive sampling is quite appropriate when dealing with perceptions of people in a particular field of study (Martinez-Mesa et al., 2016). Moreover, because my target participants come from different branches of insurance companies across the country – Nigeria, I employed snowball sampling in addition to purposive in order to reach a desirable number of participants. In consideration of the ecological validity and learnability criteria in Rowe and Wright (2001), We are confident to consider my participants an 'expert sample'. Specifically, greater number of the participants (68.3%) were professionally qualified, aged between 26 and 66. More than 84% of the participants had over 6 years of work experiences in the Nigerian motor insurance market, and are made up of male (67.7%) and female (32.3%) gender with varying academic qualifications (i.e., B.Sc./HND – 39.5%; Masters – 57.5%; Others -Diploma & PhD).

2.3.3. Materials

Most of the questions in the survey used a five-point Likert-response scales ranging from Strongly disagree (coded as *0*) to Strongly Agree (coded as 4). It also included other response scales (i.e., single choice, multiple choice, etc.). The questionnaire consisted of seven main sections. The first section contains three questions (PIF1 to PIF3) measuring the perception of

internal fraud in motor insurance claims in Nigeria insurance market – using a five-point Likert-response scales. Section 2 contains three questions (PEF1 to PEF3) aimed to measure the perception of external fraud in motor insurance claims in Nigeria - using a five-point Likert-response scales. Section 3 contains three questions (PCF1 to PCF3) aimed to measure the perception of connivance fraud in motor insurance claims in Nigeria - using a five-point Likert-response scales. Section 4 contains four questions (CIF1 to CIF4) aimed to measure the perceived causes of internal fraud in motor insurance claims in Nigeria - using a five-point Likert-response scales. Section 5 contains eight questions (CEF1 to CEF8) aimed to measure the perceived causes of external fraud in motor insurance claims in Nigeria - using a five-point Likert-response scales. Section 6 contains five questions (CVF1 to CVF5) aimed to measure the perceived causes of connivance fraud in motor insurance claims in Nigeria - using a five-point Likert-response scales. The final section collects data on demographic factors among our participants. Appendix S2 contains details of our designed material.

2.3.3.1 Explanation of Perceived Fraud Antecedents (PFAs) in Model 1, Model 2, and Model 3.

In our study, the Perceived Fraud Antecedents (PFAs) were derived as the average of three different types of perceived causes of fraud:

i. **Perceived Causes of Internal Fraud (CIF)**
ii. **Perceived Causes of External Fraud (CEF)**
iii. **Perceived Causes of Connivance Fraud (CVF)**

For each model, the independent variable, PFAs, was calculated as follows:

- **Model 1:** PFAs = Average of CIF, CEF, and CVF
- **Model 2:** PFAs = Average of CIF, CEF, and CVF
- **Model 3:** PFAs = Average of CIF, CEF, and CVF

This approach was chosen to ensure a comprehensive evaluation of all perceived causes of fraud, rather than isolating each type for separate models. This methodology provides a holistic view of the fraud antecedents impacting the Nigerian motor insurance industry.

2.3.3.2 Justification for Using Average of CIF, CEF, and CVF

1. **Holistic View of Fraud Antecedents:**

- By taking the average of CIF, CEF, and CVF, we capture the overall perception of fraud causes as seen by the experts. This holistic approach reflects the interconnected nature of different types of fraud within the industry. Isolating each type might overlook the synergistic effects and overlapping factors that contribute to fraud.

2. **Enhanced Statistical Reliability:**
    - Averaging across CIF, CEF, and CVF increases the reliability of the measure by reducing the potential bias and variability associated with individual perceptions of each type of fraud. It ensures that the PFAs used in the models are not overly influenced by outliers or specific conditions unique to one type of fraud.
3. **Consistency Across Models:**
    - Using the average PFAs consistently across all models ensures comparability and coherence in our analysis. It allows us to systematically assess the impact of perceived fraud antecedents on different dependent variables without altering the independent variable construct between models.
4. **Reflects Industry Complexity:**
    - The insurance industry, especially in the context of fraud, involves complex interactions between internal, external, and connivance frauds (Yusuf, 2011, Dionne and Gagné, 2000, NCLC, 2022, CAIF, 2021b, Derrig, 2002b, Avortri and Agbanyo, 2020). A composite measure (average of CIF, CEF, and CVF) better represents the multifaceted nature of fraud risks that professionals encounter.

2.3.4. Regression analysis

To examine the relationships between the perceived fraud antecedents (PFA), internal fraud control (IFC), and the three types of perceived fraud (Perceived Internal Fraud (PIF), Perceived External Fraud (PEF), and Perceived Connivance Fraud (PCF)), we conducted separate regression analyses for each model.

Model 1: Perceived Internal Fraud (PIF)

The dependent variable, PIF, was regressed on the independent variable PFA and the moderating variable IFC using a linear regression model:

$PIF = \beta 0 + \beta 1(PFA) + \beta 2(IFC) + \varepsilon$

Model 2: Perceived External Fraud (PEF)

The dependent variable, PEF, was regressed on the independent variable PFA and the moderating variable IFC using a linear regression model:

$PEF = \beta 0 + \beta 1(PFA) + \beta 2(IFC) + \varepsilon$

Model 3: Perceived Connivance Fraud (PCF)

The dependent variable, PCF, was regressed on the independent variable PFA and the moderating variable IFC using a linear regression model:

$PCF = \beta 0 + \beta 1(PFA) + \beta 2(IFC) + \varepsilon$

All regression models were estimated using ordinary least squares (OLS) method, and the coefficients ($\beta 1$ and $\beta 2$) were interpreted as the magnitude and direction of the relationships between the variables. The error term (ε) represents the unexplained variation in the dependent variable.

2.3.4.1 Inclusion of Interaction Terms

In our regression models, we included interaction terms to capture the moderating effect of internal control. This is depicted in the last rows of Tables 3.6, 3.7, and 3.8, where the interaction terms are specified, and their coefficients are reported.

Demonstration from Tables

1. **Table 3.6: Summary of Regression Results for Model 1**
    - The last row of Table 3.6 includes the interaction term between internal control and PFAs (PFA*Internal Control).
    - This interaction term tests whether the relationship between PFAs and the dependent variable is moderated by internal control.
2. **Table 3.7: Summary of Regression Results for Model 2**
    - The last row of Table 3.7 includes the interaction term between internal control and PFAs (PFA*Internal Control).

- This interaction term is included to examine the moderating effect of internal control on the relationship between PFAs and the dependent variable in Model 2.

3. **Table 3.8: Summary of Regression Results for Model 3**
    - The last row of Table 3.8 also includes the interaction term between internal control and PFAs (PFA*Internal Control).
    - This interaction term is included to assess the moderating effect of internal control on the relationship between PFAs and the dependent variable in Model 3.

Hence, to test the moderating effect of internal control on the relationship between perceived fraud antecedents (PFAs) and the dependent variables, interaction terms (PFA*Internal Control) were included in the regression models. The coefficients of these interaction terms are reported in the last rows of Tables 3.6, 3.7, and 3.8, demonstrating the significance of internal control as a moderator.

2.4. Data analysis

This section presents the analysis of the questionnaire data. Descriptive statistics were employed to get a preliminary understanding of the results.

2.4.1. Description of participants profile and reliability test statistics

The descriptions of our participants profile are summarised in this section. They are described in terms of their gender, academic qualifications, ages, and professional qualifications.

Table 10. Demographic Characteristics of Sample (N = 167).

Sex	**Frequency**	**Percentage**
Female	54	32.3
Male	113	67.7
Total	167	100.0
Academic qualifications		
Ordinary diploma	4	2.4
B.Sc/HND	66	39.5
Masters	96	57.5
PhD/DBA	1	.6
Total	167	100.0
Professional qualifications		
No professional qualifications	52	31.3
Professional qualifications	115	68.7
Total	167	100
Ages (range)		
21-30	10	5.99
31-40	33	19.76
41-50	74	44.31
51-60	35	20.96
61 and above	15	8.98
Total	167	100.00

2.4.2 Description of participants' responses to questions in section 1 to 6 of the scale

The summary of the participants' responses with respect to the various sections of the questionnaire is as given in Table 11.

Table 11. Mean Responses to Questions Concerning PIF, PEF, PCV, CIF, CEF, and CVF

Scale Label	*Scale Reliability (Cronbach's α)*	*Item Response Option*	*Item*	*Mean* (SD)
Scale Label	*Scale Reliability (Cronbach's α)*	*Item Response Option*	*Item*	*Mean* (SD)
Perceived internal fraud (PIF) (*n* = 167)	0.659	5-point scale: 0 = strongly disagree, 4 = strongly agree	PIF1: To what extent do you agree that internal fraud is a major issue in motor insurance claims administration in Nigeria?	3.29 (.912)
			PIF2: To what extent do you agree that anyone working within the insurance company presents a potential fraud risk to motor insurance claims in Nigeria?	3.22 (.990)
			PIF3: To what extent do you agree that frauds perpetrated within the Nigerian insurance company does increase motor insurance claims pay-out?	3.22 (.858)
Perceived external fraud (PEF) (*n* = 167)	0.745	5-point scale: 0 = strongly disagree, 4 = strongly agree	PEF1: To what extent do you agree that external fraud is a major issue in motor insurance claims administration in Nigeria?	3.26 (.931)
			PEF2: To what extent do you agree that anyone having a contractual relationship (i.e., policyholder, agents, loss adjuster, etc) with the insurance company presents a potential fraud risk to motor insurance claims in Nigeria?	3.20 (.893)
			PEF3: To what extent do you agree that frauds perpetrated from outside of the insurance company does increase motor insurance claims pay-out in Nigeria?	3.01 (.976)

Perceived connivance fraud (PCF) (*n* = 167)	0.716	5-point scale: 0 = strongly disagree, 4 = strongly agree	PCF1: To what extent do you agree that connivance fraud is a major issue in motor insurance claims administration in Nigeria?	3.29 (.815)
			PCF2: To what degree do you concur that establishing long-term relationships among employees in insurance, brokerage firms, and loss adjusting firms poses a potential risk of fraud in motor insurance claims within Nigeria?	3.10 (.977)
			PCF3: To what extent do you agree that collusion between persons working directly (i.e., employees) and indirectly (i.e., agents, loss adjusters, etc) with the insurance company does increase motor insurance claims pay-out in Nigeria?	3.04 (.934)
Perceived causes of internal fraud (CIF) (*n* = 167)	0.710	5-point scale: 0 = strongly disagree, 4 = strongly agree	CIF1: In your opinion, to what extent do you agree that the following factors currently lead to Internal insurance fraud in the Nigerian motor insurance business? Poor remuneration or working conditions for employees and managers.	3.18 (.786)
			CIF2: Weak internal controls (e.g., managers or supervisors having limited control, authority, oversight and/or auditing of employee activities	3.29 (.792)
			CIF3: Manager or employee with external business interests putting pressure on other employees to satisfy their external parties.	3.31 (.813)
			CIF4: Manager or employees having close or long – standing relationships with consumers and other external parties	3.08 (.867)
Perceived causes of	0.837	5-point scale:	CEF1:	3.10 (.887)

external fraud (CEF) (*n* = 167)		0 = strongly disagree, 4 = strongly agree	In your opinion, to what extent do you agree that the following factors currently lead to External insurance fraud? Policyholder or claimant is willing is to accept low settlement with cash payment option.	
			CEF2: Policyholder or claimant is very knowledgeable about insurance terms	3.19 (.896)
			CEF3: Irregularities in claims documentation by claimant (i.e., no original documents, no name on the documents, strange dates, etc.,)	3.09 (.971)
			CEF4: Inconsistency between the insured amount and the characteristics of the insured (like lifestyle, age, profession, etc.,)	3.23 (.857)
			CEF5: Poor supervision of intermediaries' (broker or agent) activities (e.g., the Policyholder/insured lives beyond the region where the broker/agent operates)	3.21 (.930)
			CEF6: Inadequate training and education on insurance fraud by intermediaries	3.29 (.928)
			CEF7: Intermediary often changes address or name.	3.14 (.987)
			CEF8: Loss adjusters' fees are comparatively low (not often review) and are not paid as and when due by some insurers.	3.10 (1.01)
Perceived causes of connivance fraud (CVF) (*n* = 167)	0.745	5-point scale: 0 = strongly disagree, 4 = strongly agree	CVF1: In your opinion, to what extent do you agree that the following factors currently lead to connivance fraud? For a certain amount from the claimant, the Loss-adjuster agrees to report an inflated claim amount (from the claimant) to the insurer.	3.14 (.907)
			CVF2:	3.05 (.984)

	Under a sharing arrangement between the insurance intermediary and claimant, the intermediary agrees with the claimant to report a loss that had already occurred before the policy is incepted with the insurance company	
	CVF3: The claim manager agrees to approve/honour an otherwise 'repudiated claim' under a sharing agreement of the proceeds with the claimant.	3.05 (.890)
	CVF4: For a certain amount from the claimant, a standard motor garage agrees with the claimant to issue a repair estimate (though the vehicle is not being repaired at this garage).	3.30 (.861)
	CVF5: Under a sharing formula of the proceeds, the claimant agrees with the intermediary, loss-adjuster, and insurance claim manager/officer to plan/report a loss that never existed.	3.07 (.893)

2.4.3. Addressing research questions and tests of hypotheses

2.4.3.1 Research question No.1 – RQ1 (i.e., What is the most prevalent antecedent of motor insurance fraud in Nigeria?). This section illustrates how the RQ1 was addressed.

Table 12 illustrates the participants' individual perceptions/responses of what constitute internal fraud (PIF), external fraud (PEF), and connivance fraud (PCF) regarding motor insurance claims in Nigeria. The mean data show closely related results (PIF = 3.24, PEF = 3.15, PCF = 3.14) among the three different types of insurance frauds in Nigeria motor insurance market. A categorical claim could not be made based on the most prevalent in occurrence (i.e., the three mean data are approximately *3* with no statistically significant difference). Hence, the frequency of occurrence regarding the perceived internal fraud,

perceived external fraud, and perceived connivance fraud is practically on the same level within the Nigerian motor insurance market.

Table 12. Summary of participants' means responses

	N	Minimum response	Maximum response	Mean
Perceived internal fraud (PIF)	167	0	4	3.24
Perceived external fraud (PEF)	167	0	4	3.15
Perceived connivance fraud (PCF)	167	0	4	3.14

From the results in Table 12, an analysis of variance test (ANOVA) was conducted in order to compare whether the differences in means of PIF, PEF, and PCF were statistically significant across the different departments (i.e., motor claims, motor underwriting, marketing, and others) within the insurance companies. The summary of the results is as given in Table 13. The results indicated that the mean differences across the different departmental insurance groups were statistically significant with respect to PIF (F [3, 163] = 3.967, p = 0.03) and PEF (F [3, 163] = 3.292, p = 0.022), while the mean differences across different departmental insurance groups were not statistically significant with respect to PCF (F [3, 163] = .800, p = 0.495).

Table 13. Summary of descriptive statistics and independent t-test results.

	Descriptive statistics			ANOVA		
	Departments	N	Mean	F	df	P-value
Perceived internal fraud	Accident and others	40	3.3000	3.967		0.003
	Marketing	27	2.9352	Between Groups	3	
	Motor underwriting	33	3.3409	Within Groups	163	
	Motor claims	67	3.1306			
	Total	**167**				
Perceived external fraud	Accident and others	40	3.3063	3.292		0.022
	Marketing	27	2.9444	Between Groups	3	
	Motor underwriting	33	3.2197	Within Groups	163	
	Motor claims	67	3.0224			
	Total	**167**				
Perceived connivance fraud	Accident and others	40	3.1813	0.800		0.495
	Marketing	27	3.0000	Between Groups	3	
	Motor underwriting	33	3.1667	Within Groups	163	
	Motor claims	67	3.0746			
	Total	**167**				

Source: Survey 2022

Moreover, in order to identify the specific departments in which there was a significant difference within the various insurance groups, an extended *t*-test (i.e., Post Hoc Test) was conducted. The outcome of the results is as summarized in Table 14. Pairwise comparison of the means using Tukey's post hoc test revealed that there was a significant difference in the means of '*motor underwriting*' and '*other*' departments, and between '*motor underwriting'* and '*marketing*' ($p < 0.05$) regarding PIF. Hence, the null hypothesis was rejected and conclude that there was a statistically significant difference in the perceptions of various departmental groups in Nigeria motor insurance market regarding perceived internal fraud.

Table 14. Results of Post Hoc Test.

Multiple Comparisons							
Tukey HSD							
						95% Confidence Interval	
Dependent Variable	**(I) Insurance department**	**(J) Insurance department**	**Mean Difference (I-J)**	**Std. Error**	**Sig.**	**Lower Bound**	**Upper Bound**
Perceived Internal Fraud	Other	Motor underwriting	.48642*	0.00000	0.027	**Lower Bound**	**Upper Bound**
		Marketing	-0.05455	0.16290	0.987	-0.4774	0.3683
		Motor claims	0.22587	0.13841	0.364	-0.1334	0.5852
	Motor underwriting	Other	-.48642*	0.17254	0.027	-0.9343	-0.0386
		Marketing	-.54097*	0.17976	0.016	-1.0076	-0.0744
		Motor claims	-0.26055	0.15791	0.354	-0.6704	0.1493
	Marketing	Other	0.05455	0.16290	0.987	-0.3683	0.4774
		Motor underwriting	.54097*	0.17976	0.016	0.0744	1.0076
		Motor claims	0.28042	0.14732	0.231	-0.1020	0.6628
	Motor claims	Other	-0.22587	0.13841	0.364	-0.5852	0.1334
		Motor underwriting	0.26055	0.15791	0.354	-0.1493	0.6704
		Marketing	-0.28042	0.14732	0.231	-0.6628	0.1020
Perceived External Fraud	Other	Motor underwriting	0.458	0.184	0.065	-0.02	0.93
		Marketing	0.115	0.173	0.910	-0.33	0.57
		Motor claims	0.378	0.147	0.053	0.00	0.76
	Motor underwriting	Other	-0.458	0.184	0.065	-0.93	0.02
	Marketing	Marketing	-0.342	0.191	0.282	-0.84	0.15
		Motor claims	-0.079	0.168	0.965	-0.52	0.36

		Other	-0.115	0.173	0.910	-0.57	0.33
	Motor claims	Motor underwriting	0.342	0.191	0.282	-0.15	0.84
		Motor claims	0.263	0.157	0.339	-0.14	0.67
		Other	-0.378	0.147	0.053	-0.76	0.00
		Motor underwriting	0.079	0.168	0.965	-0.36	0.52
		Marketing	-0.263	0.157	0.339	-0.67	0.14
		Motor underwriting	0.242	0.182	0.544	-0.23	0.71
		Marketing	0.019	0.171	0.999	-0.43	0.46
		Motor claims	0.142	0.146	0.763	-0.24	0.52
		Other	-0.242	0.182	0.544	-0.71	0.23
		Marketing	-0.222	0.189	0.644	-0.71	0.27
		Motor claims	-0.100	0.166	0.932	-0.53	0.33
		Other	-0.019	0.171	0.999	-0.46	0.43
		Motor underwriting	0.222	0.189	0.644	-0.27	0.71
Perceived Connivance Fraud		Motor claims	0.123	0.155	0.858	-0.28	0.53
		Other	-0.142	0.146	0.763	-0.52	0.24
		Motor underwriting	0.100	0.166	0.932	-0.33	0.53
		Marketing	-0.123	0.155	0.858	-0.53	0.28
*. The mean difference is significant at the 0.05 level.							

*2.4.3.2 **Research question No.2**– RQ2 (i.e., What is the perceived influence of different fraud antecedents on the types of motor insurance fraud in Nigeria?).*

To provide an answer to the above research question, we proposed three different hypotheses to be tested using a regression analysis model:

Second

H2 - The influence of perceived fraud antecedents of motor insurance fraud on perceived internal fraud will be moderated by internal fraud controls.

Third

H3 - The influence of perceived fraud antecedents of motor insurance fraud on perceived external fraud will be moderated by internal fraud controls.

Fourth

H4 - The influence of perceived fraud antecedents of motor insurance fraud on perceived connivance fraud will be moderated by internal fraud controls.

2.4.3.2.1 Testing hypothesis two

H2 - The influence of perceived fraud antecedents of motor insurance fraud on perceived internal fraud will be moderated by internal fraud controls.

Table 15 indicates the inclusion of the interacting effect of internal control in the relationship between perceived fraud antecedents and perceived internal fraud. Overall, the model is statistically significant (p-value = 0.0000), indicating that it provides a good fit for the data (Berman, 2022). The R^2 (0.3011) shows that about 30.11% variation in perceived internal fraud is explained by perceived fraud antecedents where internal control acts as a moderator. However, the ***interaction term*** is not statistically significant ($p = 0.3548 > 0.05$). This suggests that there is insufficient evidence to conclude that the moderating variable has a significant impact on the relationship between perceived fraud antecedents and perceived internal fraud. Hence, the null hypothesis is accepted and therefore conclude that the influence of perceived fraud antecedents of motor insurance fraud on perceived internal fraud is not moderated by internal fraud controls.

Table 15. Summary of regression results for model 1 using the SPSS macro-PROCESS.

Variables	**Coefficient**	**t-Statistic**	**P-Value**	**F-Ratio**	**R^2**	**Model**
Y - Perceived internal fraud	0.301					P =.0000
Constant	-1.1963	-1.1868	.2370	23.4097		
X – Perceived Fraud Antecedents	1.3133	4.0538	.0001			df1= 3
W – Internal control	.5464	1.5777	.1166			df2= 163
***Interaction term**	-0.1646	-1.5685	.3548			

2.4.3.2.2 Testing hypothesis three

> H3 - The influence of perceived fraud antecedents of motor insurance fraud on perceived internal fraud will be moderated by external fraud controls.

Table 16 indicates the inclusion of the interacting effect of internal control in the relationship between perceived fraud antecedents and perceived external fraud. Overall, the model is statistically significant (p-value = 0.0000), indicating that it provides a good fit for the data (Berman, 2022). The R^2 (0.2468) shows that about 24.68% variation in perceived external fraud is explained by perceived fraud antecedents where internal control acts as a moderator. However, the ***interaction term*** is not statistically significant ($p = 0.3025 > 0.05$). This suggests that there is insufficient evidence to conclude that the moderating variable has a significant impact on the relationship between perceived fraud antecedents and perceived external fraud. Hence, the null hypothesis is accepted and therefore conclude that the influence of perceived fraud antecedents of motor insurance fraud on perceived external fraud is not moderated by internal fraud controls.

Table 16. Summary of regression results for model 2 using the SPSS macro-PROCESS.

Variables	**Coefficient**	**t-Statistic**	**P-Value**	**F-Ratio**	**R^2**	**Model**
Y - Perceived External Fraud					.2468	P =.0000
Constant	-0.4933	-0.4409	0.6599	17.8007		
X – Perceived Fraud Antecedents	0.9685	2.6932	0.0078			df1= 3
W – Internal control	0.5161	1.3424	0.1813			df2= 163
***Interaction term**	-0.1205	-1.0344	0.3025			

2.4.3.2.3 Hypothesis four

> H4 - The influence of perceived fraud antecedents of motor insurance fraud on perceived connivance fraud will be moderated by internal fraud controls.

Table 17 indicates the inclusion of the interacting effect of internal control in the relationship between perceived fraud antecedents and perceived connivance fraud. Overall, the model is statistically significant (p-value = 0.0000), indicating that it provides a good fit for the data (Berman, 2022). The R^2 (0.3103) shows that about 31.03% variation in perceived connivance fraud is explained by perceived fraud antecedents where internal control acts as a moderator. However, the ***interaction term*** is not statistically significant ($p = 0.6444 > 0.05$). This suggests that there is insufficient evidence to conclude that the moderating variable has a significant impact on the relationship between perceived fraud antecedents and perceived connivance fraud. Hence, the null hypothesis is accepted and therefore conclude that the influence of perceived fraud antecedents of motor insurance fraud on perceived connivance fraud is not moderated by internal fraud controls.

Table 17. Summary of regression results for model 3 using Process SPSS.

Variables	**Coefficient**	***t*-Statistic**	**P-Value**	**F-Ratio**	**R^2**	**Model**
Y - Perceived Connivance Fraud	0.310					P =.0000
Constant	0.6437	0.6282	0.5308	24.4445		
X - Perceived Fraud Antecedents	0.6409	1.9462	0.0534			df1= 3
W – Internal control	-0.0782	-0.2221	0.8245			df2= 163
***Interaction term**	0.0493	0.4625	0.6444			

2.5 Discussion of results

In addressing the research question (RQ1) – (i.e., *What is the most prevalent antecedent of motor insurance fraud in Nigeria?)*, the mean data indicated a very closely related results (i.e., perceived internal fraud = 3.24, perceived external fraud = 3.15, and perceived connivance fraud = 3.14). Due to the fact that the three results are approximately *3*, We decided not to make a categorical claim about the most prevalent of the three types of fraud. Hence, the frequency of their occurrence is practically the same. These results therefore failed to corroborate the existing findings - (i) that about 60% of the fraud perpetrated in small businesses are committed by their employees due to lack of adequate internal control systems (Othman and Ameer, 2022, KPMG, 2016), and (ii) about 19% of the occupational frauds are committed by their owners and executives, which was about six times and 17 times larger than those committed by their managers and low-level employees respectively (ACFE, 2022). Moreover, the Tukey's post hoc test was conducted in order to compare whether the difference in the means of perceived internal fraud, perceived external fraud, and perceived connivance fraud is statistically significant within the various departmental groups. The results show that there is a statistically significant difference between the *motor underwriting* and *other* departments, and between marketing and motor underwriting departments ($p < 0.05$) with respect to perceived internal fraud. Our opinion about this position is that often times, preferential treatments are given to the *marketing* departments with the understanding that they are the major source of direct income to the business (i.e., by soliciting businesses directly from individuals, corporate and governmental agencies) unlike the *motor underwriting* department that concentrates on ensuring bad risks are not brought into the business. This also corroborates the position of the Adam's equity theory (earlier discussed) where some employees could display unwanted behaviours when they believe that some of their colleagues, in the same standing, are being given preferential treatments in some areas of the business. Likewise, the statistically significant difference noted in the *motor underwriting* and *othe*r departments could be due to the fact that while technical insurance activities are being carried out in the motor underwriting unit, non-technical insurance activities are mostly being carried out in the latter.

In addressing the second research question – RQ2*,* three hypotheses were developed and tested using a regression analysis model. From our first hypothesis (H2) – (i.e., *the influence of perceived fraud antecedents of motor insurance fraud on perceived internal fraud will be*

moderated by internal fraud controls), the test results show that the influence of perceived fraud antecedents of motor insurance fraud on perceived internal fraud was not moderated by internal fraud controls. This suggests that internal controls are not effective in preventing or reducing fraud occurrences committed by members in Nigeria motor insurance companies. The ineffectiveness of the internal control systems in this scenario could mean many things – the control systems may lack the backing of the senior management, may be inadequate, and incomplete (Nawawi and Salin, 2018, COSO, 2013b). W also opine that the effectiveness of the internal control may be compromised where the majority of the frauds are committed by the senior members of staff (i.e., those that are expected to set the guidelines and approve the internal control systems). Hence, due to this problem, the motor insurance companies in Nigeria are more likely to experience - (i) reduction in the organization's income, (ii) reduction in investment ability, (iii) reduction in market share, (iv) increase in audit fee, (v) negative market perception, and (vi) poor reporting of company's financials (Bakarich and Baranek†, 2021, Chalmers et al., 2018, E. Lokanan, 2014, Lobo et al., 2017, COSO, 2013b, Nawawi and Salin, 2018). From the third hypothesis (H3) – (i.e., *the influence of perceived fraud antecedents of motor insurance fraud on perceived external fraud will be moderated by internal fraud controls*), the test results show that the influence of perceived fraud antecedents of motor insurance fraud on perceived external fraud will not be moderated by internal fraud controls. This suggests that internal controls are not effective in preventing or reducing fraud occurrences committed by external parties (i.e., policyholders, insurance intermediaries, etc.) to the Nigerian motor insurance companies. The same arguments follow as in H2 above. Lastly, from the fourth hypothesis (H4) – (i.e., *the influence of perceived fraud antecedents of motor insurance fraud on perceived connivance fraud will be moderated by internal fraud controls*), the test results show that the influence of perceived fraud antecedents of motor insurance fraud on perceived connivance fraud will not be moderated by internal fraud controls. This suggests that internal controls are not effective in preventing or reducing fraud occurrences committed by connivance of different parties (i.e., policyholders & internal staff, insurance intermediaries & policyholders, etc.) to defraud motor insurance companies in Nigeria. The same arguments follow as in H2 and H3 above. More importantly, the three theories earlier discussed in this study (i.e., Fraud triangle theory/ Diamond fraud theory, Adam's equity theory, and Diffusion innovation theory) were highly instrumental in shaping our thoughts throughout this research work. More specifically, the diffusion innovation theory has been very relevant in informing us about the use of

contemporary technological tools to manage the ineffectiveness of internal fraud controls in motor insurance fraud claims. It has therefore developed our thoughts towards appropriate recommendations in the following paragraph. Also, the fraud triangle theory set a foundation for this study. It established the primary antecedents of fraudulent claims in motor insurance (i.e., financial pressure, opportunity, and rationalization). Likewise, the analysis of factors responsible for fraudulent motor insurance claims took their existence from the fraud triangle theory. Hence, the justification for their inclusion in this study. Fortunately, we leveraged the group of young to senior insurance experts in various groups the researcher belongs to carry out the survey for this study. This expert sample has sincerely made the journey of this research work to be less problematic especially in the absence of empirical data for analysis. Else, the researcher would have resulted in engaging a paid sample expert that in some cases, might not meet the exact criteria for this study (i.e., emanate from Nigeria, with Nigerian experience and currently being working in the Nigerian insurance industry, etc.).

2.6 Conclusions

Contribution to the developing body of knowledge on motor insurance fraud has been made through this study. Significant studies have been deterred due to lack of empirical data for analysis in many region (e.g., Nigeria). In order to provide an understanding of the root antecedents of fraudulent motor insurance claims in Nigeria, we relied on the survey of experienced employees of motor insurance companies in Nigeria. Reviewed literatures showed that poor remuneration of employees, week internal controls, unfair treatment of employees, forged signatures, and complex organizational structures among others, are the root antecedents of motor insurance fraud in Nigeria. Specifically, this study has found that (i) the frequency of occurrence of perceived internal fraud, perceived external fraud, and perceived connivance fraud is practically the same in the Nigerian insurance industry; (ii) perceived antecedents of motor insurance fraud are capable of influencing the perceived motor insurance fraud types (i.e., internal fraud, external fraud, and connivance fraud); and finally, (iii) internal fraud controls are not effective/capable of moderating the relationship between the perceived antecedents of motor insurance frauds and perceived motor insurance fraud types in Nigeria. Having come to know the position (i.e., ineffectiveness) of internal fraud controls in the Nigerian motor insurance business, it is a wake-up call for the insurance

regulator, association of insurers, the chartered insurance institute, the institute of corporate governance, and other stakeholders in the Nigerian insurance industry. Failure to act fast may cost the industry loss of fortune which may be very difficult to redeem in the nearest future. Also, addressing this issue at the nearest future would save the industry from being taken over by other smaller businesses. Most importantly, lobbying at the national assembly for the industry's pressing concerns might not be taken so seriously due to poor management resulting from ineffectiveness of internal control practices in the industry.

In light with the findings, recommendations are therefore made as follows: that (i) employees of insurance companies in Nigeria should be duly rewarded and fairly treated in line with the international practices in order to reduce the frequency of occurrence of the fraud types; (ii) to make internal fraud controls effective/efficient, the heads of internal fraud control units should be truly independent in carrying out their job functions (i.e., report directly to the board of directors of insurance companies rather than as usually be the case, being checked by management staff); and (iii) to deter the occurrence of internal fraud, the latter recommendation should be strictly monitored with applicable sanctions by the national insurance commission of Nigeria (NAICOM); (iv) insurance providers are encouraged to invest heavily on modern technological tools in order to enhance an ongoing monitoring, prevention, and detection of fraudulent claims; (v) training of employees of insurance companies should be an ongoing practice rather than as usually be the case, often when incidents have occurred; (vi) conscious efforts should be made towards sharing of fraud information among industry practitioners, and finally, (vii) in order to encourage and support quality research and forecasting, the insurance regulators are to strictly enforce the collation, collection, and keeping of fraud data by insurance providers.

It is worth to be mentioned that research on insurance fraud in Nigeria is in its infancy stage. Consequently, there are constraints on the quantity of relevant literature and the availability of data that is accessible for analysis. Yet, this paper has provided an empirical understanding of the root antecedents of motor insurance claims fraud in Nigeria.

A bridge from Chapter 3 to Chapter 4

Having identified and analyzed the factors contributing to fraudulent claims in motor insurance in Paper 2 (Chapter 3), it became apparent that there exists a critical need to assess the effectiveness of existing anti-fraud strategies employed by Nigerian motor insurance companies. While Paper 2 shed light on the root causes of motor insurance fraud, it also revealed gaps in the current fraud control measures. Therefore, Paper 3 (Chapter 4) sought to address this gap by evaluating and comparing both perceptions and practices of anti-fraud strategies in Nigerian motor insurance companies. By examining the effectiveness of these strategies in mitigating fraudulent claims, Paper 3 aims to provide actionable insights for enhancing fraud risk management practices in the Nigerian insurance industry. Building upon the findings from Paper 2, Paper 3 endeavours to bridge the divide between perceived effectiveness and actual impact of risk management practices, thus identifying the qualities needed for more robust and evidence-based fraud prevention and management mechanisms.

Chapter Four

Perception to Practice: Uncovering the Effectiveness of Anti-Fraud Strategies in Nigerian Motor Insurance Companies

Abstract

This study investigates the effectiveness of anti-fraud strategies in Nigerian motor insurance firms amidst the ongoing challenge of fraudulent claims impacting industry growth. We analyse motor insurance incurred gross claims from 2017 to 2022 and, in the absence of specific data on anti-fraud measure effectiveness, survey senior employees' perceptions of these strategies. Surprisingly, while industry professionals generally viewed these strategies as effective, preventive, and detective strategies (with the exception of responsive strategies) were not correlated with reductions in motor insurance incurred gross claims. Additionally, internal control mechanisms within motor insurance companies did not moderate the relationship between perceived strategy effectiveness and motor insurance incurred gross claims. The study recommends continuous policy reviews, staff training, flexible anti-fraud measures, holistic risk assessments, and increased legislative support to strengthen the sector. This research contributes uniquely to insurance fraud literature, offering data-driven insights for sustainable advancement in the motor insurance industry.

KEYWORDS

Anti-fraud strategies, claim ratios, experts ‘perceptions, insurance fraud, motor insurance.

4.1 INTRODUCTION

Motor insurance fraud is a prevalent problem in Nigeria that has been plaguing the insurance business for years (NAICOM, 2019). Insurers and policyholders have both experienced substantial financial losses due to this issue. The Nigerian Insurers Association (NIA) report posits that insurance fraud is remarkably prevalent in the country, reaching an estimated 70% (NIA, 2019). Motor insurance fraud stands as a significant factor contributing to this problem. Customers have become increasingly dissatisfied with insurance products due to concerns about fraud, which has contributed to the low level of insurance penetration (i.e., policy purchases) in the country (Octavy, 2022). This issue has also contributed to the low level of insurance contribution to the country's GDP (PwC, 2020).

The insurance sector plays a pivotal role in any economy. It makes it possible for individuals and organisations to transfer their risks to insurance companies, reducing the financial fallout that can result from unfavourable occurrences such as accidents, theft, and the destruction of property (i.e., IRMI, 2023, III, 2020, Federal Reserve Bank of Minneapolis, 2017). However, the widespread presence of fraudulent activities within the insurance industry significantly erodes clients' overall trust in the system. This, in turn, leads to low policy purchases, which eventually has an influence on economic growth. Motor insurance fraud can take many different forms, including, but not limited to, staged accidents, inflated claims, fraudulent policies, and "ghost brokers". Both staged accidents and inflated claims encompass individuals who deliberately orchestrate accidents with the intention of obtaining insurance benefits. Nevertheless, it should be noted that staged accidents specifically involve individuals purposefully causing accidents to secure insurance benefits, whereas inflated claims pertain to individuals who exaggerate the extent of damage inflicted upon their vehicles to procure greater compensation. Fictitious policies are policies that have never been issued, and ghost brokers are those who offer false insurance to customers who are unaware that they are being taken advantage of and then pocket the premiums (Theaa, 2022).

The prevalence of motor insurance fraud in Nigeria has been attributed to a number of factors, such as inadequate regulatory oversight, weak internal control, unfair treatment of employees, falsified documents, lack of standardised approach in conducting brokerage business by insurance brokers, weak enforcement of existing laws, and a lack of public awareness about insurance and its associated benefits (Akomea-Frimpong et al., 2016, Insurance-Europe, 2019, Zanghieri 2017). According to Yusuf and Babalola (2009) and Inaya and Isito (2016), the effects of automobile insurance fraud in Nigeria are enormous and have

far-reaching ramifications for all parties involved in the industry. Fraud in the Nigerian motor insurance industry results in huge financial losses for insurers, which in turn leads to fewer earnings and lower returns on investment. Due to the possibility of being denied the compensation to which they are lawfully entitled, clients who become victims of fraudulent practices in the domain of motor insurance may be subject to substantial financial losses. In other instances, consumers can completely lose their vehicles, which would result in an additional load on their finances. The impact that fraudulent insurance claims have on the economy of Nigeria is also considerable (Yusuf et al., 2017). The lack of insurance patronage by consumers in the country is a consequence of insurance fraud, which hinders the development and growth of the sector. As stated by Inaya and Isito (2016), the pervasiveness of fraudulent activities within the Nigerian motor insurance sector prevents the industry from realizing its complete potential, despite its capacity to significantly contribute to the expansion of the economy. Hence, dealing with fraud has become a major concern for Nigeria's insurance sector because of the high occurrence of fraudulent activities in the country's motor insurance market.

According to Akinbola and Adetunmbi (2020), "…*there is a dearth of information regarding the anti-fraud frameworks and strategies currently employed in the Nigerian motor insurance industry"* (p. 104). In a comparable manner, the National Insurance Commission (NAICOM) released a report declaring that the supervisory authority had issued guidelines and regulations with the aim of augmenting the governance and risk management practices of insurance firms in Nigeria (NAICOM, 2019). These guidelines and regulations encompass measures (i.e., approaches for managing operational risks) aimed at the prevention and detection of fraudulent activities applicable to all players in the insurance industry. Still, there's doubt about whether these preventive measures will actually reduce the widespread occurrence of insurance fraud in Nigeria (Eme et al.,2016)

In other countries and industries, the development and implementation of anti-fraud frameworks/strategies have proven effective in reducing insurance fraud. In the United States for example, the National Insurance Crime Bureau (NICB) in the US has implemented a thorough programme to combat fraud. This program effectively utilizes data analytics, the creation of internal controls, as well as the establishment of legal and regulatory systems in order to discourage and prevent fraudulent activities. This programme has effectively reduced the incidence of insurance fraud in the United States. For example, in 2021, NICB has assisted their members to (i) recover 224,722 vehicles (with a total value of $661 million),

(ii) mitigate loss of $46M (iii) recover $10.5M through restitution orders, and (iv) complete 924 hours of insurance fraud education (inclusive of law enforcement bodies) (NICB, 2021).

With insurance fraud being widespread in Nigeria and considering the benefits that anti-fraud frameworks/strategies can bring, there could be many benefits to creating a framework to combat fraud in the Nigerian motor insurance sector (Bamidele et al., 2018). This framework could encompass (a) the establishment of a dedicated unit responsible for preventing fraud within each insurance company, (b) the utilization of data analytics and artificial intelligence for the purpose of detecting fraudulent activities and (3) the creation of robust legal and regulatory frameworks aimed at deterring such activities. Hence, such a framework could help insurance companies enhance their ability to prevent and detect fraudulent activities, resulting in reduced losses and lower premiums. While this framework has proven to be effective in the U.S, there is no evidence to suggest it can be effective in Nigeria.

This paper aims to evaluate the effectiveness of anti-fraud strategies within the Nigerian motor insurance industry from experts' point of views. To do this, (1) we analyze claim ratios and total claims spanning 2017-2022 obtained from the National insurance commission (NAICOM) and (2), in the absence of data on the effectiveness of anti-fraud measures in the industry, we survey senior employees' perceptions of anti-fraud strategy effectiveness. The insights gained from this analysis inform our recommendations for a comprehensive approach to managing motor insurance fraud in Nigeria, utilising an anti-fraud framework- preventive, detective, and responsive strategies.

While previous studies have primarily addressed the broader scope of insurance businesses, such as general insurance (e.g., Akomea-Frimpong and Ofosu-Hene, 2016), this research focuses specifically on the motor insurance sector. Unlike prior research (e.g., Gitau, 2018; Gobet and Gürtler, 2017; Li et al., 2023), this study examines the effectiveness of anti-fraud strategies within the Nigerian motor insurance industry. It leverages the insights of industry experts to assess the current effectiveness of these anti-fraud measures.

4.2 Prior literature and hypothesis development

4.2.1 Motor insurance

Globally, motor insurance provides financial protection for a wide range of vehicles used on public roadways. It goes by several names: automobile, car, or vehicle insurance. This protection extends to cars, lorries, ambulances, and other kinds of vehicles (Epetimehin and Akinselure, 2016, Sivakumar and Krishnaraj, 2012). Motor insurance is a type of insurance coverage that is bought to provide protection for the car owner, the vehicle itself, and other individuals who may be using the road simultaneously (Nidirect, 2021). All vehicle owners must have motor insurance; failing to have it (neglecting it) could result in the owners of the vehicles suffering an unanticipated financial loss (Soye and Momoh, 2021). It is important to choose the right type of insurance coverage that suits the needs and budget of the vehicle owner (Epetimehin and Akinselure, 2016, Nidirect, 2021, Soye and Momoh, 2021).

4.2.2 Insurance fraud

There are two potential ways of committing insurance fraud: hard fraud, which involves fabricating a claim devoid of any real-world basis, and soft fraud, which entails inflating the extent of damage incurred in a real accident (ABI, 2016). Either way, the goal of insurance fraud is to gain a financial advantage that is not warranted (Zanghieri, 2017). Fraudsters exploit the insurer's pledge to reimburse losses in certain predefined situations when the contract is signed. As a consequence, the criminal activity occurs within the contractual relationship between the policyholder and the insurer (Zanghieri, 2017). Insurance fraud is said to occur when any of the subsequent conditions are fulfilled: (i) the act of presenting insurance applications and proposal form responses that comprise of erroneous or insufficient data; (ii) the act of presenting a loss claim that is substantiated by information that is fictitious or misleading, which encompasses the exaggeration of a legitimate claim; or (iii) the act of supplying an insurance provider with statements that are false or deceptive, with the intent of procuring an advantage under the insurance policy (Insurance-Europe, 2019).

4.2.3 Perception

Perceptions play a pivotal role in the realm of insurance claims, fraud detection, prevention, and responsiveness (Anthony, 2009, Sritharan, 2017). According to Goldstein's (2019) proposition, the concept of perception involves the activities of recognizing, arranging, and interpreting sensory information to understand the surroundings individuals find themselves in. In the context of motor insurance fraud claims, these perceptions are instrumental in shaping the entire process, affecting detection, investigation, and resolution (McCue and Gladwin, 2020). For instance, differing perceptions held by claims investigators about specific demographic groups might result in overlooking valid claims or unfairly scrutinizing individuals. Similarly, if a claims adjuster deems a claimant untrustworthy due to cultural stereotypes, they might conduct a less thorough investigation. Moreover, differing perceptions among insurance agents regarding the seriousness of certain fraudulent activities could lead to inconsistencies in reporting and handling claims, thereby affecting the effectiveness of fraud detection and resolution efforts (McCue and Gladwin, 2020). De Fleur, Kearney, and Plax (1993) stress the role of cultural backgrounds in shaping perceptions, and this is particularly relevant in Nigeria, where cultural nuances influence the interpretation of information.

In the Nigerian context, relying on expert perceptions of the effectiveness of anti-fraud strategy becomes imperative due to the absence of comprehensive statistical data (i.e., frequency and severity of motor insurance fraud). Organisations/insurers in Nigeria may have different knowledge management processes, different structures, and competences from those in the U.S (i.e., Oginni et al., 2012, Adewunmi et al., 2014). The effectiveness of anti-fraud strategies is therefore a complex parameter. Expert perceptions become a crucial tool in navigating this complexity, as they are informed by experience and contextual understanding, providing insights that statistical data alone cannot offer (Slovic, 1987). In the absence of concrete statistical resources (i.e., frequency and severity of motor insurance fraud), leveraging expert perceptions becomes essential (Michael et.al., 2004) for a nuanced and culturally sensitive approach to researching motor insurance fraud in Nigeria.

4.2.4 Anti-fraud framework

The foundation of any successful anti-fraud effort rests on upholding integrity as a fundamental value and adopting a no-tolerance stance towards fraud (Todorović et al., 2020). To counteract fraud, companies need to implement a sophisticated anti-fraud strategy, requiring commitment from top management and at all other levels of the organisation (CGMA, 2012; CIMA, 2009; Eusebio, 2017). In the United States, research conducted by Bandyopadhyay and Brown (2007) revealed that organizations with robust fraud prevention strategies, incorporating internal controls, risk assessments, and management support, encountered lower levels of fraud incidents. A study in the United Kingdom by Button and Brooks (2012) emphasized the impact of effective management leadership and support on fraud prevention initiatives, showing that proactive management involvement led to greater success in fraud prevention and detection. In Australia, Smith and Cuganesan's (2009) research highlighted senior management commitment as a critical success factor in deterring fraud in the public sector. Similarly, Pickett and Pickett's (2014) study on Canadian organizations found that active management support resulted in lower levels of fraud incidents, emphasizing the importance of a strong tone at the top. Eusebio (2017) stressed the collective responsibility of the entire management, including the Board of Directors, Executive Committee, and various committees, in the ongoing fight against fraud and risk management processes. An anti-fraud strategy framework typically encompasses four components, namely, fraud prevention, detection, deterrence, and response. These components are interconnected through ethical culture, current legislation, risk management, and corporate governance (CIMA, 2009; CGMA, 2012; Eusebio, 2017; Todorović et al., 2020), as illustrated in Figure 4.1.

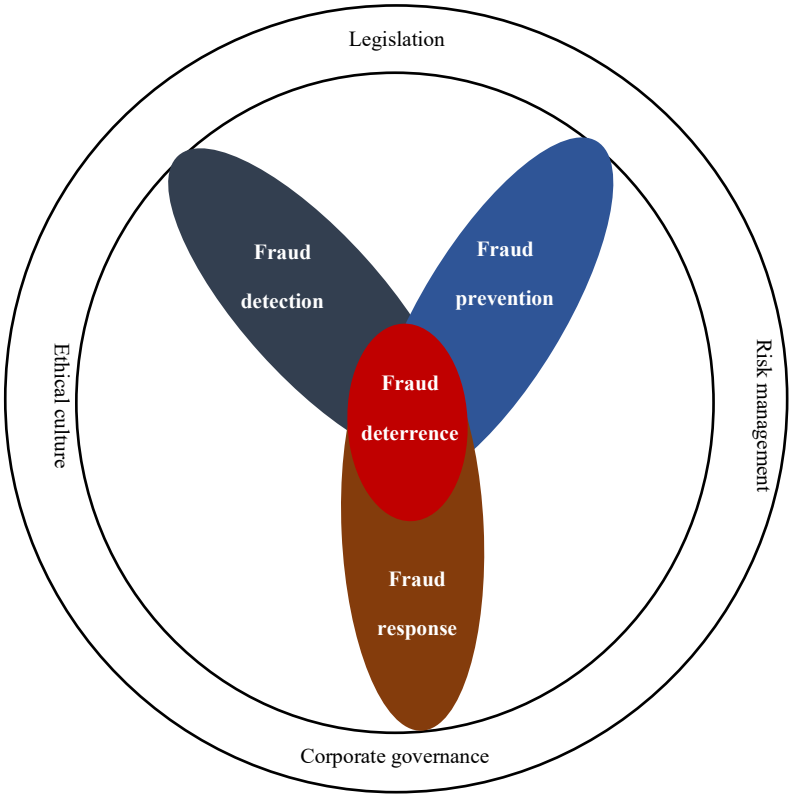

Figure 10. Anti-fraud strategy.

Source: Chartered Global Management Accountant (CGMA, 2012)

In Figure 10, the initial component, fraud prevention, aims to eliminate opportunities for potential offenders and remove their temptations. Strategies for preventing fraud involve implementing policies, procedures, controls, and activities like training and awareness campaigns (CGMA, 2012). Eusebio (2017) categorizes fraud prevention into punitive, defensive, and interventionist methods. Punitive approaches involve increasing punishment to create a deterrent effect. Defensive methods focus on reducing vulnerabilities, enhancing internal controls, and implementing thorough risk assessments. However, an interventionist approach, such as developing an ethical culture or a fraud awareness program, may prove more effective in preventing fraud (Eusebio, 2017). One notable example of an interventionist approach in preventing fraud is Enron Corporation in the early 2000s. After the infamous Enron scandal, companies globally began implementing ethical culture development and fraud awareness programs to enhance transparency and corporate governance, aiming to prevent fraudulent activities. The success varies among firms, but

these interventions have become standard practices in the business world (Antonia, et. al., 2021).

In the insurance industry, stakeholders suggest specific prevention strategies: integrating insurance fraud into a broader financial crime strategy, ensuring industry partners are familiar with anti-fraud approaches, establishing a unified insurance fraud register, providing customer education on fraudulent behaviours and risks, forming an insurance fraud task force, and strengthening legal frameworks (ABI, 2016; Christopher and Aditi, 2020; Gobet and Gürtler, 2017; Insurance-Europe, 2019; GOV UK, 2016). The motor insurance sector, however, is working to strengthen its anti-fraud efforts in recognition of the interconnected nature of insurance fraud and other types of financial misbehaviour (Li and Dong 2018). Collaboration among stakeholders, transparent communication, and due diligence on partners' processes are essential for effective prevention. A centralized fraud register facilitates efficient identification of potential fraudsters, while customer education and legal frameworks play crucial roles in deterring fraudulent activities. The formation of an insurance fraud task force, bringing together insurers, law enforcement, and regulatory bodies, supports coordinated efforts in detecting, investigating, and prosecuting fraud cases. Strengthening legal frameworks, including specific legislation focused on insurance fraud, ensures appropriate consequences, and acts as a deterrent (CGMA, 2012, ABI, 2016, Insurance-Europe, 2019).

The second element in Figure 10 focuses on fraud detection, with the goal of identifying known fraudulent activities, as well as anomalies and irregularities not immediately attributed to fraud (Furlan and Bajec, 2008; CGMA, 2012). An effective fraud detection strategy involves implementing measures like Exception Reporting, Data Mining, Trend Analysis, and Ongoing Risk Assessment to proactively detect potential fraud cases (CGMA, 2012). Establishing an Anonymous Reporting Channel encourages whistleblowing and uncovers fraudulent activities (Eusebio, 2017). Process Controls, Proactive Fraud Detection Procedures, and Staff Training on Counter Fraud Strategy, incorporating internal controls, segregation of duties, and data analytics, contribute to early fraud prevention and detection (Eusebio, 2017; Insurance-Europe, 2019; ABI, 2016). Clear procedures for Reporting Suspected Insurance Fraud and ensuring internal capabilities align with risk tolerance through comprehensive assessments are crucial (ABI, 2016). The establishment of an insurance industry-funded fraud enforcement unit and an insurance fraud bureau facilitates collaborative investigation and prosecution (ABI, 2016; CGMA, 2012; CAIF, 2021).

Leveraging technology and data analytics, and promoting intelligence gathering and sharing among stakeholders, including insurers, industry associations, law enforcement, and regulatory bodies, enhance real-time monitoring, pattern identification, and effective fraud prevention (CAIF, 2021; Eusebio, 2017; GOV.UK, 2016).

Analysing the fraud response component from Figure 10, drawn from Eusebio (2017), Galeotti et al. (2020), CGMA (2012), and Octavy (2022), reveals the following elements to be important: (i) Establishing clear guidelines and channels for reporting suspected fraud with a consistent approach (CGMA, 2012; Gobet and Gürtler, 2017). (ii) Implementing defined processes and tools, such as hotlines, for accessible fraud reporting, enhancing early detection (Octavy, 2022; CGMA, 2012). (iii) Developing swift protocols for handling reported cases, assigning responsibilities to dedicated teams (Furlan and Bajec, 2008; CGMA, 2012). (iv) Creating thorough investigation procedures to increase the likelihood of successful prosecution (Akomea-Frimpong et al., 2016; Christopher and Aditi, 2020). (v) Establishing deterrent protocols for handling perpetrators, involving legal actions and disciplinary measures (CGMA, 2012; Akomea-Frimpong et al., 2016). (vi) Developing strategies for financial recovery, such as insurance claims and legal remedies, to serve as a deterrent (Amasiatu and Shah, 2018b; CGMA, 2012; Cramer et al., 2019). (vii) Conducting a rigorous review of anti-fraud measures, implementing changes for continuous improvement based on lessons learned and emerging trends (Furlan and Bajec, 2008; CGMA, 2012). In our view, we align with the identified important elements for effective fraud response due to their comprehensive coverage of key aspects in combating motor insurance fraud. Clear reporting guidelines and accessible tools ensure transparency and early detection, while swift protocols and dedicated teams facilitate efficient investigations. Thorough procedures for prosecution and deterrent measures underscore the importance of accountability, complemented by strategies for financial recovery. Continuous review and adaptation of anti-fraud measures reflect a commitment to staying abreast of evolving fraud trends. Together, we opine that these elements provide a robust framework for mitigating motor insurance fraud effectively.

The fraud response plan's deterrence value, impact on policyholder confidence, and contributions to market stability and evidence integrity are highlighted benefits (CGMA, 2012, CIMA, 2009). In the insurance sector, specific measures include hotlines, whistleblowing incentives, reporting to fraud units, defined investigation procedures, and perpetrator prosecution (Gitau, 2018, ABI, 2016, Akomea-Frimpong et al., 2016, CGMA, 2012).

In Figure 10, the key components of an anti-fraud strategy are intricately connected through ethical culture, current legislation, risk management, and corporate governance. According to CGMA (2012), an organization's susceptibility to fraud risk is fundamentally influenced by its prevailing attitudes and culture. The acceptance of minor unethical actions, like petty theft, might indicate a lenient culture that extends even to more significant frauds perpetrated by management. An effective ethical culture statement need not be extensive, but CGMA (2012) identifies essential elements for its efficacy: a mission statement emphasizing quality and ethics, clear policies on business ethics and anti-fraud, a defined process for reporting suspected fraud, periodic reminders about ethical and fraud policies, a robust risk-based audit process, and a visibly committed management.

Legal support is paramount, with thorough enforcement of existing laws and the possibility of enacting new legislation crucial for the success of an anti-fraud strategy (Eusebio, 2017). Risk management, described as identifying potential threats and formulating strategies to counteract them, is integral, especially concerning fraud risk (CIMA, 2009). The risk management cycle involves understanding the nature of potential risks and devising plans to mitigate their impact (Eusebio, 2017; CGMA, 2012; CIMA, 2009). Figure 11 outlines a risk management cycle.

Furthermore, Eusebio (2017) contends that the mere existence and practice of corporate governance are insufficient for reducing perceived fraud levels. The establishment of a robust corporate governance framework, including a code of ethics, internal control mechanisms, and the diligent work of auditors and an audit committee, is essential for effectively curbing fraud occurrences. By highlighting the interconnectedness of these components (i.e., the foundational role of ethical culture, legislation, risk management, and corporate governance in combating motor insurance fraud), we underscore their significance in reducing fraud risks and achieving our research objectives. Through a comprehensive understanding of how ethical culture, legislation, risk management, and corporate governance influence fraud prevention, our study seeks to provide actionable insights for enhancing the effectiveness of anti-fraud measures in the motor insurance sector.

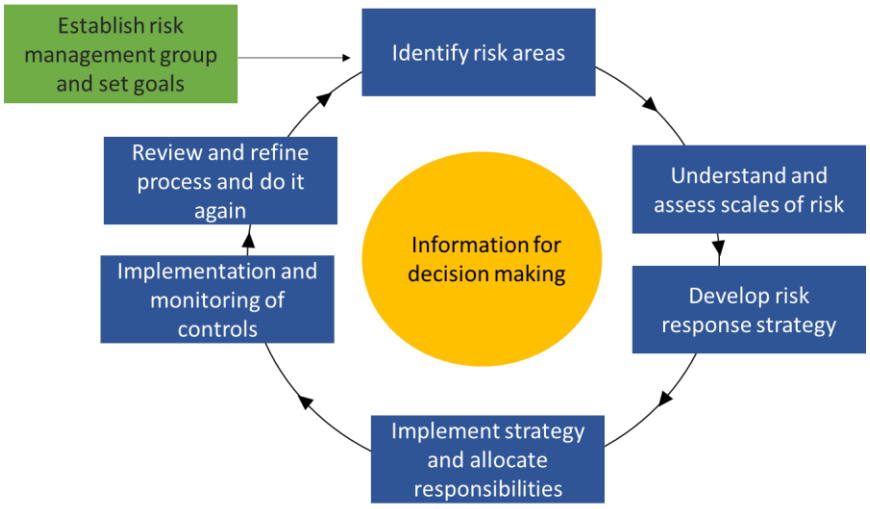

Figure 11. Risk Management Cycle.

Source: Chartered Institute of Management Accountants (CIMA, 2009).

4.2.5 Gross incurred claims and claim ratios

In the evaluation of insurance risk and profitability, key metrics include gross incurred claims and the claims ratio. Gross incurred claims encompass the total payments made or obligated by an insurer for covered losses over a specified period, adjusting for any changes in claim reserves (Rejda and McNamara, 2020). Mathematically, it is given as:

$$GIP = CP + (OCR\ b/cd - OCR\ b/fd)$$

Where:

GIP = Gross Incurred Claims

CP = Claims paid during the period

OCR b/cd = Ending outstanding claim reserves

OCR b/fd = Beginning outstanding claim reserves (Dorfman and Cather, 2019).

Simultaneously, the claims ratio, often termed the loss ratio, acts as an indicator of underwriting profitability by juxtaposing incurred claims against earned premiums (Vaughan and Vaughan, 2018). The formula is expressed as: Claims Ratio = (Gross Incurred Claims / Earned Premiums) × 100% (Rejda & McNamara, 2020). A heightened claims ratio may indicate imbalances between claim expenditures and premium incomes, suggesting underwriting challenges (poor performance), offering nuanced insights into operational efficacy, and guiding strategic risk management (Vaughan & Vaughan, 2018).

Prior research, including studies by Gitau (2018), Malik (2011), Muthama et al. (2013), and Mwangi and Murigu (2015), positions gross incurred claims and claims ratio as crucial performance indicators in the insurance market. These metrics not only serve as profitability indicators but also influence future premiums and the continued viability of insurance companies as a going concern. Increased fraudulent claims can lead to unsustainable net claims, causing the failure of insurance companies (Gitau, 2018). False incurred claims pose a threat to the fundamental concept of insurance, which aims to provide compensation for unfortunate events (Malik, 2011). Gitau (2018) establishes a negative association between fraud monitoring and prevention practices among medical insurance providers and the gross incurred claim ratio, highlighting the significant inverse link between insurance company profitability and gross incurred claims.

The present study aims to investigate the perceived effectiveness of anti-fraud strategies in the motor insurance sector in Nigeria (i.e., whether the various anti-fraud strategies – preventive, detective, and responsive, are capable on reducing the gross incurred motor insurance claims). We therefore state the following to explore the relationship between perceived anti-fraud strategies and gross incurred motor insurance claims in Nigeria:

Hypothesis 1 (H1): *There is a negative relationship between the perceived effectiveness of preventive anti-fraud strategies and the gross incurred motor insurance claims.*

Hypothesis 2 (H2): *There is a negative relationship between the perceived effectiveness of detective anti-fraud strategies and the gross incurred motor insurance claims.*

Hypothesis 3 (H3): *There is a negative relationship between the perceived effectiveness of responsive anti-fraud strategies and the gross incurred motor insurance claims.*

Hypothesis 4 (H4): *The perceived effectiveness of preventive, detective, and responsive anti-fraud strategies together explain a significant variance in the gross incurred motor insurance claims.*

4.2.6 Internal Controls and their effectiveness

Internal controls play a pivotal role in ensuring the integrity and efficiency of organizational operations. According to the Committee of Sponsoring Organisations of the Treadway Commission (COSO, 2013a), internal control is defined as "…a process, effected by an entity's board of directors, management, and other personnel, designed to provide reasonable assurance regarding the achievement of objectives relating to operations, reporting, and compliance". This definition underscores the comprehensive nature of internal controls, which aim to achieve three main objectives: ensuring effective and efficient operations (operations objectives), prompt and accurate financial reporting (reporting objectives), and compliance with relevant regulations (compliance objectives).

Nawawi and Salin (2018) and COSO (2013b) emphasise that for internal controls to be effective, they must be strongly supported by management, adequately designed, and fully implemented. Effective internal controls enhance responsibility and accountability among employees, thereby reducing the likelihood of fraudulent activities. Moreover, robust internal controls mitigate risk-taking behaviours that could jeopardize the organization's assets. Conversely, weak internal controls provide opportunities for fraudsters, whether internal or external, to exploit these vulnerabilities, leading to detrimental outcomes such as reduced income, diminished investment capability, loss of market share, increased audit fees, negative market perception, and inaccurate financial reporting (Bakarich and Baranek, 2021; Chalmers et al., 2018; Lokanan, 2014; Lobo et al., 2017; COSO, 2013b; Nawawi and Salin, 2018).

The effectiveness of internal controls is intrinsically linked to the establishment of a strong ethical culture within the organisation. A code of ethics serves as the foundation for internal controls, promoting ethical behaviour and decision-making (COSO, 2013b; Nawawi and Salin, 2018). It is the role of the board of directors and management to cultivate and maintain this culture, which permeates all levels of the organisation (Lokanan, 2014). By fostering an environment where ethical standards are upheld, organizations can significantly reduce the risk of fraudulent activities (COSO, 2013b).

Furthermore, internal control mechanisms must be dynamic and adaptable to changing circumstances. Regular reviews and updates are essential to address emerging risks and ensure continued compliance with regulatory requirements (Chalmers et al., 2018). This proactive approach allows organizations to anticipate and mitigate potential threats before they materialize into significant issues (COSO, 2013b).

The role of auditors and audit committees is also crucial in the effectiveness of internal controls. Auditors provide an independent assessment of the adequacy and functioning of internal controls, while audit committees oversee the financial reporting process and the organisation's compliance with legal and regulatory requirements (Bakarich and Baranek, 2021; Lobo et al., 2017). Their diligent work ensures that any weaknesses in the internal control system are identified and rectified promptly, thereby enhancing the overall effectiveness of the internal control framework (COSO, 2013b; Nawawi and Salin, 2018).

Hence, the effectiveness of internal controls is a critical factor in preventing and detecting fraud within an organisation. By establishing a robust internal control system supported by a strong ethical culture, regular reviews, and the diligent efforts of auditors and audit committees, organizations can safeguard their assets, maintain financial integrity, and ensure compliance with regulatory standards (Bakarich and Baranek, 2021; Chalmers et al., 2018; COSO, 2013b; Nawawi and Salin, 2018). These measures collectively contribute to the overall health and sustainability of the organisation.

This study further examines the moderating impact of internal control mechanisms on the relationship between anti-fraud strategies and gross incurred motor insurance claims, testing the following hypotheses:

Hypothesis 5 (H5): *Internal control mechanisms moderate the relationship between the perceived effectiveness of anti-fraud strategies and the gross incurred motor insurance claims.*

4.2.7 Conceptual framework

Figure 12 depicts the conceptual framework of the study (*model 1*). It involves three variables, namely - independent variable (i.e., perceived anti-fraud preventive strategy), dependent variable (i.e., gross incurred motor insurance claims), and moderating variable (i.e., age of the company). Figure 12 shows the relationship between the three variables – it shows that the perceived anti-fraud preventive strategy (IV) has influence on the gross incurred motor insurance claims (DV) while the age of the company (MV) is capable of moderating the relationship between the IV and DV. Figure 13 illustrates the conceptual framework of the study (*model 2*). It involves three variables, namely - independent variable (i.e., perceived anti-fraud detective strategy), dependent variable (i.e., gross incurred motor insurance claims), and moderating variable (i.e., age of the company). Figure 14 depicts the

relationship between the three variables – it shows that the perceived anti-fraud detective strategy (IV) has influence on the gross incurred motor insurance claims (DV) while the age of the company (MV) is capable of moderating the relationship between the IV and DV.

MODEL 1 – Fraud prevention

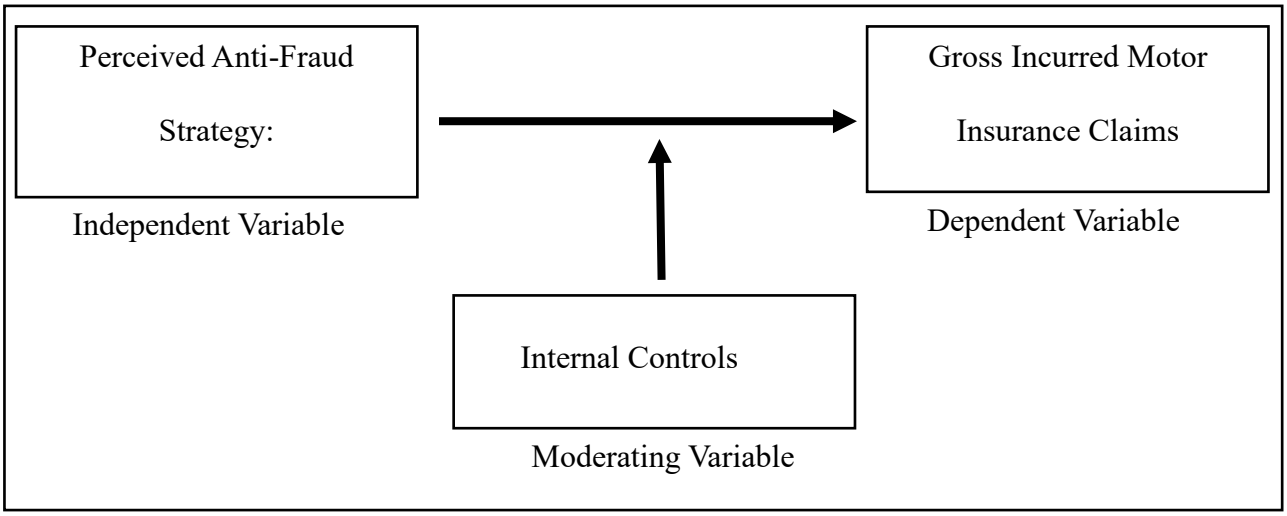

Figure 12. Conceptual framework for Model 1, Paper 3.

MODEL 2 – Fraud detection

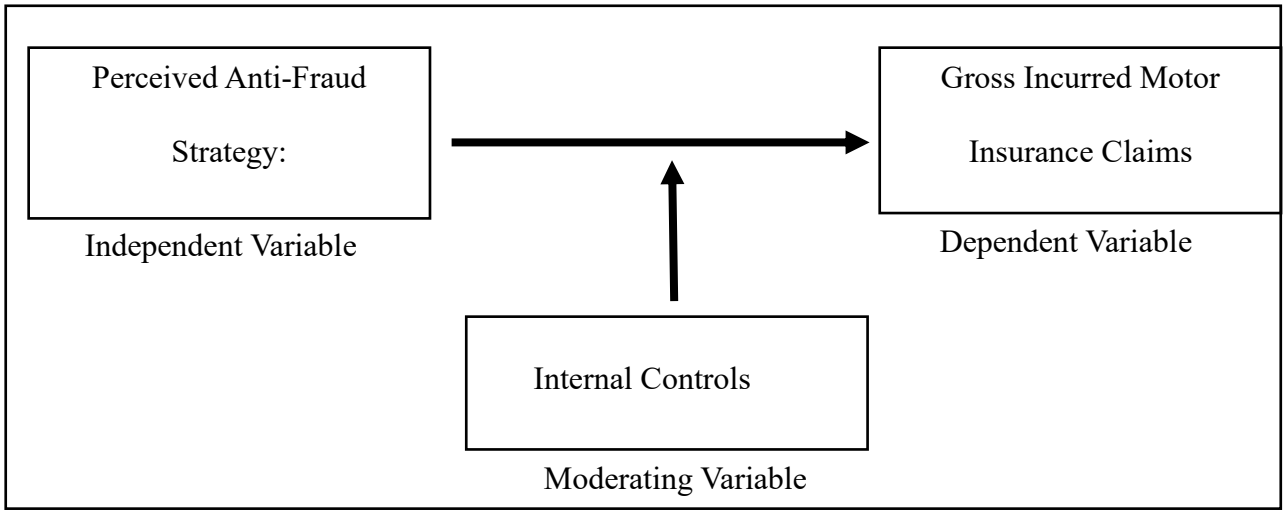

Figure 13. Conceptual framework for Model 2, Paper 3.

MODEL 3 – Fraud response

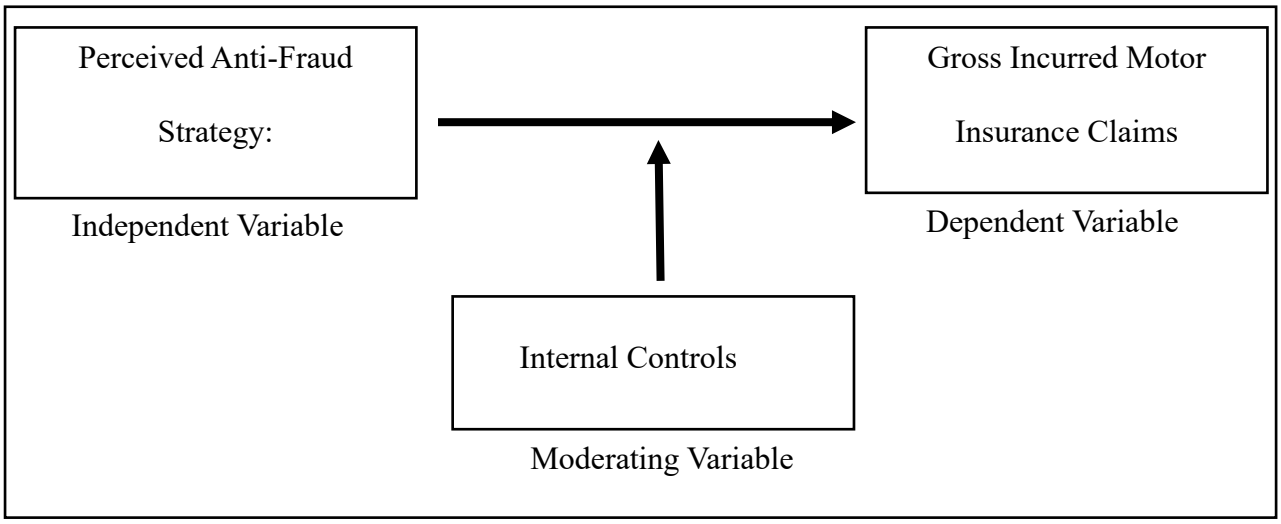

Figure 14. Conceptual framework for Model 3, Paper 3.

4.2.8 Model Specification for Multiple Regression Analysis

Model Specification for Hypotheses 1, 2, 3, and 4

Model Specification for H1:

$$GIC = \beta 0 + \beta 1 \times PSE + \epsilon$$

Model Specification for H2:

$$GIC = \beta 0 + \beta 1 \times DSE + \epsilon$$

Model Specification for H3:

$$GIC = \beta 0 + \beta 1 \times RSE + \epsilon$$

Model Specification for H4:

$$GIC = \beta 0 + \beta 1 \times PSE + \beta 2 \times DSE + \beta 3 \times RSE + \epsilon$$

Model Specification for H5:

$$GIC = \beta 0 + \beta 1 \times \text{Strategy Effectiveness} + \beta 2 \times \text{IntCTR} + \beta 3 \times (\text{Strategy Effectiveness} \times \text{IntCTR}) + \epsilon$$

Where:

GIC = Gross Incurred Claims

PSE = Preventive Strategy Effectiveness

DSE = Detective Strategy Effectiveness

RSE = Responsive Strategy Effectiveness

IntCTR = Internal Control Mechanisms

β0, β1, β2, β3 = Regression coefficients

ϵ = Error term

4.3 DATA

4.3.1 Population and sample

The study focuses on the population of all insurance companies transacting motor insurance policies in Nigeria, with all having their head offices in Lagos, Nigeria. As of 2024, there are 59 such companies, categorised as follows:

- General business: 15
- Composite insurance companies: 13
- Reinsurance companies: 3
- Micro insurance companies: 9
- General and family Takaful: 5 (Source: NAICOM, 2024)

This comprehensive inclusion ensures that the sample represents the full spectrum of the motor insurance industry in Nigeria.

4.3.1.1 Employees Sampled and Responses:

The sample consisted of senior employees in positions such as Head of Risk Management/Enterprise Risk Management, Head of Technical, or Head of Claims within these insurance companies. A total of 59 managers were purposively sampled. Out of these, 35 managers completed the survey, resulting in a 59% response rate. The 24 non-respondents either declined the invitation or were unavailable to participate within the study period. All 35 managers who responded are professionally qualified and hold relevant positions.

4.3.1.2 Data Collection via Email and Face-to-Face Communications:

Data was collected through both electronic mail and face-to-face interactions. Face-to-face communications were conducted primarily when email responses were not feasible and personal engagement was necessary to encourage participation. Following these face-to-face interactions, 12 responses were received. The proportion of data collected via email versus face-to-face communications was approximately 66% to 34%, respectively.

4.3.1.3Sampling Techniques

Purposive Sampling:

Purposive sampling was employed to target key individuals responsible for managing fraud within the Nigerian motor insurance companies. These senior employees were chosen due to their expertise and extensive experience in motor insurance fraud management. Each insurance company typically has one individual in these roles, making them easily identifiable and accessible. This method is appropriate when the opinion of experts in a specific field is required (Martinez-Mesa et al., 2016).

Thus, the sampling process was designed to ensure a representative sample of the Nigerian motor insurance industry. The use of purposive sampling enabled the researcher to focus on knowledgeable individuals with relevant expertise, knowledge, and professional qualifications. The combination of both electronic mail and face-to-face communications ensured a robust and comprehensive response, enhancing the study's validity and reliability. This methodological approach allows for a detailed and accurate assessment of the effectiveness of anti-fraud strategies within the Nigerian motor insurance sector.

4.3.2 Data Sources

The primary data for this study originates from a research survey administered as a questionnaire to selected participants. The questionnaire aims to collect data on the perceived effectiveness of anti-fraud strategies for managing motor insurance fraud claims in the Nigerian insurance industry, utilising a Likert scale with six options ranging from 0 to 5. The survey includes questions related to fraud management in motor insurance, designed to elicit detailed insights into prevention, detection, and responsive control strategies. For prevention control strategies (Table 4.3), questions such as Prevention Control Question 1 (PC1) address

the integration of anti-insurance fraud strategies into wider anti-financial crime efforts, with responses ranging from 0 (absent) to 5 (very effective). Prevention Control Question 2 (PC2) focuses on ensuring partners' familiarity with insurers' approaches, and Prevention Control Question 1 (PC3) explores the establishment of a unified insurance fraud register, each with responses along the Likert scale. Detection control strategies (Table 4.5) include inquiries about effective procedures for reporting suspected fraud (Detection Control Question 1 - DC1), staff training on counter fraud strategy (Detection Control Question 2 - DC2), and the adoption of automated technologies (Detection Control Question 10 - DC10). Participants provide responses on the Likert scale, reflecting the perceived effectiveness of measures like establishing an insurance fraud bureau (Detection Control Question 5 - DC5) and the use of technology and data analytics (Detection Control Question 6 - DC6). Responsive control strategies (Table 4.7) probe participants on the effectiveness of measures like introducing a hotline (Responsive Control Question 1 - RC1), offering incentives for whistleblowing (Responsive Control Question 2 – RC2), and defined fraud investigation procedures (Responsive Control Question 4 – RC4). The Likert scale, ranging from 0 to 5, captures participants' perceptions regarding the effectiveness of actions such as reporting to an insurance fraud unit (Responsive Control Question 3 - RC3) and prosecuting fraud perpetrators (Responsive Control Question 5 - RC5). The survey's reliability is assessed using Cronbach's Alpha (Table 4.2), ensuring consistency across prevention, detection, and responsive controls. Summary statistics (Tables 4.4, 4.6, and 4.8) indicate respondents' perceptions, with *Mean* responses on the Likert scale being used to help interpret their views. Overall, the questionnaire encompasses a comprehensive set of items, each designed to extract insights into the effectiveness of various anti-fraud strategies in the context of motor insurance in Nigeria.

Second, incurred motor insurance gross claims and claims ratios (i.e., data period spanning from 2017 – 2022) are obtained from the annual statistical bulletin/reports released by the Nigeria National Insurance Commission (NAICOM), publicly accessible on the NAICOM website (https://naicom.gov.ng/publications). The data accessed in August 2023.

The data collected from both sources are used to: (i) evaluate the perceived effectiveness of anti-fraud strategies in managing motor insurance fraud in Nigeria, and (ii) understand the intricate relationship between the perceived effectiveness of anti-fraud strategies and the gross incurred motor insurance claims in Nigeria. This approach not only ensures transparency and accountability but also underscores the reliability (i.e., as

stakeholders can assess, scrutinize, and verify the statistical data) of the statistical information retrieved from an official and authoritative platform, contributing to the robustness of the study's findings and conclusions.

4.4 DATA ANALYSIS AND RESULTS

The data collected was analysed using descriptive statistics and then using inferential statistical tests such as Pearson correlation tests, and multivariate regression tests.

Table 18. Summary of Participants' Profiles and Reliability Statistics.

Sex	**Frequency**	**Percentage**
Female	12	34
Male	23	66
Total	35	100.0
Academic qualifications		
B.Sc./HND	10	29
Masters	25	71
Total	35	100.0
Professional qualifications		
Professional	35	100
Total	35	100
Ages (range)		
41-50	16	45.71
51-60	19	54.29
Total	35	100.00

4.4.2 Social Demographic Characteristics: Sex, Academic Qualifications, and Age Range

From Table 18, the sample is predominantly male which might indicate that the insurance fraud management sector is largely male-centric. While a large majority of the respondents hold a master's degree, implying that the survey likely captures a well-educated viewpoint on the topic, the survey sample is skewed towards an older demographic. This is quite helpful as older professionals may have more experience and thus may offer deeper insights into the challenges and solutions around motor insurance fraud.

4.4.3 Scale and Summary Reliability Statistics

The Prevention Controls scale is constructed by formulating a series of questions (see Table 20) designed to collectively evaluate diverse aspects of preventing fraud in the motor insurance context. These questions cover a spectrum of strategies and practices used to prevent fraud within the Nigeria insurance sector. After we administer these questions to participants and gathering their responses, the Cronbach's Alpha coefficient of 0.710 (Table 19) is reported. The Prevention Controls scale however suggests a moderate level of internal consistency (Umar and Roger, 1984, Wei et al., 2007, Douglas and Thomas, 2015). This indicates that the items within the Prevention Controls scale are moderately correlated with each other, reflecting a reasonable degree of reliability (Keith, 2018).

The detection controls scale is constructed by formulating a series of questions (see Table 22) designed to collectively assess various aspects of detecting fraud within the motor insurance context. These questions are carefully crafted to cover a series of strategies, procedures, and/or tools to identify fraudulent activities in the Nigeria insurance sector. After we administer these questions to participants and gathering their responses, the Cronbach's Alpha coefficient 0.745 is reported. The detection controls scale indicates a good level of internal consistency (Umar and Roger, 1984, Wei et al., 2007, Douglas and Thomas, 2015). The items within the Detection Controls scale are well-correlated with each other, suggesting a high degree of reliability (Keith, 2018).

The Responsive Controls scale, as indicated by the reported Cronbach's Alpha coefficient (0.722) is designed to collectively assess various aspects of responsive measures in managing motor insurance fraud. This scale comprises carefully formulated questions (See Table 24) covering strategies, procedures, or actions implemented to respond to detected or suspected fraudulent activities in Nigeria insurance sector. The reported Cronbach's Alpha value (0.722) suggests a moderate level of internal consistency among the items within the scale (Umar and Roger, 1984, Wei et al., 2007, Douglas and Thomas, 2015), indicating a reasonable degree of reliability (Keith, 2018). In essence, the scale is deemed to have a moderate correlation among its components, supporting its reliability in evaluating the effectiveness of responsive controls against motor insurance fraud in Nigeria.

Table 19. Reliability statistics.

Scale	Cronbach's Alpha	No. of Items
Prevention controls (PC)	0.710	8
Detection controls (DC)	0.745	11
Responsive controls (RC)	0.722	5

4.4.4 Summary of participants' responses: Prevention control strategies

Table 20. Summary of Participants' responses for Prevention Control Strategies.

Questions	Response	Freq.	%
PC1. The anti-insurance fraud strategy is integrated into a wider anti-financial crime.	Absent	5	14.3
	Ineffective	-	-
	Somehow ineffective	-	-
	Somehow effective	17	48.6
	Effective	13	37.1
	Very effective	-	-
	Total	**35**	**100.0**
PC2: Ensuring partners (i.e., brokers, agents, reinsurers, etc.,) are familiar with insurer's approach, and conduct due diligence on their processes.	Absent	-	-
	Ineffective	-	-
	Somehow ineffective	2	5.7
	Somehow effective	13	37.1
	Effective	20	57.1
	Very effective	-	-
	Total	**35**	**100.0**
PC3: Establishment of a unified insurance frauds register.	Absent	8	22.9
	Ineffective	3	8.6
	Somehow ineffective	1	2.9
	Somehow effective	5	14.3
	Effective	18	51.4
	Very effective	-	-
	Total	**35**	**100.0**
PC4: Customer information and education (i.e., some of them may not know that their activities are fraudulent)	Absent	1	2.9
	Ineffective	-	-
	Somehow ineffective	1	2.9
	Somehow effective	13	37.1
	Effective	20	57.1
	Very effective	-	-
	Total	**35**	**100.0**

PC5: Setup insurance fraud taskforce	Absent	6	17.1
	Ineffective	1	2.9
	Somehow ineffective	1	2.9
	Somehow effective	1	28.6
	Effective	10	48.6
	Very effective	17	-
	Total	**35**	100
PC6: Amendment of the insurance Act 2003 to inculcate active fraud management with sanctions.	Absent	7	20.0
	Ineffective	-	-
	Somehow ineffective	1	2.9
	Somehow effective	9	25.7
	Effective	17	48.6
	Very effective	1	2.9
	Total	**35**	**100.0**
PC8: Ensure all staff are familiar with – and comply with both regulatory rules and guidance.	Absent	-	-
	Ineffective	-	-
	Somehow ineffective	1	2.9
	Somehow effective	12	34.3
	Effective	20	57.1
	Very effective	2	5.7
	Total	**35**	**100.0**
PC9: Regular meetings of fraud management team	Absent	3	8.6
	Ineffective	-	-
	Somehow ineffective	2	5.7
	Somehow effective	11	31.4
	Effective	19	54.3
	Very effective	-	-
	Total	**35**	**100**

Note: *Absence of data in certain cells denotes that no participants provided responses falling within the specified categories for those particular questions.*

Table 21. Summary statistics for prevention control strategies.

	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	Overall Median Response
N	35	35	35	35	35	35	35	35	35	
Median	3.0	4.0	4.0	4.0	3.0	4.0	0.0	4.0	4.0	**4.0**

The overall median response of **4.00** (see Table 21)indicates that the anti-fraud preventive strategies are generally perceived as effective by the respondents. This positive perception suggests that these strategies are functioning well in their role of fraud prevention. However, it also highlights the need to continue monitoring and improving strategies to maintain and enhance their effectiveness across all areas.

4.4.5 Summary of participants' responses – Detection control strategies

Table 22. Summary of Participants' responses for Detection Control Strategies.

Questions	Response	Freq.	%
DC1. Effective procedures for reporting of suspected fraud (i.e., monthly reports on fraudulent motor claims)	Absent	2	5.7
	Ineffective	-	-
	Somehow ineffective	5	14.3
	Somehow effective	13	37.1
	Effective	15	42.9
	Very effective	-	-
	Total	35	100.0
DC2: Conducting Staff training on counter fraud strategy	Absent	-	-
	Ineffective	-	-
	Somehow ineffective	4	11.4
	Somehow effective	14	40.0
	Effective	17	48.6
	Very effective	-	-
	Total	35	100.0
DC3: Each insurer should ensure that it has in-house capability proportionate to risk appetite: analysts, intelligence, policy, and claims validation teams etc.	Absent	-	-
	Ineffective	-	-
	Somehow ineffective	1	2.9
	Somehow effective	14	40.0
	Effective	20	57.1
	Very effective	-	-
	Total	35	100.0

DC4: Setting up of a dedicated enforcement department for insurance fraud cases (funded by insurers)	Absent	1	2.9
	Ineffective	-	-
	Somehow ineffective	1	2.9
	Somehow effective	11	31.4
	Effective	21	60.0
	Very effective	1	2.9
	Total	35	100.0
DC5: Establishing the insurance fraud bureau – to spearhead insurance industry fight against organised fraud.	Absent	8	22.9
	Ineffective		
	Somehow ineffective	3	8.6
	Somehow effective	8	22.9
	Effective	14	40.0
	Very effective	2	5.7
	Total	35	100
DC6: The use of technology and data analytics (including anti-fraud databases)	Absent	1	2.9
	Ineffective	-	-
	Somehow ineffective	5	14.3
	Somehow effective	13	37.1
	Effective	16	45.7
	Very effective	-	-
	Total	35	100.0
DC7: Gathering and sharing intelligence on insurance frauds	Absent	2	5.7
	Ineffective	-	-
	Somehow ineffective	1	2.9
	Somehow effective	12	34.3
	Effective	20	57.1
	Very effective	-	-
	Total	**35**	**100.0**
DC8: Extending information-sharing across borders	Absent	10	28.6
	Ineffective	-	-
	Somehow ineffective	1	2.9
	Somehow effective	8	22.9
	Effective	16	45.7
	Very effective	-	-
	Total	**35**	**100**
DC9: Voluntary scheme where suspected fraud or evidence of fraud can be reported to the necessary authority.	Absent	-	-
	Ineffective	-	-
	Somehow ineffective	2	5.7

	Somehow effective	10	28.6
	Effective	22	62.9
	Very effective	1	2.9
	Total	**35**	**100.0**
DC10: The adoption of automated red flags, business rules, link analysis, and anomaly detection technology.	Absent	1	2.9
	Ineffective	-	-
	Somehow ineffective	1	2.9
	Somehow effective	14	40.0
	Effective	19	54.3
	Very effective	-	-
	Total	35	100.0
DC11: Collation and collection of annual detected fraud statistics exercise	Absent	2	5.7
	Ineffective	-	-
	Somehow ineffective	1	2.9
	Somehow effective	12	34.3
	Effective	19	54.3
	Very effective	1	2.9
	Total	**35**	**100.0**

Note: *Absence of data in certain cells denotes that no participants provided responses falling within the specified categories for those particular questions.*

Table 23. Summary statistics for detection control strategies.

	DC1	DC2	DC3	DC4	DC5	DC6	DC7	DC8	DC9	DC10	DC11	**Overall Median Response**
N	35	35	35	35	35	35	35	35	35	35	35	
Median	3.0	3.0	4.0	4.0	3.0	3.0	4.0	3.0	4.0	4.0	4.0	**4.0**

With an overall median response of **4.0** (see Table 23), indicates that the typical rating for the detection control strategies is "Effective." This suggests that the middle point of the responses is positive, with a majority of respondents viewing the strategies as effective.

4.4.6 Summary of participants' responses - Responsive Control Strategies

Table 24. Summary of Participants' responses for Responsive Control Strategies.

Questions	Response	Freq.	%
RC1: Introduction of hotline	Absent	-	-
	Ineffective	-	-
	Somehow ineffective	1	2.9
	Somehow effective	16	45.7
	Effective	17	48.6
	Very effective	1	2.9
	Total	35	100.0
RC2: Incentives for whistleblowing	Absent	-	-
	Ineffective	-	-
	Somehow ineffective	5	14.3
	Somehow effective	14	40.0
	Effective	16	45.7
	Very effective	-	-
	Total	35	100.0
RC3: Reporting to insurance fraud unit	Absent	1	2.9
	Ineffective	-	-
	Somehow ineffective	3	8.6
	Somehow effective	14	40.0
	Effective	15	42.9
	Very effective	2	5.7
	Total	35	100.0
RC4: Defined fraud investigation and reporting procedures.	Absent	1	2.9
	Ineffective	-	-
	Somehow ineffective	2	5.7
	Somehow effective	15	42.9
	Effective	15	42.9
	Very effective	2	5.7
	Total	35	100.0
RC5: Prosecution of fraud perpetrators	Absent	35	100
	Ineffective	-	-

	Somehow ineffective	-	-
	Somehow effective	-	-
	Effective	-	-
	Very effective	-	-
	Total	35	100.0

Note: *Absence of data in certain cells denotes that no participants provided responses falling within the specified categories for those particular questions.*

Table 25. Summary statistics for responsive control strategies.

	RC1	RC2	RC3	RC4	RC5	**Overall Median Response**
N	35	35	35	35	35	
Median	4.0	3.0	3.0	3.0	0.0	**3.0**

In Table 25, the overall median response of **3.00** ("Somehow Effective") indicates a moderate level of perceived effectiveness for the responsive strategies. This highlights the need for improvements to achieve higher levels of effectiveness and greater confidence among respondents.

4.4.7 Hypotheses testing

4.4.7.1 Hypothesis Testing Statements & Results

Hypothesis 1 (H1)

There is a negative relationship between the perceived effectiveness of preventive anti-fraud strategies and the gross incurred motor insurance claims.

Test Result: The summary of our data analysis in Table 26 shows that the Pearson correlation (r) between Gross Incurred Claims (GIC) and the Perceived Preventive Strategy Effectiveness (PSE) is -0.243 with a p-value of 0.079. This indicates a negative relationship that is marginally significant. Thus, we find weak support for H1, suggesting that increased perceived effectiveness of preventive strategies may be associated with reduced gross incurred claims, although with marginal statistical significance.

Hypothesis 2 (H2)

There is a negative relationship between the perceived effectiveness of detective anti-fraud strategies and the gross incurred motor insurance claims.

Test Result: The summary of our data analysis in Table 26 shows that the Pearson correlation (r) between GIC and the Perceived Detective Strategy Effectiveness (DSE) is -0.096 with a p-value of 0.292. This indicates a weak negative relationship that is not statistically significant. Therefore, H2 is not supported, implying that the perceived effectiveness of detective strategies does not significantly impact gross incurred claims.

Hypothesis 3 (H3)

There is a negative relationship between the perceived effectiveness of responsive anti-fraud strategies and the gross incurred motor insurance claims.

Test Result: The summary of our data analysis in Table 26 shows that the Pearson correlation (*r*) between GIC and the Perceived Responsive Strategy Effectiveness (RSE) is -0.297 with a p-value of 0.041. This indicates a negative relationship that is statistically significant. Hence, H3 is supported, suggesting that higher perceived effectiveness of responsive strategies is significantly associated with lower gross incurred claims.

Hypothesis 4 (H4)

The perceived effectiveness of preventive, detective, and responsive anti-fraud strategies together explain a significant variance in the gross incurred motor insurance claims.

Test Result: The summary of our data analysis in Table 27 shows that the multiple regression model incorporating PSE, DSE, and RSE explains 13.1% of the variance in GIC (R^2= 0.131). However, the overall model is not statistically significant (F = 1.555, p = 0.220). Thus, H4 is not supported, indicating that the combined perceived effectiveness of the three anti-fraud strategies does not significantly explain the variance in gross incurred claims.

Table 26. Correlation Matrix.

	GIC	PSE	DSE	RSE
GIC	1.000	-0.243	-0.096	-0.297
PSE	-0.243	1.000	0.771	0.288
DSE	-0.096	0.771	1.000	0.168
RSE	-0.297	0.288	0.168	1.000
Sig. (1-tailed)		0.079	0.292	0.041
N	35	35	35	35

Table 27. Model Summary .

Hypothesis	r	R-squared	Adjusted R-squared	F-statistic	p-value
H1	0.243	0.059	0.031	1.555	0.079
H2	0.096	0.009	-0.023	0.155	0.292
H3	0.297	0.088	0.061	2.827	0.041
H4	0.362	0.131	0.047	1.555	0.220

Hypothesis 5 (H5)

Internal control mechanisms moderate the relationship between the perceived effectiveness of anti-fraud strategies and the gross incurred motor insurance claims.

Test Result: The results of our analysis in Table 28 includes the interaction terms (Internal Control Mechanisms - IntCTR) to test for moderation effects. For all three forms of the perceived effectiveness of anti-fraud strategies, the interaction terms with internal control mechanisms (IntCTR) are not statistically significant ($p > 0.05$ in each of the perceived anti-fraud strategy effectiveness). Although there is marginal significance for the interaction between perceived anti-fraud strategy effectiveness (PSE) and IntCTR, this finding is not strong enough to confirm a definitive moderating effect. Further research with a larger sample size or different methods might be required to explore potential moderation effects more comprehensively. In all, this indicates that internal control mechanisms do not significantly moderate the relationship between the perceived effectiveness of anti-fraud strategies and the gross incurred claims. Below are the specific results for each of the perceived anti-fraud strategy effectiveness:

Hypothesis 5 (Model 1) sought to ascertain the moderating role of IntCTR on the relationship between PSE and GCI in Nigeria. The results (b = 2.889, t = 1.929, p = 0.063) reveal IntCTR do not moderate the relationship between PSE and GCI. However, R^2 (0.101) shows that about 10% variation in GCI is explained by PSE. Hence, H5 (Model 1) is not supported, and therefore conclude that there is a weak evidence suggesting that Internal control mechanisms might slightly moderate the relationship between PSE and GCI. This marginal significance suggests a potential moderation effect that warrants further investigation but is not conclusive.

Hypothesis 5 (Model 2) sought to ascertain the moderating role of IntCTR on the relationship between DSE and GCI in Nigeria. The results (b = 2.614, t = 1.292, p = 0.206) reveal IntCTR do not moderate the relationship between DSE and GCI. However, R^2 (0.051) shows that about 5% variation in GCI is explained by PSE. Hence, H5 (Model 2) is not supported, and therefore conclude that there is no evidence to suggest that internal control mechanisms moderate the relationship between perceived detective anti-fraud strategies and gross incurred motor insurance claims.

Hypothesis 5 (Model 3) sought to ascertain the moderating role of IntCTR on the relationship between RSE and GCI in Nigeria. The results (b = -.440, t = -.157, p = .876) reveal IntCTR do not moderate the relationship between RSE and GCI. However, R^2 (0.001) shows that about 0.1% variation in GCI is explained by RSE. Hence, H5 (Model 3) is not supported, and therefore conclude that there is no evidence to suggest that internal control mechanisms moderate the relationship between perceived responsive anti-fraud strategies and gross incurred motor insurance claims.

Table 28. Model summary for interaction term.

Table 4.11 Model summary for interaction term											
	Interaction Term	*b*	SE	*t*	*p*	95% CI	R^2	F	df1	df2	*P*
PSE	PSE x IntCTR	2.889	1.497	1.929	.063	[-0.165, 5.942]	.101	3.723	1	31	.063
DSE	DSE x IntCTR	2.614	2.023	1.292	.206	[-1.513, 6.740]	.051	1.669	1	31	.206
RSE	RSE x IntCTR	2.810	2.810	-.157	.876	[-6.172, 5.291]	.001	.025	1	31	.876

4.4.7.2 Summary of Hypotheses Testing

H1: Not supported (relationship is negative but not significant).

H2: Not supported (relationship is negative but not significant).

H3: Supported (relationship is negative and significant).

H4: Not supported (the model does not explain significant variance).

H5: Not supported

4.5 Discussion

The present study aimed to assess the perceived effectiveness of anti-fraud strategies within the Nigerian motor insurance market from the perspective of experts. Given the lack of actual data on anti-fraud strategy effectiveness, the study explored the relationships between the perceived effectiveness of various anti-fraud strategies (preventive, detective, and responsive) and the gross incurred motor insurance claims, as well as how internal control mechanisms interact with these variables.

Perceived Effectiveness of Anti-fraud strategies and Gross Incurred Claim

The findings revealed that the perceived effectiveness of preventive anti-fraud strategies (PSE) showed a marginally significant negative relationship with gross incurred claims (GIC), with a Pearson correlation of -0.243 ($p = 0.079$). This suggests that increased perceived effectiveness of preventive strategies may be associated with reduced gross incurred claims, although this relationship is not strong enough to be conclusive. This outcome aligns with previous research indicating that preventive strategies can be effective in mitigating fraud but may be influenced by various external factors (Iyanda, 2017; Viaene & Dedene, 2004).

Conversely, the perceived effectiveness of detective anti-fraud strategies (DSE) did not show a significant relationship with gross incurred claims, as evidenced by a Pearson correlation of -0.096 ($p = 0.292$). This lack of significance suggests that detective strategies, as perceived by experts, do not have a substantial impact on reducing fraudulent claims. This

finding is consistent with studies that highlight the challenges in effectively detecting and addressing fraud through detective measures alone (Tennyson & Salsas-Forn, 2002).

For responsive anti-fraud strategies (RSE), the study found a significant negative relationship with gross incurred claims, with a Pearson correlation of -0.297 ($p = 0.041$). This indicates that higher perceived effectiveness of responsive strategies is significantly associated with lower gross incurred claims. This result supports the notion that responsive measures, which address fraud post-occurrence, can be crucial in mitigating overall claims (Cummins & Tennyson, 1992).

Combined Effectiveness of Anti-Fraud Strategies

When evaluating the combined perceived effectiveness of preventive, detective, and responsive strategies, the multiple regression model explained 13.1% of the variance in gross incurred claims ($R^2 = 0.131$). However, the overall model was not statistically significant ($F = 1.555$, $p = 0.220$). This finding suggests that the combined perceived effectiveness of these strategies does not significantly explain the variance in gross incurred claims. This supports earlier studies indicating the complexity of fraud prevention and the potential need for a more integrated approach that includes external factors and systemic challenges (Iyanda, 2017; Viaene & Dedene, 2004).

Moderation by Internal Control Mechanisms

The study also examined whether internal control mechanisms (IntCTR) moderate the relationship between the perceived effectiveness of anti-fraud strategies and gross incurred claims. The results showed that the interaction terms for all three types of anti-fraud strategies (PSE, DSE, RSE) with internal control mechanisms were not statistically significant. This indicates that internal control mechanisms do not significantly moderate these relationships.

- For PSE, the interaction term had a marginal significance ($b = 2.889$, $p = 0.063$), suggesting a potential moderation effect that warrants further investigation but is not conclusive.
- For DSE, the interaction term was not significant ($b = 2.614$, $p = 0.206$), indicating no moderation effect.

- For RSE, the interaction term was also not significant (b = -0.440, p = 0.876), confirming the absence of a moderation effect.

These results imply that while internal controls are essential, their perceived effectiveness may not significantly alter the impact of anti-fraud strategies on gross incurred claims. This aligns with research highlighting the multifaceted nature of fraud prevention and the potential limitations of internal controls alone in addressing fraud (Derrig, 2002; Tennyson & Salsas-Forn, 2002).

4.5.1 Limitations and implication for future research

It's crucial to acknowledge certain limitations in the study. Firstly, it leans exclusively on experts' opinions regarding effectiveness of anti-fraud strategies, which might not precisely mirror the real effectiveness. Moreover, the scope of the study is limited by considering limited factors that may impact the efficacy of anti-fraud strategies (i.e., preventive, detective, and responsive) thereby providing a partial grasp of the situation. Given the absence of a substantial connection between perceived effectiveness and a reduction in motor claims, it becomes essential for future research to thoroughly evaluate the effectiveness of the implemented anti-fraud measures. Exploring additional factors like organizational culture, technological adoption, behavioural concerns, and geopolitical variables may be worthwhile because these factors have the potential to shape the operational environment and influence responses to fraud prevention efforts (Jones and Smith, 2019), potentially enhancing the effectiveness of anti-fraud strategies. Hence, exploring factors beyond perceived effectiveness in future research is beneficial because it leads to a more comprehensive understanding of fraud prevention dynamics, which could enable the development of more effective anti-fraud strategies.

4.5.2 Policy implications and recommendations

Based on this study's findings and the need for a more pragmatic approach to anti-fraud measures in the motor insurance sector in Nigeria, specific policy recommendations can be made:

I. Comprehensive Evaluation of Anti-Fraud Strategies: Considering the surprising result that perceived effectiveness of anti-fraud strategies (i.e., perceived effectiveness of prevention and detection strategies) is not significantly related to a reduction in motor insurance gross claims, insurance companies should conduct thorough assessments of their anti-fraud strategies. This involves not just the perception of these strategies, but the methods/metrics used to assess effectiveness/performance. The goal should be to identify and rectify any shortcomings in the strategies to make them more effective in reducing fraud and claims.

II. Consideration of External Factors: Recognizing that external variables can influence gross claims, insurance companies should broaden their perspective when designing anti-fraud strategies. Elements like economic conditions, alterations in legal and regulatory landscapes, and changes in customer behaviour could influence claims. Developing strategies that can adapt to these external factors is essential for effective fraud management.

III. Incorporate Lessons from Related Studies: Findings from related studies (e.g., claims auditing may not be as effective in reducing fraudulent claims as believed -Tennyson and Salsas-Forn, 2002) should be considered. Insurance firms should thoroughly evaluate their current anti-fraud measures and explore alternative approaches that might deliver more effective results within the Nigerian context.

IV. Multifaceted Approach to Fraud Prevention: It is important to recognize that the issue of insurance fraud is complex and addressing the issues requires multi-faceted strategies that consider both perceived effectiveness and practical results. For example, adopting a holistic approach that integrates internal controls with other anti-fraud strategies, insurance companies can enhance their ability to prevent and mitigate fraud effectively. This integrated framework will not only address the limitations identified in the study but also contribute to a more robust and resilient fraud prevention system. This could entail enhancing data analysis capabilities, improving

fraud detection technologies, and promoting collaboration among various departments within the company.

V. Transparency and Reporting: Given the inherent limitations in relying solely on expert judgments for assessing the effectiveness of anti-fraud strategies, it becomes essential to have access to objective, transparent, and precise data for a more reliable evaluation. However, it is crucial to highlight the current challenges faced in Nigeria insurance sector, where the availability of such comprehensive data remains limited. The absence of a robust data infrastructure hampers accurate assessments of fraud, hindering the development of effective anti-fraud strategies and potentially leaving insurance sectors more vulnerable to fraudulent activities (Chiedo, 2014, Oluwatoyin, 2015).

4.5.3 Contributions and conclusion

This research contributes to the current body of knowledge by conducting a thorough examination of how anti-fraud measures are perceived within Nigeria's motor insurance industry. The perceived effectiveness of specific anti-fraud measures (i.e., preventive, detective, and responsive strategies) within the Nigerian motor insurance industry holds significant implications for insurance companies, reinsurers, regulators, and policymakers. Notably, the findings are not only relevant for Nigeria but also serve as a guide for countries grappling with similar challenges in their motor insurance sectors.

While the findings suggest that some anti-fraud strategies (specifically, preventive and detective strategies) do not demonstrate statistical significance in reducing claim ratios or gross claims, this study raises important questions and challenges. For instance, why do anti-fraud strategies, even when perceived as highly effective, fail to impact gross claims? Such questions underscore challenges related to data complexity, interdisciplinary research, policy adaptation, resource allocation, and measurement in the field of motor insurance fraud management in Nigeria. They emphasize the necessity of adopting a more comprehensive approach to fraud prevention. Yet, underestimating the efficacy of fraud prevention and detection strategies might lead to extensive and harmful consequences for organizations. When a weak strategy is mistakenly seen as effective, it could foster a false sense of security within the organization. This may result in a sense of contentment within the workforce, subsequently reducing their level of alertness in identifying and thwarting deceitful actions.

Moreover, these distorted understandings have the potential to bolster the confidence of potential wrongdoers, leading them to be more predisposed to partake in immoral conduct, as they perceive a lower probability of being apprehended. This increases the risk of undetected fraudulent activities resulting in financial losses for the firm. In essence, the danger lies not just in the financial losses stemming from ineffective strategies but also in the unwarranted sense of security and heightened vulnerability to fraud that can arise when these strategies are mistakenly perceived as robust. Therefore, it is crucial for organizations to consistently evaluate and validate the actual efficacy of their anti-fraud strategies in order to avoid these drawbacks and uphold a robust defence against deceitful endeavours. What becomes apparent is the necessity for strategies that are not only perceived as effective but also substantiated in their capacity to reduce insurance claims and fraud. As the insurance domain continues to expand, attaining this objective is of utmost significance for the industry's durability and the economic well-being of Nigeria.

CONCLUDING CHAPTER

This thesis has undertaken a comprehensive examination of fraud risk management practices in Nigerian insurance businesses, with a specific focus on motor insurance. Through three research papers, namely "An Assessment of the Extent and Impact of Motor Insurance Fraudulent Claims in Nigeria" (Paper 1), "Analysis of Factors Responsible for Fraudulent Claims in Motor Insurance in Nigeria" (Paper 2), and " Perception to Practice: Uncovering the Effectiveness of Anti-Fraud Strategies in Nigerian Motor Insurance Companies" (Paper 3), key findings have emerged that shed light on the extent of fraud, factors influencing fraud types, and the effectiveness of anti-fraud strategies in managing motor insurance fraud in Nigeria.

In Paper 1, the findings highlighted the consensus among Nigerian insurance experts regarding the high level of fraud in the motor insurance industry. The agreement among experts underscores the urgent need to address this issue, recognizing soft fraud as more prevalent than hard fraud and acknowledging the significant impact of fraud on the solvency of motor insurers. These findings emphasize the importance of implementing robust anti-fraud measures to safeguard the industry's stability and protect the interests of insurers and policyholders.

Building upon the findings of Paper 1, Paper 2 delved deeper into the factors responsible for fraudulent claims in the Nigerian motor insurance industry. The study revealed that perceived internal fraud, perceived external fraud, and perceived connivance fraud occur at similar frequencies, highlighting the multi-dimensional nature of fraud in the industry. Furthermore, the study demonstrated that perceived antecedents of motor insurance fraud have a significant influence on the types of fraud observed. However, the ineffectiveness of internal fraud controls in moderating the relationship between antecedents and fraud types underscored the need for enhanced control mechanisms to mitigate fraudulent activities effectively.

Paper 3 uncovers the perceived effectiveness of anti-fraud strategies (i.e., preventive, detective, and responsive strategies) within the Nigeria insurance motor insurance industry. The paper provides actionable insights and recommendations for implementing effective fraud risk management practices. By leveraging the findings from Papers 1 and 2, Paper 3

proposes/uncovers comprehensive strategies that align with the unique challenges and characteristics of the Nigerian motor insurance sector.

Practical Implications for Stakeholders

Insurance Companies: The research findings provide insurance companies with valuable information on the prevalence and impact of fraudulent claims, enabling them to develop effective fraud prevention and detection strategies. The proposed anti-fraud framework offers practical measures to enhance their fraud management systems, such as implementing advanced data analytics and collaborating with law enforcement agencies.

Policyholders: The research highlights the detrimental effects of motor insurance fraud on policyholders, leading to higher premiums and decreased trust in the industry. By understanding the factors contributing to fraud, policyholders can exercise caution, provide accurate information, and support anti-fraud initiatives. Insights from uncovering the perceived effectiveness of the anti-fraud strategies emphasizes the importance of policyholders' cooperation in preventing and reporting fraudulent activities.

Regulators: The thesis underscores the significance of regulatory enforcement in combating motor insurance fraud. Regulators can utilize the research findings to strengthen existing regulations, improve enforcement mechanisms, and establish a framework for continuous monitoring and evaluation of insurers' anti-fraud measures.

Law Enforcement Agencies: The research provides insights into the methodologies employed by fraudsters and emphasizes the need for collaboration between insurance companies and law enforcement agencies. This collaboration can facilitate more efficient investigation processes and improve the prosecution of fraudsters.

Academic and Research Contributions

This thesis contributes to the academic and research community in the following ways:

*Knowledge Gap***:** The research papers address a significant knowledge gap by providing a comprehensive assessment of motor insurance fraud in Nigeria. The findings contribute to the limited literature on insurance fraud in the Nigerian context and expand the understanding of fraud dynamics in emerging economies.

Methodological Approach: The research methods employed in this thesis combines quantitative analysis, literature review, and surveys. This methodological diversity enhances the reliability and validity of the research findings and adds depth to the analysis of motor insurance fraud.

Anti-Fraud Framework: The anti-fraud framework strategy framework employed in Paper 3 offers a practical and context-specific approach to managing motor insurance fraud in Nigeria. This framework integrates preventive, detective, and responsive measures, presenting a holistic approach to fraud management that can be adapted and implemented by insurance companies and regulators.

Policy Recommendations: The research papers provide policymakers and industry stakeholders with evidence-based policy recommendations to combat motor insurance fraud effectively. These recommendations encompass regulatory reforms, public awareness campaigns, advanced technology utilization, and collaboration among stakeholders.

In summary, the three research papers presented in this thesis form a coherent body of work that addresses the challenges posed by motor insurance fraud in Nigeria. The assessment of the extent and impact of fraudulent claims, analysis of contributing factors, and uncovering the perceived effectiveness of anti-fraud strategy framework provide valuable insights into the issue and offer practical solutions for its management.

The research findings have significant implications for stakeholders, including insurance companies, policyholders, regulators, and law enforcement agencies, by providing practical strategies to prevent, detect, and respond to motor insurance fraud. Additionally, the thesis contributes to the academic and research community by filling a knowledge gap, employing a mixed-methods approach, and uncovering the perceived effectiveness of anti-fraud strategy framework within the Nigerian motor insurance industry.

By implementing the recommendations outlined in this research, the Nigerian motor insurance industry can strengthen its defences against fraudulent activities, protect the interests of insurers and policyholders, and foster a more trustworthy and resilient insurance environment.

Future Research Directions

While this thesis provides a comprehensive understanding of motor insurance fraud in Nigeria and unveils the effectiveness of an anti-fraud framework strategies, there are several avenues for future research that can further enhance knowledge and practical solutions in this area: (i) *Longitudinal Study*: Conducting a longitudinal study to track the changes and trends in motor insurance fraud over time would provide valuable insights into the effectiveness of implemented anti-fraud measures. This would enable researchers to assess the impact of the proposed framework and identify any emerging challenges or new fraud patterns. (ii) *Comparative Analysis*: Comparing the motor insurance fraud landscape in Nigeria with other countries or regions would help identify similarities, differences, and best practices in fraud prevention and detection. This comparative analysis could offer valuable lessons and insights that can be adapted to the Nigerian context. (iii) *Technological Advancements:* As technology continues to advance, exploring the potential of emerging technologies, such as blockchain and machine learning, in combating motor insurance fraud would be beneficial. Research could focus on developing innovative solutions and tools that leverage these technologies to enhance fraud prevention, early detection, and investigation processes. (iv) *Consumer Behaviour and Fraud Awareness:* Further investigation into consumer behaviour and awareness regarding motor insurance fraud would provide insights into policyholders' perspectives, motivations, and knowledge gaps. This research could help tailor educational campaigns and communication strategies to effectively raise awareness and promote fraud prevention among policyholders. (v) *Collaboration and Information Sharing:* Investigating the feasibility and effectiveness of collaboration platforms and information sharing mechanisms between insurance companies, regulators, and law enforcement agencies would be valuable. Understanding the challenges, benefits, and legal considerations associated with such collaborations can lead to the development of effective frameworks for collective action against motor insurance fraud. (vi) *Evaluation of Regulatory Framework:* Assessing the effectiveness of regulatory reforms implemented to combat motor insurance fraud would contribute to evidence-based policymaking. This research could involve evaluating the impact of regulatory changes on fraud rates, insurer compliance, and consumer protection.

By pursuing these future research directions, academics, researchers, and industry practitioners can continue to enhance the understanding and management of motor insurance fraud in Nigeria. The findings from such research can further strengthen the proposed anti-

fraud framework and contribute to the development of robust strategies and policies in the fight against fraud.

Examination of strengths and weaknesses of the papers

Strengths:

Paper 1

First, the high level of agreement. One of the notable strengths of this paper is the high level of agreement among Nigerian insurance experts regarding the existence of a high level of fraud in the Nigerian motor insurance industry. This consensus among experts adds credibility to the findings and suggests a widespread recognition of the problem. Second, perception of fraud types. The paper's focus on differentiating between soft fraud and hard fraud provides valuable insights into the prevalence and types of fraudulent activities in the Nigerian motor insurance industry. The finding that soft fraud is more common than hard fraud contributes to the understanding of specific fraud patterns and allows for targeted countermeasures. Third, impacts on solvency. The strong agreement among experts about the problematic impacts of fraud on the solvency of Nigerian motor insurers is another strength. By highlighting the financial implications of fraud, the paper emphasizes the urgency of implementing effective anti-fraud measures to protect the solvency and stability of insurers.

Paper 2

First, the comprehensive analysis of fraud Types. The paper's analysis of perceived internal fraud, perceived external fraud, and perceived connivance fraud contributes to a comprehensive understanding of the types of fraud prevalent in the Nigerian insurance industry. This comprehensive approach enhances the relevance and applicability of the findings. Second, the examination of antecedents. The paper's exploration of the antecedents influencing different fraud types adds depth to the understanding of the factors contributing to motor insurance fraud in Nigeria. This analysis provides insights into the motivations and underlying drivers of fraudulent activities. Third, the identification of control effectiveness. The study's investigation of the effectiveness of internal fraud controls in moderating the relationship between antecedents and fraud types is a strength. It highlights the limitations of

current control mechanisms and emphasizes the need for improved strategies to prevent and mitigate fraudulent activities.

Paper 3

This research contributes to the current body of knowledge by conducting a thorough examination of how the effectiveness of anti-fraud measures are perceived within Nigeria's motor insurance industry. The examination of the perceived effectiveness of these strategies holds significant implications for insurance companies, reinsurers, regulators, and policymakers. Notably, the findings are not only relevant for Nigeria but also serve as a guide for countries grappling with similar challenges in their motor insurance sectors.

Weaknesses:

Paper 1

One major weakness of this paper is its focus solely on Nigerian insurance experts' perceptions. While expert opinions are valuable, relying solely on subjective perceptions may overlook the broader experiences and perspectives of other stakeholders, such as policyholders and regulatory bodies.

Paper 2

First, limited external validity. The findings of this paper are specific to the Nigerian insurance industry. The lack of comparison with other regions or industries limits the external validity and generalizability of the findings, as the factors influencing fraud may vary across different contexts. Second, perception-based analysis. The study heavily relies on perceived data and opinions, which can be subjective and prone to bias. The use of objective data or a combination of objective and perceived data would have strengthened the analysis and increased the rigor of the findings.

Paper 3

Firstly, it leans exclusively on experts' opinions regarding effectiveness, which might not precisely mirror the real effectiveness. Moreover, the scope of the study is limited by considering limited factors that may impact the efficacy of anti-fraud strategies, thereby providing a partial grasp of the situation. Given the absence of a substantial connection

between perceived effectiveness and a decrease in claims, it becomes essential for future research to thoroughly evaluate the effectiveness of the implemented anti-fraud measures.

In culmination, this thesis represents a significant milestone in advancing our understanding of fraud risk management practices in the Nigerian insurance landscape, particularly within the motor insurance sector. Through a rigorous empirical evaluation conducted across three interconnected papers, valuable insights have been unearthed, shedding light on the multifaceted challenges of motor insurance fraud and the avenues for enhancing fraud prevention and management strategies.

Despite the inherent limitations acknowledged, the contributions of this thesis are substantial and far-reaching. By quantifying the prevalence of motor insurance fraud, analysing the factors influencing fraud types, and assessing the effectiveness of perceived anti-fraud strategies, a solid foundation has been laid for future research endeavours. The insights gleaned from this study have the potential to inform policy formulation, guide strategic decision-making within insurance companies, and foster collaboration among industry stakeholders to combat fraud effectively.

Looking ahead, the findings presented herein pave the way for further exploration and refinement of anti-fraud measures tailored to the Nigerian insurance context. Future research endeavours can build upon the strengths of this thesis, leveraging alternative research methods, incorporating quantitative data and external comparisons, and expanding the scope to encompass a broader spectrum of insurance-related fraud.

Moreover, the recommendations offered within this thesis serve as a blueprint for driving positive change within the insurance sector. By adopting proactive and robust strategies informed by empirical evidence, insurers can mitigate fraud risks, safeguard their financial stability, and enhance trust and confidence among policyholders. The insights gained from this research hold the potential to foster a secure and sustainable insurance environment, benefiting both insurers and policyholders alike.

In essence, while acknowledging the challenges and limitations encountered along the research journey, this thesis underscores the transformative impact of empirical inquiry in addressing pressing issues within the Nigerian insurance industry. Through collaboration, innovation, and a steadfast commitment to ethical conduct, we can collectively pave the way

towards a future where motor insurance fraud is effectively managed, ensuring the longevity and resilience of the insurance sector in Nigeria.

Furthermore, this thesis serves as a catalyst for broader conversations surrounding fraud risk management practices not only in Nigeria but also in other regions facing similar challenges. By sharing our findings and recommendations with policymakers, industry practitioners, and academic communities globally, we can catalyse collective action towards the development of more effective anti-fraud strategies on a global scale.

Finally, the culmination of this research journey marks not an endpoint, but rather a new beginning. It is a call to action for continued exploration, innovation, and collaboration in the pursuit of a more secure and resilient insurance landscape. As we look towards the future, let us draw inspiration from the insights gained and the challenges overcome, leveraging them as catalysts for positive change in the realms of fraud risk management and beyond. Together, we can forge a path towards a future where integrity, transparency, and trust form the bedrock of insurance practices, ensuring the well-being and prosperity of insurers, policyholders, and society as a whole.

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APPENDICES

Appendix S1

***Researcher**: Olatokunbo Sunday Shoyemi*

***ERGO** number: 81841*

SCALE ON ASSESSMENT OF THE EXTENT AND IMPACT OF MOTOR INSURANCE CLAIMS IN NIGERIA

SECTION A:

A. PROFESSIONAL KNOWLEDGE (PF1 to PF3)

i. Of all motor insurance claims in Nigeria, what percentage of motor insurance claims are car thefts?

Specify between 0 and 100 percentage [%]

ii. Of all motor insurance contracts, what percentage of motor insurance contracts are issued through insurance brokers?

Specify between 0 and 100 percentage [%]

iii. What is the most purchased motor insurance cover in Nigeria?
Third party
Third party Fire & Theft
Comprehensive

B. EXISTENCE OF FRAUD IN MOTOR INSURANCE (EF1 to EF4)

i. To what extent do you agree that there is a high level of fraud in Nigerian motor insurance contracts?

Strongly agree ( ), agree ( ), neutral ( ), disagree ( ), strongly disagree ( )

ii. To what extent do you agree that the complexity of motor insurance contracts can cause policyholders to perceive the contract as a means of extorting money from them?

Strongly agree ( ), agree ( ), neutral ( ), disagree ( ), strongly disagree ( )

iii. To what extent do you agree that the 2007-2008 global economic crisis has caused an increase in motor insurance fraud in Nigeria?

Strongly agree ( ), agree ( ), neutral ( ), disagree ( ), strongly disagree ( )

iv. To what extent do you agree that in the last 15 years, there has been an increase in fraud in Nigerian motor insurance and this has led to an increase in total claims pay-outs by motor insurers?

Strongly agree ( ), agree ( ), neutral ( ), disagree ( ), strongly disagree ( )

C. PROPORTION OF MOTOR CLAIMS THAT CONSTITUTE SOFT FRAUD (SF1 to SF5)

i. In your opinion, do you agree that some motor insurance claimants exaggerate the financial cost of their losses?

Strongly agree ( ), agree ( ), neutral ( ), disagree ( ), strongly disagree ( )

ii. To what extent do you agree that some motor insurance claimants may exaggerate the extent of the loss because the claimant believes that the insurance loss adjusters will ultimately agree to pay a lower amount than the claimant desires?

Strongly agree ( ), agree ( ), neutral ( ), disagree ( ), strongly disagree ( )

iii. To what extent do you agree that some motor policyholders specifically look for opportunities to make false claims in order to make a profit from the insurance contracts?

Strongly agree ( ), agree ( ), neutral ( ), disagree ( ), strongly disagree ( )

iv. To what extent do you agree that the more some motor policyholders pay for their policy, the more likely it is that they will make an exaggerated claim?

v. Considering all of the fraud that takes place in Nigerian motor insurance claims, what percentage of that fraud do you perceive to be soft fraud (***i.e., a genuine claim but the value of the loss is deliberately exaggerated***)?

State proportion of soft fraud in percentage (between 0 and 100)

[%]

D. PROPORTION OF MOTOR CLAIMS THAT CONSTITUTE HARD FRAUD (HF1 to HF4)

i. To what extent do you agree that motor insurance claimants invent losses that never existed?

Strongly agree ( ), agree ( ), neutral ( ), disagree ( ), strongly disagree ( )

ii. To what extent do you agree that some motor insurance claimants may report non-existent losses due to their financial hardship?

Strongly agree ( ), agree ( ), neutral ( ), disagree ( ), strongly disagree ( )

iii. To what extent do you agree that some motor insurance claimants may report non-existent losses due to administrative loopholes in the whole market?

Strongly agree ( ), agree ( ), neutral ( ), disagree ( ), strongly disagree ( )

iv. Considering all the fraud that takes place in Nigerian motor insurance claims, what percentage of that fraud do you perceive to be hard fraud (***i.e., the loss never occurred, and the claim was completely fabricated***)?

State proportion of hard fraud in percentage (between 0 and 100) [%]

E. PERCEIVED IMPACTS OF FRAUDULENT CLAIMS ON THE INSURANCE INDUSTRY (FI1 to FI5)

i. To what extent do you agree that most vehicles on the Nigerian roads are not road worthy but have a valid road worthiness certificate?

Strongly agree ( ), agree ( ), neutral ( ), disagree ( ), strongly disagree ( )

ii. In your opinion, do you agree that the number of accidents on the Nigerian roads could be significantly reduced if there was a greater number of roadworthy vehicles on the roads?

Strongly agree ( ), agree ( ), neutral ( ), disagree ( ), strongly disagree ( )

iii. To what extent do you agree that the financial consequences of allowing unroadworthy vehicles to use Nigerian roads are borne by motor insurers?

Strongly agree ( ), agree ( ), neutral ( ), disagree ( ), strongly disagree ( )

iv. To what extent do you agree that fraudulent insurance claims may jeopardize the solvency of insurance companies?

Strongly agree ( ), agree ( ), neutral ( ), disagree ( ), strongly disagree ( )

v. To what extent do you agree that the cost of investigating suspected fraudulent insurance claims (in Nigeria setting) leads to an increase in premium paid by law-abiding policyholders?

Strongly agree ( ), agree ( ), neutral ( ), disagree ( ), strongly disagree ( )

SECTION B: RESPONDENTS' DEMOGRAPHICS

1. Gender: What is your gender?

a. Male ( )

b. Female ( )

2. Age: State your age in years

State your age in years [ ]

3. Industry Unit: Identify your unit within the industry

a. Insurance companies ( )

b. Reinsurance companies ( )

c. Insurance Brokers ( )

d. Insurance Consultants/Agents ( )

e. Loss Adjusting ( )

f. NAICOM/CIIN/NIA/NCRIB ( )

4. Department: Identify your department within the unit you work

a. Motor Claims ( )

b. Motor Underwriting ( )

c. Accident ( )

d. Marketing ( )

e. Other specify [ ]

5. Experience:

State your experience (in years) in the industry [ ]

6. Qualifications (identify highest qualification you have already obtained):

a. O Level/A Level ( )

b. ND, NCE, Diploma ( )

c. HND, BSC, BTEC, ETC ( )

d. Master's degree ( )

e. PhD/DBA ( )

7. Professional Qualifications (ACII, AIIN, FCII, etc.,)

List your professional qualifications [ ]

Appendix S2

Participant Information Sheet

Study Title: Analysis of factors responsible for fraudulent claims in motor insurance business in Nigeria**.**

Researcher: Olatokunbo Sunday Shoyemi

ERGO number: 72248

You are being invited to take part in the above research study. To help you decide whether you would like to take part or not, it is important that you understand why the research is being done and what it will involve. Please read the information below carefully and ask questions if anything is not clear or you would like more information before you decide to take part in this research. You may like to discuss it with others, but it is up to you to decide whether or not to take part. If you are happy to participate, you will have to provide your consent by clicking of an icon at the appropriate section in this questionnaire.

What is the research about?

I am a PhD student at the University of Southampton business school and this research paper is being carried out as part of the required papers for the award of my PhD qualification. The objective of the study is to examine the critical factors responsible for fraudulent claims in motor insurance business in Nigeria. The expected outcomes of the study will contribute to advancement of knowledge and the results would be utilised in the insurance industry to

devise means of managing fraud risks in motor insurance contracts.

Why have I been asked to participate?

You are being approached to participate in this survey having considered your years of experience, skills and knowledge of the Nigerian insurance market. You are considered an expert in this field.

What will happen to me if I take part?

You will be engaged for about 10 minutes when completing the questionnaire. Are there any benefits in my taking part? There are no direct benefits for participating in this study; however, your contribution will enable the researcher to have a better understanding of fraud risks in motor insurance claims. In addition, the entire motor insurance providers in Nigeria will be able to devise means in managing their risks more appropriately.

Are there any risks involved?

There are no risks involved in participating in this study.

What data will be collected?

Anonymous data will be collected through a well drafted questionnaire. No personal data will be collected.

Will my participation be confidential?

Your participation and the information we collect about you during this study will be kept strictly confidential. Only members of the research team and responsible members of the University of Southampton may be given access to data about you for monitoring purposes and/or to carry out an audit of the study to ensure that the research is complying with applicable regulations. Individuals from regulatory authorities (people who check that we are

carrying out the study correctly) may require access to your data. All these people have a duty to keep your information, as a research participant, strictly confidential.

Do I have to take part?

No, it is entirely up to you to decide whether to take part. If you decide you want to take part, you will need to sign a consent form to show you have agreed to take part.

What happens if I change my mind?

You have the right to change your mind and withdraw at any time without giving a reason and without your participant rights being affected.

What will happen to the results of the research?

Your personal details will remain strictly confidential. Research findings made available in any reports or publications will not include information that can directly identify you without your specific consent.

Where can I get more information?

Please feel free to contact any of the below details for more information about this study:

Mr. Olatokunbo Shoyemi – O.S.Shoyemi@soton.ac.uk

Prof. Mario Brito – M.P.Brito@soton.ac.uk

Dr. Ian Dawson – I.G.Dawson@soton.ax.uk

What happens if there is a problem?

If you have a concern about any aspect of this study, you should speak to the researchers who

will do their best to answer your questions. If you remain unhappy or have a complaint about any aspect of this study, please contact the University of Southampton Research Integrity and Governance Manager (023 8059 5058, rgoinfo@soton.ac.uk).

Researcher: Olatokunbo Shoyemi – O.S.Shoyemi@soton.ac.uk

Data Protection Privacy Notice

The University of Southampton conducts research to the highest standards of research integrity. As a publicly funded organisation, the University has to ensure that it is in the public interest when we use personally identifiable information about people who have agreed to take part in research. This means that when you agree to take part in a research study, we will use information about you in the ways needed, and for the purposes specified, to conduct and complete the research project. Under data protection law, 'Personal data' means any information that relates to and is capable of identifying a living individual. The University's data protection policy governing the use of personal data by the University can be found on its website (https://www.southampton.ac.uk/legalservices/what-we-do/data-protection-and-foi.page). This Participant Information Sheet tells you what data will be collected for this project and whether this includes any personal data. Please ask the research team if you have any questions or are unclear what data is being collected about you. Our privacy notice for research participants provides more information on how the University of Southampton collects and uses your personal data when you take part in one of our research projects and can be found at http://www.southampton.ac.uk/assets/sharepoint/intranet/ls/Public/Research%20and%20Integrity%20Privacy%20Notice/Privacy%20Notice%20for%20Research%20Participants.pdf

Any personal data we collect in this study will be used only for the purposes of carrying out our research and will be handled according to the University's policies in line with data

protection law. If any personal data is used from which you can be identified directly, it will not be disclosed to anyone else without your consent unless the University of Southampton is required by law to disclose it. Data protection law requires us to have a valid legal reason ('lawful basis') to process and use your Personal data. The lawful basis for processing personal information in this research study is for the performance of a task carried out in the public interest. Personal data collected for research will not be used for any other purpose.
For the purposes of data protection law, the University of Southampton is the 'Data Controller' for this study, which means that we are responsible for looking after your information and using it properly. The University of Southampton will keep identifiable information about you for minimum of 10 years after the study has finished after which time any link between you and your information will be removed. To safeguard your rights, we will use the minimum personal data necessary to achieve our research study objectives. Your data protection rights – such as to access, change, or transfer such information - may be limited, however, in order for the research output to be reliable and accurate. The University will not do anything with your personal data that you would not reasonably expect. If you have any questions about how your personal data is used, or wish to exercise any of your rights, please consult the University's data protection webpage (https://www.southampton.ac.uk/legalservices/what-we-do/data-protection-and-foi.page) where you can make a request using our online form.
If you need further assistance, please contact the University's Data Protection Officer (data.protection@soton.ac.uk).

Thank you.

CONSENT

I have read and understood the information sheet and have had the opportunity to ask questions about the study.

I agree to take part in this research project and agree for my data to be used for the purpose of this study.

I understand my participation is voluntary and I may withdraw (at any time) for any reason without my participation rights being affected.

I understand that if I withdraw from the study that it may not be possible to remove the data once my personal information is no longer linked to the data.

I understand that I can withdraw from the study at any stage without penalty.

I understand that I will not be directly identified in any reports of the research.

MOTOR INSURANCE FRAUD & TYPES

For the purposes of this questionnaire, fraud in insurance is defined as a fraudulent activity which is intended to gain dishonest advantage for the fraudster or for the purposes of other parties (IAIS, 2007). This may for example be achieved by: 1) misappropriation of assets; and/or 2) insider trading; and/or 3) deliberate misrepresentation; and/or 4) suppression or non-disclosure of one or more material facts relevant to a financial decision or transaction; and/or 5) abuse of responsibility, a position of trust or a fiduciary relationship.

The following three categories of motor insurance fraud are being considered in this study:

i. **Internal fraud** – Fraud being perpetrated from within the insurance company. It could be committed by any member of staff against the insurance company. i.e., claim officer, underwriting staff, accountant, etc

ii. **External fraud** – Fraud being perpetrated from outside of the insurance company but by those, who have some contractual relationship/obligations with the insurance company. i.e., policyholder (claimant), intermediaries, loss adjusters, motor garages, etc.,

iii. **Connivance fraud** – this is committed under the agreement between two or more parties that have some contractual obligations/relationships with the insurance company. Here, there could be a collusion between the internal and external perpetrators to defraud an insurance company. i.e., collusion between - the claimant and employee of the insurance company, the policyholder, and an intermediary, etc.,

Scale – Paper 2

SECTION A – PERCEPTION OF INTERNAL FRAUD (PIF)

1. To what extent do you agree that internal fraud is a major issue in motor insurance claims administration in Nigeria?
2. To what extent do you agree that anyone working within the insurance company presents a potential fraud risk to motor insurance claims in Nigeria?
3. To what extent do you agree that frauds perpetrated within the insurance company can increase motor insurance claims pay-out in Nigeria?

SECTION B - PERCEPTION OF EXTERNAL FRAUD (PEF)

1. To what extent do you agree that external fraud is a major issue in motor insurance claims administration in Nigeria?

2. To what extent do you agree that anyone having a contractual relationship (i.e., policyholder, agents, loss adjuster, etc) with the insurance company presents a potential fraud risk to motor insurance claims in Nigeria?

3. To what extent do you agree that frauds perpetrated from outside of the insurance company can increase motor insurance claims pay-out in Nigeria?

PERCEPTION OF CONNIVANCE FRAUD (PCF)

1. To what extent do you agree that connivance fraud is a major issue in motor insurance claims administration in Nigeria?

2. To what degree do you concur that establishing long-term relationships among employees in insurance, brokerage firms, and loss adjusting firms poses a potential risk of fraud in motor insurance claims within Nigeria?

3. To what extent do you agree that collusion between persons working directly (i.e., employees) and indirectly (i.e., agents, loss adjusters, etc) with the insurance company can increase motor insurance claims pay-out in Nigeria?

Causes of Internal Motor Insurance Fraud

In your opinion, to what extent do you agree that the following factors currently lead to Internal insurance fraud in the Nigerian motor insurance business?

1. Poor remuneration or working conditions for employees and managers.

2. Weak internal controls (e.g., managers or supervisors having limited control, authority, oversight and/or auditing of employee activities

3. Manager or employee with external business interests putting pressure on other employees to satisfy their external parties

4. Manager or employees having close or long – standing relationships with consumers and other external parties

Causes of External Motor Insurance Fraud (CEF)

(B) In your opinion, to what extent do you agree that the following factors currently lead to External insurance fraud?

1. Policyholder or claimant is willing is to accept low settlement with cash payment option.

2. Policyholder or claimant is very knowledgeable about insurance terms.

3. Irregularities in claims documentation by claimant (i.e., no original documents, no name on the documents, strange dates, etc.,).

4. Inconsistency between the insured amount and the characteristics of the insured (like lifestyle, age, profession, etc.,).

5. Poor supervision of intermediaries' (broker or agent) activities (e.g., the Policyholder/insured lives beyond the region where the broker/agent operates).

6. Inadequate training and education on insurance fraud by intermediaries

7. Intermediary often changes address or name

8. Loss adjusters' fees are comparatively low (not often review) and are not paid as and when due by some insurers.

Causes of Connivance Insurance Fraud (CVF)

(C) In your opinion, to what extent do you agree that the following factors currently lead to connivance fraud?

1. For a certain amount from the claimant, the Loss-adjuster agrees to report an inflated claim amount (from the claimant) to the insurer.

2. Under a sharing arrangement between the insurance intermediary and claimant, the intermediary agrees with the claimant to report a loss that had already occurred before the policy is incepted with the insurance company

3. The claim manager agrees to approve/honour an otherwise 'repudiated claim' under a sharing agreement of the proceeds with the claimant.

4. For a certain amount from the claimant, a standard motor garage agrees with the claimant to issue a repair estimate (though the vehicle is not being repaired at this garage).

5. Under a sharing formula of the proceeds, the claimant agrees with the intermediary, loss-adjuster, and insurance claim manager/officer to plan/report a loss that never existed.

Demographic of Respondents

1. GENDER

   What is your gender?

2. Identify the specific line of business of your insurance company
3. AGE – State years in ages
4. Industry unit

   Identify the specific line of business of your insurance company

5. Insurance Department
6. Identify your department within your company
7. Qualification

   Identify highest qualification you have already obtained?
8. Qualification

   What is your professional qualification?

Appendix S3

***Researcher**: Olatokunbo Sunday Shoyemi*

***ERGO number**: 81841*

Scale – Paper 3

Section ONE

This part seeks to establish the organizational structure and corporate practice towards anti-fraud strategy.

(a). **Does your organization have a fraud risk management department or equivalent department in charge of fraud incidences?** YES or NO

(b). **How regularly are the anti-fraud strategy reviews held by the Board or management in your organization?**

Monthly? Quarterly? Semi-Annually? Annually? None of the above

(c). **What is the placement of the officer in charge of Anti-fraud strategy in your organizational structure? Please see the below key:**

KEY

Supervisory level	Is a functional Staff reporting to section head.
Middle management	Heads a section within a department
Senior management	Heads a department but reports to a top-level manager
Top level management	Reports to the Board and CEO

Supervisory level? Middle management? Senior Management? Top Management?

Section TWO

The part aims to estimate the anti-fraud strategies employed to curb the motor insurance fraud in the Nigerian insurance industry.

How would you rate the below fraud risk management practices in relation to your organization? *(Please tick where appropriate).*

Attribute	Scoring	Definition

Absent	0	No anti-fraud strategy of that nature.
Ineffective	1	There is an anti-fraud strategy in place but does not prevent, detect, or deter fraud.
Somehow ineffective	2	There is an anti-fraud strategy in place, however, it minimally prevents, detect or deter fraud.
Somehow effective	3	There is an anti-fraud strategy in place, it averagely prevents, detect, and deter fraud
Effective	4	There is an anti-fraud strategy in place, it significantly prevents, detect, and deter fraud.
Very effective	5	There is an anti-fraud strategy in place, its highly effective in preventing, detecting, and deterring fraud.

Means of reducing fraud	**Control Absent**	**Ineffective**	**Somehow ineffective**	**Somehow effective**	**Effective**	**Very effective**
Rating	**0**	**1**	**2**	**3**	**4**	**5**
PREVENTIVE CONTROLS						
Integration of insurance fraud into a wider financial crime strategy						
Ensuring partners (i.e., brokers, agents, reinsurers, etc.,) are familiarity with insurer's approach, and conduct due diligence on their processes						
Establishment of a unified insurance frauds register						
Customer information and education (i.e., some of them may not know that their activities are fraudulent)						
Setup insurance fraud taskforce						
Amendment of the insurance Act 2003 to inculcate active fraud management with sanctions						
Establishing insurance frauds control Act						
Ensure all staff are familiar with – and comply with both regulatory rules and guidance						

Regular meetings of fraud management team						
DETECTIVE CONTROLS						
Effective procedures for reporting of suspected fraud (i.e., monthly reports on fraudulent motor claims)						
Conducting Staff training on counter fraud strategy						
Each insurer should ensure that it has in-house capability proportionate to risk appetite: analysts, intelligence, policy, and claims validation teams etc						
Setting up of a dedicated enforcement department for insurance fraud cases (funded by insurers)						
Establishing the insurance fraud bureau – to spearhead insurance industry fight against organised fraud						
The use of technology and data analytics (including anti-fraud databases)						
Gathering and sharing intelligence on insurance frauds						
Extending information-sharing across borders						
Voluntary scheme where suspected fraud or evidence of fraud can be reported to the necessary authority						
The adoption of automated red flags, business rules, link analysis, and anomaly detection technology						
Collation and collection of annual detected fraud statistics exercise						
RESPONSE STRATEGY						
Introduction of hotline						

Incentives for whistleblowing						
Reporting to Insurance Fraud Unit						
Defined Fraud Investigation and reporting procedures						
Prosecution of Fraud Perpetrators						

LIST AND RATE ANY OTHER ANTI-FRAUD STRATEGY (IES) EXERCISED BY YOUR ORGANIZATION. (PLEASE TICK WHERE APPROPRIATE)

	0	**1**	**2**	**3**	**4**	**5**

THANK YOU FOR YOUR TIME

Section THREE (RESPONDENTS' DEMOGRAPHICS)

1. Gender: What is your gender?

a. Male ( )
b. Female ( )

2. Age: State your age in years

State your age in years [ ]

3. Job Role: Indicate your specific job function within your organization

a. Head of Risk Management/Enterprise Risk Management ( )
b. Head of Technical Composite ( )
c. Head of Claims ( )

5. Experience:

State your experience (in years) in the industry [ ]

6. Qualifications:

a. O Level/A Level ( )
b. ND, NCE, Diploma ( )
c. HND, BSC, BTEC, ETC ( )
d. Master's degree ( )
e. PhD/DBA ( )

7. Professional Qualifications (ACII, AIIN, FCII, etc.,)

List your professional qualifications [ ]