DETECTION OF FRAUD IN THE HEALTH INSURANCE INDUSTRY

Dissertation Submitted to

The IIHMR University, Jaipur

for the partial fulfilment for the award of the degree of

Master of Business Administration (MBA)

in

Pharmaceutical Management

By

Vishal Uppal

Under the Supervision and Guidance of

Mr. Rahul Sharma

2024

care HEALTH INSURANCE

CERTIFICATE

This is to certify that Mr. Vishal Uppal in partial fulfillment of there requirements for the award of the degree of MBA (Pharmaceutical Management) from the IIHMR University, Jaipur, has successfully completed his internship at Care Health Insurance Ltd. from March 18 - June18,2024.

Place: Gurgaon
Date: 26/06/2024

Dr. Myuresh Agarwal
Corporate Manager FCU
Care Health Insurance Ltd.

DECLARATION BY STUDENT

I hereby declare that this dissertation titled **Dissertation Report on "Detection of fraud in the Health Insurance industry"** is the bonafide record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.

Vishal Uppal

Date 5/7/24

IIHMR UNIVERSITY

CERTIFICATE

This is to certify that dissertation titled **"Detection of Fraud in Health Insurance Industry."** is a record of the research work undertaken by **Vishal Uppal** in partial fulfillment of the requirements for the award of the degree of MBA- Pharmaceutical management from the IIHMR University, Jaipur under my guidance and supervision and his approach to the research study has been sincere, scientific, and analytical.

Faculty Guide
Dr. Rahul Sharma
IIHMR University, Jaipur
Date – 05/07/2024

School Dean
Dr. Manthan D. Janodia
IIHMR University, Jaipur
Date - 05/07/2024

Abstract

Insurance fraud is a common and costly problem affecting insurance companies, policyholders, and the global economy. This document is designed to develop advanced techniques for detecting insurance fraud in various insurance areas, including health insurance, automobile insurance, insurance property insurance, and life insurance. The research examines machine learning and data mining methods that can uncover complex patterns and flaws that indicate fraud in many insurance documents. review. Then, it proposes a new hybrid model that combines supervised and unsupervised learning algorithms to improve fraud detection accuracy. In this model, different information such as request details, insurance information, voice and written information, media and external information are used. This is compared to national standards. Various experiments demonstrate the effectiveness of the new model in identifying fraud schemes, including organized fraud, and minimizing the negative impact. Interpreting estimates provides insurance companies with useful information for detecting fraud. Strategic guidance has been developed to assist insurance companies in using technology in their fraud management efforts. Practice in the insurance industry.

Acknowledgment

At the outset of my thesis, I would like to express my sincere gratitude to all the individuals who have assisted me with this research. Their strong leadership, participation, and encouragement have been instrumental in the completion of this work.

I am deeply indebted to my advisor, Dr. Myuresh Aggarwal, for their unwavering guidance and support throughout the research process. Their insightful feedback and expertise have been invaluable.

I am also profoundly grateful to Mr. Saurabh Kumar, Associate Professor and Dean at School of Pharmaceutical Management, IIHMR University, for his exceptional direction and support. My deepest sense of gratitude also extends to Mr. Vinod Tejwani, Dean of Placements & Alumni Relations at IIHMR University, for his assistance and encouragement.

A special thanks to my faculty guide, Mr. Rahul Sharma, for his consistent guidance and valuable insights, which greatly contributed to the completion of this thesis.

Lastly, I would like to thank all my friends and family who, directly or indirectly, have supported me in completing this thesis. Any omission from this acknowledgment does not imply a lack of gratitude.

Thank you.

Sincerely,

Vishal Uppal

Roll No. – 0463

TABLE OF CONTENTS

Chapter 1: Introduction / Background

1.1 Introduction

Fraud is a crime based mostly on deception for the purpose of gaining financial gain and can be defined as a crime in general terms. According to the Department of Insurance and Investigations (2014) and the Utah Department of Insurance (2015), fraud takes place as soon as an insured lies to an insurer, broker, underwriter, or other people that are involved in contact of the insurance. This is for the purpose of gaining a financial benefit. Fraud can also occur when an insurance company deliberately deceives the broker, underwriter, or service provider to increase the amount of money. This scam may be by use of false information when people apply or apply for insurance. This practice has been since the inception insurance industry, and is a huge problem for those who are working in this industry. As technology advances, many fraud detection methods are emerging to solve this problem. Various traditional methods such as book review and auditing, as well as more advanced techniques such as profiling and machine learning are included in it. This method is time consuming and error prone. However, it is still widely used in business, especially for small studies. This method is faster and more accurate than manual analysis but requires special skills and knowledge in data analysis. This method can be used to identify fraud patterns that cannot be detected using traditional methods or even data analysis. Each method comes with its own advantages and disadvantages, and the choice of method varies according to specific needs of the organization and the type of fraud being investigated.

In this study, we will examine various fraud detection methods in health insurance, their effectiveness in detecting fraud and how it affects the financial performance of many insurance companies. We will even see the challenges plus limitations of this process, also we will provide recommendations for future research, and understand the financial aspects of the project. According to the “International Association of Insurance Supervisors (I.A.I.S, 2007)”, insurance fraud can be defined as “a crime committed by a fraudulent person with the intention of gaining unfair advantage for the purposes of other parties” (Akomea Frimpong, Andoh & Hene, 2016). According to “Levi (2008) (as cited in Button (2012))”, insurance fraud occurs when a person hides some important information from an insurance company, broker, or other third party to obtain a benefit. This can happen during the underwriting process and the application process. “Center for Insurance Policy and Research, 2014”; Taiwo, Agwu, Babajide, Okafor and Isibor, 2016; Chudgar and Ashthana, 2013). The annual cost of insurance fraud, including theft, underwriting, theft by fraud, and workplace fraud, is more than $40 billion. “The Coalition Against Insurance Fraud (C.A.I.F., 2015)” estimated that insurance fraud is responsible for 10% of annual insurance and medical losses. According to the same prediction, scammers steal. Fraud impacts on the efficiency, the productivity and the innovation of the insurance industry; because fraudsters change their sources of influence, making it difficult for organizations to develop. Zenios et al., 2017) 1999, see Omasete, 2014). According to Garba and Abubakar (2014), ROA and ROE are two indicators which are often used to measure profitability. “Slater and Narver (1995)”, “Kotler and Keller (2009)”, as cited in “Nebo and Okolo (2016)”, “William, Greene and Segal (2004)”, as cited in The Sambasivam and The Ayele (2013) and The Kotler and The Keller (2009). According to the Nebo, Everyone agrees on this and added that the results are important for the stability, success and differentiation of the departmental insurance and also for the best value for money as stated by Okolo (2016). Sharma

(2015) believes that in the current environment, in-depth understanding of the customers and their needs, effective business processes and employees which are skilled are important. Niven (2005) cited by Kariuki (2012) disagree on the view that financial measures should only be used and that they should be used in conjunction with other indicators that predict financial futures, no matter how important these historical data are. (Gizer, 2012) He states that the "Balanced Scorecard" examines the organization's performance through past performance as well as financial, customer, internal business processes, learning and development.

CHAPTER 2: AIM AND OBJECTIVES

AIM :-

To evaluate the various techniques employed for identifying the fraud in the health insurance sector.

OBJECTIVES:-

1. To assess various techniques utilized for detecting fraud in the health insurance industry
2. To assess financial impact of fraud in health insurance industry

Chapter 3: Review of Literature

Fraud investigation has become popular among experts, professionals and businesspeople, mainly in the insurance industry. SAS Institute (2015) stated that insurance fraud is increasing. Key findings of the "FICO (2013) Insurance Fraud Study" are consistent with, The SAS Institute's analysis highlights the industry's most conservative rate of insurance fraud is approximately 10% of all applications. Also, the FICO report ignores other hot spots for insurance fraud, such as underwriting, payroll, and theft. Given these statistics, many insurance companies are required to find ways to strengthen their fraud prevention methods by analyzing and remediating claims, using new business processes, and using money to improve technology. The cost to UK industry is more than £2 billion, including more than £1 billion from known insurance fraud. According to a statement from the Insurance and Research Institute (2014), insurance fraud costs customers money, harms businesses and people, and most importantly causes crisis for insurance companies. It also affects their competitive advantage and long-term sustainability. A study conducted on "Causes, Effects and Deterrents of Insurance Fraud" to determine the extent to which insurance companies in Ghana are financially affected by insurance fraud incidents and the many strategies they can use to overcome it. A multivariate model was employed to determine connections between the financial performance and different types of insurance fraud (the internal fraud, the secretary fraud, and the fraudulent middleman). The findings revealed that insurance fraud negatively affected the annual return on assets of the Ghana Insurance Company. In addition, factors identified as contributing to insurance fraud in Ghana include lack of management, long-term business relationships between the perpetrator's business and outsiders, low wages, forged documents, deliberately deterring customers from the insurance business, and lack of information. - fluffy. This study does not include third-party fraud and does not include non-financial performance as a dependent variable. Most insurance fraud research consists of studies conducted by consultants, corporate organizations, and some academics. Fraud in insurance and its consequences on the financial performance of companies has received widespread attention in academic publications and research projects. (Maina, 2016; Akorea Frimpong; et al., 2016; Irungu, 2016). Müller, Schmeisser and Wagner, 2012; Muhammad, 2013;)

Chapter 4: Research Methodology

The steps included in the literature review are as follows:

Determining the significance of the analysis: Secondary research data was used for this study. The primary aim of this study is to examine the impact of fraud on the performance of the insurance industry. In recent years, insurance fraud has increasingly become a significant concern for the industry. This issue is as old as the insurance industry itself and has been exacerbated by the reluctance of regulators, insurers, and law enforcement to address it directly. The conceptual deficiencies revealed in the evaluation need to be addressed in future insurance fraud research.

Finding: Key terms related to the research question were “health insurance fraud”, “financial impact”, “application processing”, “data analysis”, “machine” learning, “risk management” “waiting”. "Health insurance fraud" can also be called as "health care fraud", "insurance fraud prevention", and Boolean operators (AND, OR, NOT) can be used to refine the search and ensure that the text is the most important. . “Health Insurance Research” and “Financial Impact” find articles addressing these two topics. Or use Health Insurance Fraud Detection or Healthcare Fraud Detection to broaden your search. Search for information using research databases such as PubMed, JSTOR, or Google Scholar. This database allows you to search for articles using keywords, and you can use Boolean operators to refine your search. Review government documents, whitepapers, and other gray information. In the previous step, preliminary research of the research subject and data from the data set was conducted. Explore gray information like government documents, white papers, and industry publications. Review the names and descriptions of the articles reviewed in the initial search to determine whether they meet your inclusion criteria. Products that do not meet the criteria should be excluded.

Obtain the full text of articles that meet the inclusion criteria and read them carefully. Write in detail the findings, methods, and conclusions of each article. Evaluate the quality of the article based on its methodology, sample size, and relevance to your research question. This will help you decide which articles are the most important and informative. You can use various tools for searching such as the Google Scholar or Scopus for finding articles that cite the original article. After the relevant data was collected, it was divided into different categories according to the research questions that were tried to be answered. This will help identify gaps in the data and develop further research questions. Data analysis highlights the key elements of the data we compile. It involves critical evaluation of the data and its relevance to the research questions. It should also identify gaps in the literature and highlight the need for further research in this area.

A descriptive synthesis method was used to identify the themes, concepts, and methods used in each study. Identify commonalities and differences, group data into thematic categories, and analyze data based on research questions.

Tabular Summary:

S. no.	Methodology (Study population)	Author	Learning from the article
1.	The aim was to uncover the undisclosed expenses linked to employee fraud. A study involving 45 UK companies was conducted, where researchers collaborated with counter-fraud experts in a brainstorming session to identify all potential costs associated with fraud.	Button, Blackbourn, Lewis & Shepherd (2015)	The findings of this study indicate that staff fraud incurs several additional expenses, such as costs for replacing permanent staff, conducting investigations, suspending employees, handling internal disciplinary actions, imposing external sanctions, covering miscellaneous expenditures, and managing intangible costs
2.	A qualitative research design was employed, utilizing 2 techniques for collection of data. The primary approach involved the Analysis of multiple reports, including employee fraud reports and disciplinary action records	Omar, Nawawi and Salin	The research findings indicateed that a prevalent form of the employee fraud involves misappropriation of company's assets, such as theft of the cash and stock. Additionally, the study identified weak internal controls, inadequate supervision, lack of awareness about fraud, and financial pressures as primary causes of fraud
3.	Researcher utilized case study approach, selecting 3 insurance companies for qualitative investigation. Multiple	Mohamed (2013)	The findings showed - insurance companies in the Malaysia have adopted initiatives to combat frauds, emphasizing the need for

	methods were employed for data collection, including interviews, observation, document review, and follow-up surveys.		specific skills in this area and acknowledging the potential for financial losses due to fraudulent activities. The study identified 4 categories of insurance fraud: staff fraud, customer fraud, intermediary fraud, and insurer fraud. The Mohamed argues that insurer fraud occurs when anybody acting on behalf of underwriter engages in practices like policy twisting or misselling against the customer.
4.	A qualitative approach was employed, utilizing interviews conducted with the fraud experts and managers from health insurance sector.	Flynn (2016)	The study findings indicated that health insurance sector needs increased automation and staffing level to effectively manage fraud. It was also found-technological advancements in claims processing present significant challenges to the integrity of insurance systems. Fraud was identified as causing financial losses, leading private health insurance providers to raise premiums to mitigate these costs.
5.	Study utilized the qualitative research design, employing the structured questionnaires to collect data from a population consisting of 25 insurance companies in Jordan.	Rawashdeh and Shinglawi (2016)	The Study further found that insurance fraud occurs during the insurance application, underwriting, and claims processes. It highlighted that Jordanian insurers have weak internal control systems, which create favorable conditions for fraudulent activities. While the study identified various parties involved in fraudulent activities, it did not conclusively establish whether employees are the primary perpetrators of fraud, as asserted by previous research. Additionally, this study didn't address impact of the fraud on overall performance.

6.	The researcher aimed to assess the magnitude of the issue and the stakeholders' responses. To accomplish this, both the exploratory and the descriptive research designs were employed. The Questionnaires and expert interviews served primary data collection instruments, supplemented by secondary data gathered from online databases, journals, and library resources.	Chudgar (2015)	The study identified four primary drivers of fraud in life insurance: weak controls, adverse economic conditions, the perspectives of fraudsters, and the perception among consumers that the fraud is acceptable. It was also established that three main parties engage in the fraud within the life insurance sector: The internal employees or the agents of the company, the policyholders, and the involvement from medical professionals. However, the study did not provide findings on the extent of fraud or industry responses. Additionally, it lacked a clear theoretical foundation. Furthermore, the study grouped salaried employees together with agents who typically work on a commission basis.
7.	The study employed the descriptive and exploratory research designs, utilizing the quantitative methodologies to examine relationship between insurance fraud and its impact on the insurance companies. The population of the study comprised forty-five insurance companies, selected through random sampling. Primary data was collected directly from these companies using survey questionnaires.	Akomea-Frimpog	The study used a cross-sectional multiple regression model to explore how insurance fraud (Internal, Policyholder, Intermediary) affects financial performance, showing a negative impact on insurers' annual return on assets in Ghana. Key determinants of fraud included weak internal controls, prolonged employee-outsider relationships, inadequate compensation, document falsification, customer exploitation, and insufficient intermediary awareness. Notably, third-party fraud and non-financial performance were not included in the study's variables, which focused specifically on the Ghanaian context.

8.	They conducted survey and gathered data using a semi-structured questionnaire, which was analyzed using descriptive statistics.	Angima and Omondi (2016)	The findings indicated that common types of fraud included overstated medical bills, concealment of the medical history, the identity theft, the document theft, and the insurance premium fraud. Additionally, the study established that medical insurance contributes the overall rise in healthcare costs due to increasing insurance premiums.
9.	The study utilized a descriptive research design, analyzing both primary and secondary data through regression analysis. It revealed that misappropriation of premiums significantly hindered insurance company growth, while product misrepresentation exacerbated the issue by increasing cancellations.	Mutua and Gachunga (2014)	The study identified premium misappropriation and product misrepresentation as independent variables, with growth as dependent variable. However, strength of this relationship was not quantified. Importantly, the research did not explore the impact of fraud on overall performance of insurance industry.
10.	Study utilized a cross-sectional descriptive research design to analyze both the primary and the secondary data. It found that motor vehicle insurance faces higher exposure to fraud compared to medical insurance. Additionally, study noted insurers' reluctance to investigate and prosecute suspected fraudulent cases, as well as their hesitation to calculate and disclose fraud statistics. Furthermore, there was reluctance among insurers to publicize lists of the staff, the intermediaries, and the individuals from the public involved in fraud or attempted fraud.	Odhiambo (2016)	The study further observed that insurers showed reluctance to investigate and prosecute suspected fraudulent cases, hesitated to calculate and publish fraud statistics, and were unwilling to disclose lists of staff, intermediaries, and the public involved in fraud or the attempted fraud.

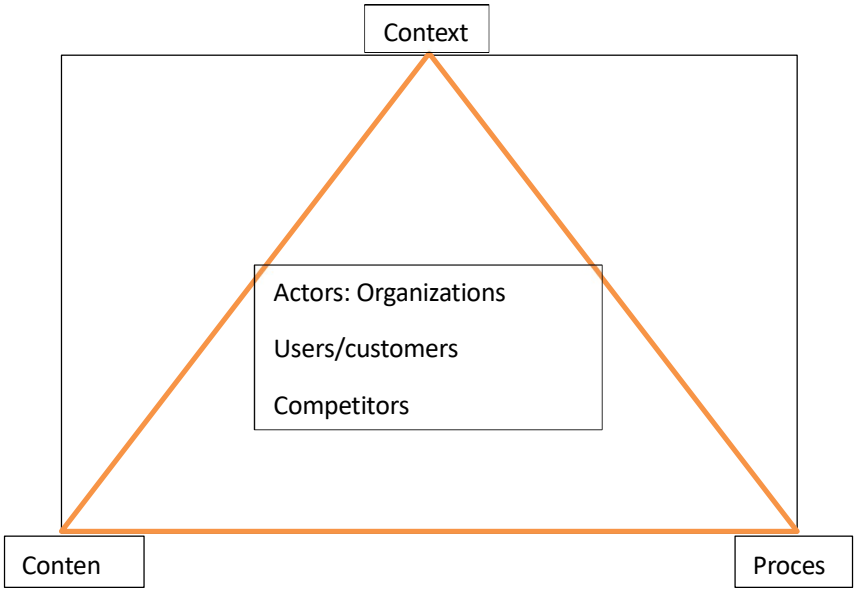
11.	Study employed a quantitative research approach, with the number of reported frauds and amount of fraud as independent variables. Financial performance served as the dependent variable in the analysis.	Irungu (2016)	The research revealed a robust positive correlation between the extent of fraud and return on assets, whereas the link between the number of reported fraud cases and return on assets was moderately positive. Similarly, Maina (2016) conducted a comparable study on insurance companies, using a similar methodology but replacing the number of reported fraud cases with liquidity as an independent variable.
12.	Detecting and Analyzing Insurance Claim Fraud through Machine Learning	Amruta Khot, Abhijeet Urunkar, Rashmi Bhat, Nandinee Mudegol	Given the diverse characteristics inherent in various datasets, it wouldn't be prudent to prescribe one optimal algorithmic technique or standard feature engineering process. Instead, achieving higher performance involves tailoring models to specific business contexts and prioritizing user needs. This approach focuses on adapting models to effectively detect new instances of fraud in insurance claims. Based on robust performance during back-testing and their ability to identify novel fraud cases, this suite of models proves effective for insurance claims fraud detection
13.	A Comparative Analysis of Machine Learning Techniques for Insurance Fraud Detection	R Guha, Shreya Manjunath, Kartheek Palepu	The machine learning models discussed effectively identified most fraudulent cases with a low false positive rate or good precision. This allows focus on emerging fraud scenarios, though some datasets had data quality issues affecting prediction accuracy. While optimal algorithmic strategies and feature engineering vary by dataset, the models show promise for insurance claims fraud detection based on

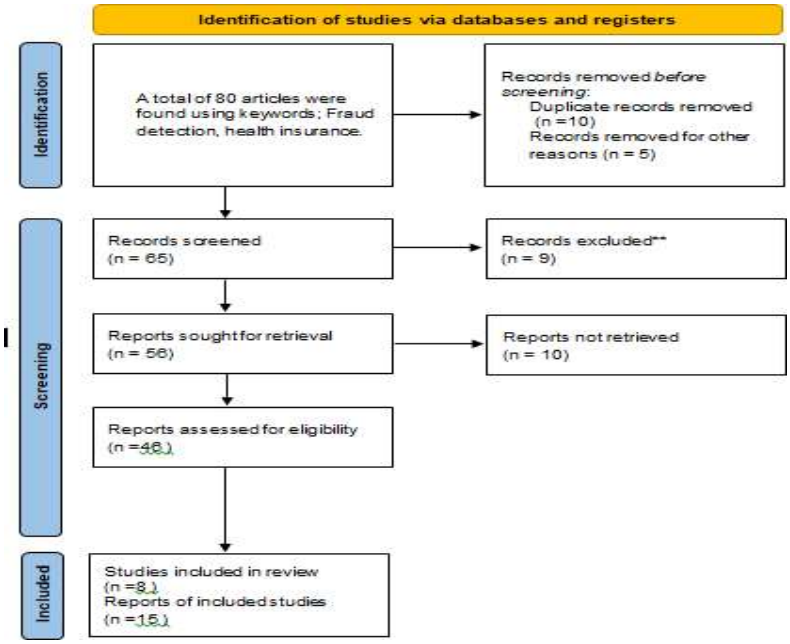
			their performance in back-testing and ability to detect new frauds.
14.	The research article employs both descriptive and exploratory research methods, utilizing secondary sources for data collection. Information is gathered from textbooks, national and international articles, RBI Bulletins, and LIC's annual reports. Statistical tools such as t-tests and ANOVA are used to assess the performance of India's Life Insurance Industry across pre- and post-economic reform periods, and to analyze the current competitive landscape and challenges faced by LIC.	Harpreet singh bedi*; dr. Preeti singh	LIC's overall business has grown steadily, influenced positively by liberalization policies. While LIC's investments surged from Rs. 4,587.7 crores in 1979 to Rs. 7,62,891.7 crores in 2009, its market share of total premiums dropped from 97% in 2001-02 to 74% in 2007-08 due to rising competition from private insurers like ICICI Prudential. Despite challenges, there is significant room for growth in India's life insurance sector
15.	Machine learning methods for efficiently analyzing insurance claims involve automating processes to improve accuracy and speed.	Shrutee Phadke 1, Princia Koli 2	On implementing this technology it becomes helpful to the insurance company to identify genuine and fraud claims. As the model automatically acknowledges the insurance company owner about claim status instantly. Another advantage of this project is that it decreases the human labor. This technology can be implemented in any type of insurance organization. So with the implementation of this technology, it is possible to optimize marketing strategies, to improve the business, to enhance the income of the company, and to reduce costs due to fraud claims.

Research on insurance fraud has garnered significant interest from both academics and business professionals. Most studies on this topic are conducted by consultants, corporate organizations, and some academics, focusing predominantly on claims while neglecting other aspects of the insurance process. Multidisciplinary models dominate the literature, with a majority of studies analyzing data related to fraud in insurance

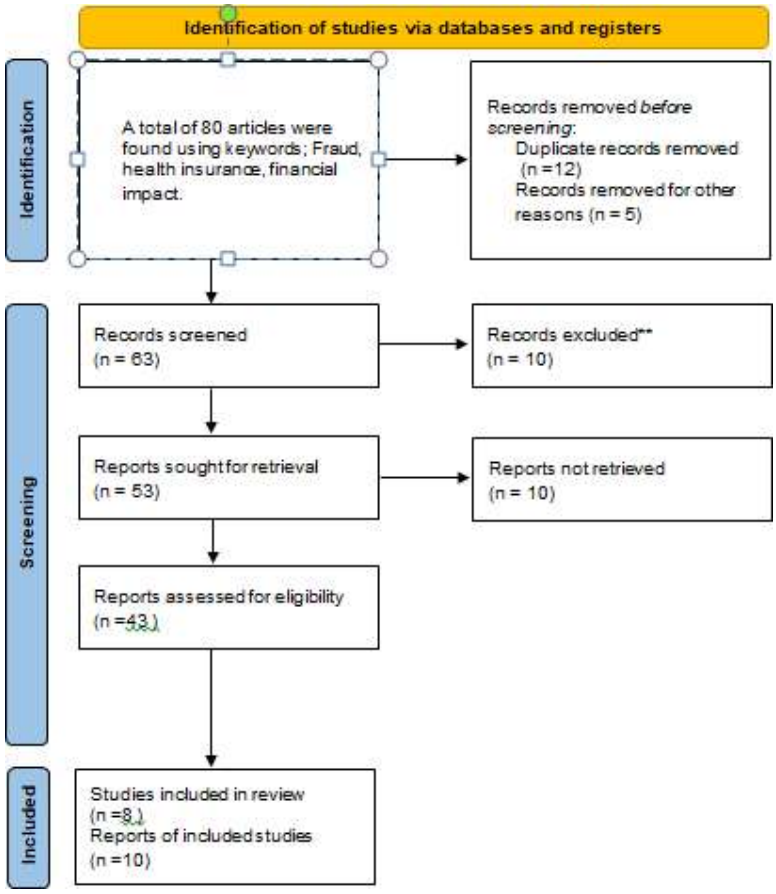
Studies like those by Chudgar (2015) explored life insurance fraud in India and insurers' responses, while Akomea-Frimpong et al. (2016) focused on various forms of fraud in Ghana's insurance sector. However, there is a noticeable gap in research addressing the comprehensive impact of fraud, including fraud by customers, agents, employees, and third parties, on insurance business performance indicators like Return on Assets (ROA) and reputation.

Analysis Triangle





Scheme of methodology for collection and synthesis of literature



Scheme of methodology for collection and synthesis of literature

Data collection process

The information provided in this report was collected from various sources. These includes, government websites and information, research articles, newsletters, and opinion pieces. Websites were translated into English. Regulatory and legal agencies use these sources to identify fraud. Some of these publications contain valuable information obtained from research and opinions of various companies and individuals. Some of these publications also include market health insights that help understand future opportunities in the domestic market.

Do research on your interests. This article helps in understanding the situation of various industries in selected countries.

Chapter 5: Results and Discussions

Findings from the Literature:

A. The most effective way to detect the frauds in insurance can be by using- data analytics and statistical methods to identify unusual patterns or outliers in the data. For example, a claim that is significantly different from the average claim in terms of its cost, duration, or frequency may need further investigation.

B. Use social network analysis to identify connections between individuals and entities involved in insurance claims. This can be useful to uncover fraudulent activities such as collusion, where multiple parties work together to defraud the insurance company.

C. Collaboration between insurance companies, the law enforcement agencies can be another productive way to detect and prevent fraud. By sharing this information and resources, the insurers and agencies can work together to identify patterns and trends in the fraudulent activity, investigate suspicious claims, and prosecute those responsible for fraud.

D. The performance of the insurance business and the general idea of insurance fraud risk were reviewed in this study. It is evident from the literature study that there are five factors that influence whether fraud occurs: incentives, also known as pressures, to commit fraud, opportunities to commit fraud, justifications for committing the fraud, capability, and, ultimately, perceived unfairness by fraudsters.

E. Fraud diamond hypothesis is used to explain the first four causes of fraud, and Adams equity theory is used to explain the fifth cause of fraud—perceived unfairness. According to David McCllelland's "tip of the iceberg" idea, amount of fraud that has been found is very small than the amount of fraud that has gone undetected. Because of this, there is more fraud than is often the case, and the amounts that have been published in the literature are simply approximations.

F. According to the economic contractual theory of fraud, participants to the insurance contract, such as clients, intermediaries, employees, and third parties, are typically responsible for insurance fraud.

G. The occurrence of insurance frauds has a detrimental monetary impact on insurance industry's performance, raises insurance premiums, and subsequently reduces penetration. The ability of insurance businesses to fulfil their obligations may eventually be impacted, and in extreme cases, this may result in their closure.

H. When underwriters are working to cut costs, fraud detection and prevention should be their main focus. This is possible by using an acceptable framework for assessing fraud risk, which includes diligent underwriting, effective claims validation, intermediary reviews, employee culture, and the third-party evaluation. More importantly, issue of fraud will be resolved if society can adopt a culture of integrity.

MAJOR CONTRIBUTIONS

Multiple regression analysis model employed in existing literature is crucial for understanding relationship between the insurance fraud variables and the industry performance.

Various major fraud theories, such as fraud triangle theory, fraud diamond theory, self-control theory, the economic contractual theory, and the Adams Equity theory, provide valuable insights into the causes and contexts of insurance fraud, as explored by numerous researchers.

These studies commonly identify key independent variables related to insurance fraud and their impact on the financial performance.

Employees, policyholders, and intermediaries were identified as the factors in this case (Akomea-Frimpon et al., 2016). Intermediaries, policyholders, and third parties were recognised by Rawashdeh and Shinlawi (2016) as the variables in insurance fraud, whereas employees were utilised by Omar et al. (2016). These fraud-related factors are all crucial for establishing cause-and-effect connections.

Procedure

All of the information about the study, the market for insurance, its legislative requirements, the current situation, etc., was gathered from many sources mentioned above. Then, all of this information was carefully examined. It was categorized into the four groups listed above based on the review. The conclusion of this study was reached in light of that conversation.

The literature reviewed in this paper, focusing on health sector, yielded similar findings. For instance, The Angima and The Omondi (2016) found that fraud was causing financial losses and negatively impacting the health insurance penetration, a sentiment echoed by Flynn (2016).

Several other researchers also highlight insurance fraud as a significant issue in recent decades. The Odhiambo (2016) and Dearden (2017) argue that stakeholders are not adequately addressing fraud. The Dearden (2017) further contends that authorities are insufficiently addressing fraud, while Odhiambo suggests insurers are reluctant to investigate and prosecute suspected fraudsters, and hesitant to disclose fraud statistics and information about individuals involved in fraudulent activities. These findings will serve as a basis for comparative analysis in future hypothesis testing studies.

Chapter 6: Limitations

1. Among the reviewed literature, only one study utilized 3 types of fraud (the customer, the intermediary, and the internal) as independent variables to examine their impact on the financial performance of insurance industry.
2. Similarly, reviewed literature predominantly focused on financial measures and did not incorporate other performance metrics.
3. Few studies have explored the effects of insurance fraud on both the financial and the non-financial performance metrics within the insurance industry.
4. Despite these limitations, the study tries to provide a comprehensive scenario of the insurance industry.

CHAPTER 7: RECOMMENDATIONS

This paper suggests future research to investigate the impact of four distinct components of the insurance fraud (the Customer, the Intermediary, the Employee, and the Third Party) on both the financial & the non-financial performance metrics within the insurance industry.

Achieving this goal would require implementing a robust fraud risk framework. This framework should encompass rigorous underwriting processes, effective claims validation procedures, intermediary scrutiny, fostering a culture of integrity among employees, and conducting thorough evaluations of third-party involvement.

Ultimately, fostering a societal culture of integrity could potentially eliminate the pervasive issue of fraud in the insurance industry.

CHAPTER 8: CONCLUSION

This study explores the concept of insurance fraud risk and its impact on the performance of insurance industry. It identifies five primary drivers of fraud: motivation (pressures to commit fraud), opportunity, rationalization, capability, and perceived unfairness by fraudsters. The fraud diamond hypothesis and Adams equity theory are used to explain these drivers. David McClelland's tip of the iceberg theory suggests that reported instances of fraud are typically much lower than the actual occurrences.

According to the contractual theory of fraud, various parties involved in insurance contracts—clients, intermediaries, employees, and third parties—contribute to insurance fraud. This fraud negatively affects the financial performance of insurance companies by increasing costs and reducing market penetration, potentially compromising their ability to meet obligations and leading to potential insolvency.

To mitigate these risks, underwriters should prioritize fraud detection and prevention. This includes implementing robust fraud risk management strategies such as rigorous underwriting practices, effective claims validation procedures, intermediary oversight, fostering a culture of integrity among employees, and conducting thorough third-party verifications.

References

1. Abdullahi, R. & Mansor,N.(2015). Forensic Accounting and Fraud Risk Factors: The Influence of Fraud Diamond Theory. The American Journal of Innovative Research and Applied Sciences, 1 (5), 186-192.
2. ACFE (2012) Report to the Nations on Occupational Fraud and abuse. Global Fraud Study.
3. ACFE (2016) Report to the Nations on Occupational Fraud and Abuse. Sub-Saharan Africa Edition.
4. Akomea-Frimpong, I., Andoh, C., & Ofosu-Hene,E.D (2016). Causes,Effects and Deterrence of insurance fraud: Evidence from Ghana. Journal of Financial Crime, 23 (4), 678-699.
5. Angima,C.B & Omondi,M.A. (2016). Nature of Fraud and Its Effects in the Medical Insurance Sector in Kenya. DBA Africa Management Review, 6 (2), 33-44.
6. Button,M. (2012). "Cross-border Fraud and the case for an „Inter-fraud", policing. An International Journal of Police Strategies & Management, 35 (2), 285-303.
7. Button,M., Lewis, C. , Shepherd,D., & Brooks,G.(2015)."Fraud in overseas aid and the challenge of measurement", Journal of Financial Crime, 22 (2), 184-198.
8. Button,M., Blackbourn, D., Lewis,D.,& Shepherd,D. (2015). "Uncovering the hidden cost of staff fraud: an assessment of 45 cases in the UK", Journal of Financial Crime, 22 (2), 170-183.
9. Buoni, A. (2012). Fraud Detection in the Banking Sector: A multi-Agent Approach. Published Phd Thesis, Abo Akademi University.
10. Center for Counter Fraud Studies (2013). The True Cost of Insider fraud. University of Portsmouth.
11. Chudgar,J,D., & Asthana,A.K.(2013).Life Insurance Fraud- Risk Management and Fraud Prevention. International Journal of marketing, Financial Services & Management Research, 2 (5).
12. Chudgar, D. (2015). Risk Management in Life Insurance with Emphasis on Life Insurance fraud. Published phd thesis, Kadi Sarva Vishwavidyalaya, Gandhinagar, Gujarat, India.
13. Coalition against Insurance Fraud (2014). The state of Insurance Fraud Technology. Coalition against Insurance Fraud (2015). By the Numbers: Fraud Statistics.
14. Coalition Against Insurance Fraud (2017). Fraud in life and disability insurance. Final Report of the Life and Disability Task Force.
15. Dearden, E.T. (2017). An Assessment of Adults" View on White-Collar Crime. Journal of Financial Crime 24(2), 309-321.
16. DeFlaminis, W., Bryant, S.P., Cook, J., & Kirschbaum,D.(2014).Construction Fraud: An Aounce of Prevention: A guide for Combating Fraud in Construction. The Construction Lawyer, 34 (3).
17. FICO (2013). Insurance Fraud Survey Highlights: Insights into Insurance Fraud Trends.
18. Flynn, K. (2016). Financial fraud in the private health insurance sector in Australia: Perspectives from the industry. Journal of Financial Crime, 23 (1), 143-158.
19. Gbegi,D.O., & Adebisi, J.F. (2013). The New Fraud Diamond Model- How Can It Help Forensic Accountants in Fraud Investigation in Nigeria? European Journal of Accounting Auditing and Finance Research, 1 (4), 129-138.

20. Garba, T., & Abubakar, B.A. (2014). Corporate Board Diversity and Financial Performance of Insurance Companies in Nigeria: An application of Panel data approach. Asian Economic and Financial Review, 4 (2), 257-277.
21. Gill, M. & Randall, A. (2015). Insurance fraudsters. Perpetuity Research and Consultancy International (PRCI) Ltd.
22. Gill, M. & Randall, A. (2016). Insurance fraudsters. Perpetuity Research and Consultancy International (PRCI) Ltd.
23. Gizer, E.I. (2012). Determination of Performance measures used in Balanced Scorecard for Insurance companies in Turkey. International Journal of Business management and Economic Resources, 3 (1), 446-451.
24. Gupta,P.K., & Gupta,S. (2015). Corporate frauds in India – perceptions and emerging issues. Journal of Financial Crime, 22 (1), 79 – 103.
25. Lindberg, D.L., & Seifert, D.L. (2016). Micro-insurance, Fraud, and Fruad Controls. Journal of Forensic and Investigative Accounting, 8 (1), 29-35.
26. Insurance Fraud Bureau of Massachusetts (2016). Annual Report.
27. Insurance Fraud Taskforce (2016) Final Report.
28. Insurance Regulatory Authorithy (2016). First Quarter Report.
29. Irungu, M.J. (2016). Relationship between Fraud and Financial Performance of Insurance Companies in Kenya. Unpublished MSC (Finance) Project, UON.
30. Johnson, W.C., Xie, W., & Yi, S. (2013). Corporate fraud and the Value of Reputations in the Product Market. Journal of Corporate Finance (25), 16-39.
31. Kariuki, C. (2012). Balanced Scorecard as A Strategy Implementation Tool at AAR Kenya Ltd.
32. Unpublished MBA research Project, University of Nairobi.
33. Kassem,R.,& Higson, A. (2012).The New Fraud Triangle Model..Journal of Emerging Trends in Economics and Management Sciences, 3 (3), 191-195.
34. KPMG (2015). East Africa Insurance Fraud Risk Survey.
35. Kramer, B. (2015). Trust, but verify: fraud in small businesses. Journal of Small Business and Enterprise Development, 22 (1), 4-20.
36. Lindberg, D.L., & Seifert, D.L. (2016). Micro-insurance, Fraud, and Fraud Controls. Journal of Forensic and Investigative Accounting, 8 (1), 29-35.
37. Lu-Ming Tseng, Chia-Lin Ku, (2013). Customers‟ attitudes toward insurance fraud: an application of Adams‟ equity theory. International Journal of Social Economics, 41 (11), 1038-1054.
38. Mackevicius, J., & Giriunas, L. (2013). Transformational Research of the Fraud Triangle. EKONOMICA, 92 (4), 150-163.
39. Magu, A.M. (2013). Balanced Score Car as a Performance Measurement Tool in The Insurance Firms in Kenya. Unpublished MBA Project, University of Nairobi.

40. Maina, B. W. (2016). The Effects of Financial Fraud and Liquidity on Financial Performance of Insurance Companies in Kenya. Unpublished MBA Project, UON.
41. Mohamed, M. (2013). Countering Fraud in the Insurance Industry: A case study of Malasyia. Phd. Thesis, University of Portsmouth.
42. Mutua, C.M., & Gachunga,H.(2014). The effect of Fraudulent Practices on the Growth of the Insurance Industry in Kenya: A case of selected insurance Companies. The Journal of Management. 2 (16), 300-317.
43. Mwangi, M. & Murigu, J.W. (2015). The Determinants of Financial Performance in General Insurance Companies in Kenya. European Scientific Journal, 11 (1).
44. Nebo, G. N., & Okolo, V. O. (2016). Effects of the Strategies for Customer Satisfaction on the Performance of Insurance Firms in Enugu Metropolis. IOSR Journal of Business and Management, 18, (5).
45. Odhiambo,O.V.T. (2016).Evaluation of Fraud Management Strategies Adopted by Insurance Companies in Kenya. Unpublished MBA project,University of Nairobi.
46. Okura, M. (2013). The relationship between moral hazard and insurance fraud. The Journal of Risk Finance, 14, (2), 120-128
47. Omasete, C.A. (2014). The effect of Risk Management on Performance of Insurance Companies in Kenya. Unpublished MSC (Finance) Project,University of Nairobi.
48. Omar, M., Nawawi, A., & Salin, A.S.A.P (2016). The causes,impact and prevention of
49. employee fraud: A case study of an automotive company. Journal of Financial Crime, 23 (4), 1012-1027.
50. Peltier-Rivest,D.,& Lanoue, N. (2015). Cutting fraud losses in Canadian organizations. Journal of Financial Crime, 22 (3), 295-304.
51. Popow,D.J. (2012). Claim Handling principles and practices. Malvern, P A: The Institutes.
52. Rawashdeh,F.,& Shinglawi, O. (2016) The Existence of Fraud Indicators in Insurance
53. Industry: Case of Jordan. International Journal of Economics and Financial Issues, 6 (55), 168- 176.
54. SAS (2015). Advance Analytics in the Battle against Insurance Fraud: Another Line of Defense.
55. Sambasivam, Y. & Ayele, A.G (2013). A study on the Performance of Insurance Companies in Ethiopia. International Journal of Marketing, Finacial Services and Managegement Research. 2 (7), ISSN 2277-3622.
56. Sharma, B. (2015). Balanced Score Card and Its Impact On Perfromance Management System: Review of Application Model of Balance Score Card. Journal of Exclusive Management Science, 4 (7), ISSN 2277-5684.
57. Smith, S. (2016). Running Head: Insurance Fraud: What are the Costs? Eastern Kentucky University.
58. South African Insurance Crime Bureau (2014). The second annual conference proceedings.

59. Taiwo, J.N., Agwu, M. E., Babajide, A.A., Okafor T.C., & Isibor A.A. (2016). Growth of bank frauds and the impact on the Nigerian banking industry. Journal of Business Management and Economics. ISSN: 2347-5471.
60. Tseng,L., Kang,Y.M.,& Chung,C.,E. (2014). Understanding the roles of loss-premium comparisons and insurance coverage in customer acceptance of insurance claims. Journal of Financial Crime, 21 (3), 321-335.
61. Tseng,L-M.,& Shih, M-F. (2012) Consumer Attitudes Towards false representation. Journal of Financial Crime, 19 (2), 163-174.
62. Tseng, L-M., &Kuo, C-L. (2013). ―Customes attitudes towars insurance fraud: An application of Adams‟ equity theory‟. International Journal of Social Economics, 41 (11), 1038- 1054.
63. The Center for Insurance Policy and Research (2014). Insurance Fraud. The National Association of Insurance Commissioners. Utah Insurance Department (2015). What is insurance fraud? Available at: http//insurance Utah.gov/agent/fraud/what.php
64. The design and use of agent-based modeling computer simulation for teaching technology entrepreneurship by Joseph Benjamin Rodriguez Ilagan Ateneo de Manila University https://www.researchgate.net/publication/365788234_The_design_and_use_of_agent-based_modeling_computer_simulation_for_teaching_technology_entrepreneurship
65. Kirsten Beasley, Fischer-Sanchez D. Innovations in digital health are reshaping how healthcare is accessed and provided, introducing a new risk landscape for healthcare providers to navigate.: White Paper The Future of Digital Health; 2021. Available from:https://www.willistowerswatson.com/en-US/Insights/2021/02/the-future-of-digital- health.
66. McKeering D. The Digital Healthcare Leap: PwC Global Healthcare Markets; 2017. Available from: https://www.pwc.com/gx/en/issues/high-growth-markets/assets/the-digital healthcare-leap.pdf.