DRIVERS OF MOTOR VEHICLE INSURANCE FRAUD RISK: EMPIRICAL EVIDENCE FROM INSURANCE COMPANIES IN KENYA

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Abstract

Kenya has one of the fastest growing middle class populations in sub-Saharan Africa. Motor insurance fraud is a serious risk in Kenya. This study sought to examine the influence of macro-economic factors, institutional factors and individual factors on motor insurance fraud risks in among Insurance Companies in Kenya. The study was guided by Anomie theory, conflict theory and fraud management life cycle theory. The target population was all the 28 general business Insurance Companies based in Nairobi, from which 84 respondents were individuals at the claims management, risk management and motor assessment departments. Primary data was collected through a structured questionnaire. Based on the statistics, 80.1% of any change in fraud risks among motor insurance companies was explained macro-economic, individual, and institutional factors. Macro economic factors and individual factors were found to significantly

influence the motor insurance fraud risk while institutional factors did not have a statistically significant influence on fraud risks among insurance companies. During times of hard economic times, insurance companies should be more vigilant on claims and it is important for insurance companies to keep track of individuals with history of regular claims as the same was found to have a relationship with insurance fraud risks.

Keywords: motor insurance fraud, macro-economic factors, individual factors, institutional factors, Kenya

INTRODUCTION

According to the Insurance Regulatory Authority (IRA), the insurance industry plays a very critical role in the economy, having generated close to 195 billion Kenya shillings in the Kenyan financial system in form of Gross Direct Premium in 2016. This was a very significant increase from 2012 where the amount stood at 111.9 billion shillings (IRA, 2016). As a serious sub-sector, the growth of motor insurance was also generally on the increase. However, according to the Association of Kenya Insurers (AKI) fraud poses a great challenge to the motor insurance sector in Kenya (AKI, 2012). The AKI further contends that despite the motor insurance being one of the largest insurance businesses in Kenya in premium volume, the subsector has experienced the highest fraud cases in the recent past. Many incidents have also emerged where fraud rings stage-manage accidents to involve expensive vehicles which may end up being written off and fake death claims lodged (Sybase, 2012). Njenga and Osiemo (2013) further argue that in some cases vehicles which have no any defects are fitted with defective panels to falsely indicate that they have been involved in accidents so that owners can file false claims. According to Ngosiah (2012), Public Service Vehicles (PSV) industry is often the biggest victim of fraudsters. Motor vehicle insurance fraud risks not only threaten the operations of insurance companies in Kenya but also cause negative impression on the general public.

According to IRA (2013), the insurance industry in Kenya is one of the most thriving in the region, only falling behind South Africa, Mauritius, and Namibia in terms of increase in premium portfolio. For instance, the IRA 2016 annual financial report indicates that the gross premium income grew to about Kshs 196 billion by the end of 2016, up from about Kshs 174 billion reported in the previous year. This was 13% growth, signifying a very positive trajectory where the general insurance business accounted for approximately 62% of the total gross premium income. Furthermore, the insurance industry asset base grew by 10.4% from about Kshs 478 billion in 2015 to approximately Kshs 528 billion in the following year. With this

general growth in the insurance industry, it is clear that the insurance business plays a very significant role in the county's general economy. Motor insurance also plays a significant role in the general insurance business industry, greatly impacting the country's GDP through savings mobilization and investments in government securities, deposits, capital markets and the real estate sector (IRA, 2016).

Despite tremendous growth in the general insurance business and motor insurance sub-sector in particular, fraud appears to eat into this progress. With involvement of highly sophisticated players where serious professionals such as doctors and lawyers play an active role, this seems to legitimize the practice and portray insurance companies as socially acceptable fraud targets (IRA, 2013). Lack of public awareness and support complicates the fight against insurance fraud in Kenya. The fight against fraud is complicated by the fact that law enforcers focus mostly on more traditional crimes thus leaving less policed crimes to be more appealing to organized criminal groups and professional criminals. These fraudsters are emboldened by the low risk, high reward environment to perpetuate their heinous acts (Njenga and Osiemo, 2013, Kiragu, Gikiri & Iminza, 2015, Kamande, Kiragu & Musumba, 2018). There is also less emphasis by researchers on motor insurance crime and this makes it difficult for criminologists to properly estimate the extent and cost of crime in society at individual, institutional, and national levels. Dearth of knowledge in this sense makes it complicated to gauge the effects of crime on the national economy with the aim of resolving the problem. Besides, there are still major policy and social setbacks in motor insurance industry that remain unaddressed. Some of these include the public or individual negative perception of insurance services, poor underwriting practices and lack of fraud management systems. There is also inappropriate legislation to manage insurance fraud and lack of fraud policy by the insurance companies. In addition, there is lack of prosecution capacity by the insurance regulator, raised premiums, used vehicles which are imported into the country that are prone to accidents than new vehicles, recycling of the salvage vehicles back into the road yet they are quite vulnerable to accidents because of the damaged systems.

Study Objectives

The main objective of this study was to examine drivers of motor vehicle insurance fraud risks among insurance companies in Kenya. In specific terms, the study focused on:

(i)   The influence of macro-economic factors on motor insurance fraud risks in Kenya.

(ii)   The effect of individual factors on motor insurance fraud risks in Kenya.

(iii)   The influence of institutional factors on motor insurance fraud risks in Kenya.

Scope of the Study

The study focused on drivers of motor vehicle insurance fraud risks among insurance companies in Kenya while specifically targeting insurance companies in Nairobi city. Being a business hub in the East African region, Nairobi has vibrant insurance businesses including 28 insurance companies insuring all classes of motor vehicles. These formed the sampling frame for the study. There are many factors that could driver fraud risk, this study focused on one Macro factor, one Meso factor and one micro factor. The three were selected based on existing literature review (Mwangi, Kiragu & Mathenge, 2018).

THEORETICAL FRAMEWORK

This study was guided by Anomie Theory by Émile Durkheim (2001), Conflict Theory by Karl Marx and Fraud Management Lifecycle Theory by Wesley Kenneth Wilhelm (2004).

Anomie Theory

Propagated by Émile Durkheim (2001), the Anomie theory focuses on the conflict that is likely to arise when individuals feel frustrated by the system. The theory is used to illustrate the probable scenario when people who are not in a position to meeting their own demands and those of the society feel that they are unfairly being pushed to fulfill certain demands which are beyond their means. Related to the fraudulent behaviours in the insurance industry, the theory seems to postulate that individuals commit the crimes due to their aspirations to lead a good life yet they cannot ordinarily afford it. The desire to lead a good life is evidently one of the driving forces behind individuals' propensity to commit insurance fraud.

For instance, individuals often ask for loans from the banks to purchase vehicles but end up defaulting payment due to their inability to keep up with the high interest rates. When individuals, in this case referred to as the insured, find themselves in such situations, they are left with no options but to devise fraudulent means in order to survive (Durkheim, 2001). The insured will then engage in rip offs. This practice involves motor vehicle owners who sell their vehicles to scrap metal dealers where the automobiles are ripped off and sold as scraps. On the other hand, the insured proceeds to make false claims from the insurer on the pretexts that the car was stolen. Under this circumstances the insured benefits twice - both from the scrap metal dealer and the insurance company. This is a typical case of people being influenced by economic constraints and forced to indulge in fraudulent activities with insurance firms. Although this theory attempts to justify why individuals try to defraud insurance companies, the theory fails to explain why some people perceived as rich also involve in insurance fraud. In this sense,

it may not entirely be the case that only people driven by lack of resources get to be involved in insurance fraud. Hence, the theory has some shortfalls.

Conflict Theory

The research was guide further by Conflict Theory, mainly associated with Karl Marx. Social theorists in the 20th century were more concerned with conflict in society. They tried to move away from structural-functionalism by contending that functionalism did not champion the concept of change and therefore the theory could not explain change. Contrary to functionalist approach, conflict theorists contend that institutions and practices continue because powerful groups have the ability to maintain the status quo. Change is therefore critically significant, since it is needed to correct social injustices and inequalities. In this sense, conflicting groups struggle to ensure there is desired change since there is no social change without conflicts. Although it is true that change is sometimes driven by conflict, this is not always the case.

Modern conflict theory is heavily influenced by ideals of Karl Marx's theory. This may be regarded as an offshoot of Marx's economic theory of change which postulates that economic change only occurs and produces other change through the mechanism of intensified conflict between social groups and between different parts of the social system. Conflict would ultimately transform society. In relation to insurance fraud by the public, insurance companies would be viewed as oppressive authority that lords over the low and poor insured. Similarly, the insurance laws and prerequisite acquisition of insurance for motor vehicle imposed by the government make Kenyans deviate and attempt to steal the same money they pay to the insurance company (Samociuk and Iyer, 2013). This theory would be very critical in explaining how motor insurance fraud affects growth and sustainability of insurance business in Kenya. Based on the theory's line of thought, it would appear that customers would be motivated to steal from insurance companies as a form of protest against perceived high premiums and other insurance costs passed on to the insured. In this sense, according to Federal Bureau of Investigation (FBI) this behaviour by insurance consumers was likely to lead to some kind of a revolution meant to even the insurance playing field for the good of the customer and the service provider (FBI, 2010). However, the theory falls short of explaining why not all policyholders attempt to steal from the insurer. This then implies that there are other factors that contribute to insurance fraud rather than conflict.

The Fraud Management Lifecycle Theory

Despite a huge technological breakthrough in fraud detection, fraud losses are still very evident in the insurance industry and other business sectors alike (Ernst and Young, 2012). Statistics

show that in the US more than $67 billion is lost every year to fraudulent claims (FBI, 2010). Propagated by Wilhelm (2004), Fraud Management Lifecycle Theory postulates that effective fraud management starts with a clear and common understanding of the stages in the lifecycle of fraud. This understanding would likely enable fraud management professionals to communicate effectively with each other, with peers across other industries and within respective businesses (U.S Department of Justice, 2012). Lifecycle stages refer to sequential activities that occur in relation to fraud management. According to Wilhelm (2004), there are eight stages in fraud management lifecycle. These include deterrence, prevention, detection, mitigation, analysis, policy, investigation, and prosecution.

According to Visa, U.S.A. Inc. (2011), successful deterrence means stopping of fraud before it occurs. With the tendency by fraudsters to operating in anonymity which assures them least resistance, creating a difficult environment for them to operate would be critical in discouraging them. For instance, requiring address verification during online transactions provides an avenue for deterrence of fraud (The Nilson Report, 2012). This will force the swindlers to work harder so as to device means of circumventing and defeating the verification process, which may not be an easy task. Though often used interchangeably with deterrence and detection, in the context of fraud management prevention activities occur after deterrence has failed and before the detection of the fraud has been realized (Mena, 2012). The Webster's New Collegiate Dictionary (1997) defines prevention as 'to stop or keep from doing or happening, to hinder a person from acting'. In fraud management parlance, prevention means to hinder the fraudster from performing fraudulent activity. Activities at the prevention stage are meant to prevent the fraud from occurring or to safeguard the enterprise and its systems against swindling.

The third stage of fraud management cycle is detection. The stage is characterized by actions and activities meant to identify and locate a racket prior to, during, and subsequent to the completion of the fraudulent activity. Webster (1997) defines detection as 'to uncover or reveal, to discover the existence or presence of the fact of something hidden or obscure'. In the fraud arena therefore, detection must include revealing the existence of fraud testing and fraud attempts, as well as successful frauds. It comprises of identification of a testing component, an attempt component, and a success component. Missing any of these components presumes the risk of creating a weakness that the fraudster will turn to his advantage. The fourth stage is mitigation. According to Wilhelm (2004), this is initiated once there is a presence or reasonable suspicion of deceitful activity has been detected and must be stopped. The move is intended to stop the ongoing fraud from continuing. Mitigation is aimed at actions that are meant to reduce the degree of fraud, the amount of associated fraud losses, and the effort and cost required to

recover or correct the impact of the fraudulent activity (MacRae, 2011).Analysis as the fifth stage is characterized by activities intended to identify and understand losses that occurred despite the deterrence, detection, prevention, and mitigation stage activities. At this stage there must be an evaluation of impact of fraud management activities upon legitimate customers. This is meant to study in detail the factors of a situation or problem so as to come up with the solution or establish the outcome. This stage involves receiving data regarding performance from each of the other stages in the fraud management lifecycle so as to provide them with feedback concerning their respective performance. The sixth stage involves policy. This is about wise management of system affairs based on evaluation, communication and deployment of policies to reduce frequency of fraud and successfully combat the vice (Webster, 1997). Policy must strive to balance deterrent value, loss reduction, sales volume, operational scalability, and cost effectiveness (Jakubowski and Stone, 2012). Often policy development involves the process of assembling data adduced at analysis stage in combination with internal, external, and interactive environmental factors so as to emerge with more objective guidelines on fraud management.

Activities at the investigation stage are intended to obtain enough evidence and information to stop fraudulent activity, to obtain recovery of assets or restitution, and to provide information and support for the successful prosecution and conviction of the fraudsters. Webster (1997) defines investigation as a careful search or systematic inquiry, observation and examination of facts. Fraud investigation focuses on three main activity areas namely internal investigations, external investigations, and law enforcement coordination. The investigations stage benefits greatly from the planned, systematic search for facts and other supporting information, as well as the ingenuity, initiative, thoroughness, and responsiveness of the investigator. According to Wilhelm (2004), prosecution is the eighth and last stage in fraud management lifecycle. This is focused on prosecution and law enforcement in relation to fraud activities. Wilhelm (2004) further posits that there are three objectives of prosecution. These include punishing fraudsters to deter them from stealing, protect the reputation of a company and maintaining its public image, and obtaining recovery or restitution if and where possible (MacRae, 2011). Kiragu et al (2015) used this theory to investigate the effect of institutional factors on occupational fraud in commercial banks in Kenya.

Empirical Review

The study was founded on the need to establish factors that influence motor vehicle insurance fraud risks among insurance companies in Kenya. Empirical literature review was done based on: macro-economic factors and motor insurance fraud, individual factors and motor insurance

fraud, institutional factors and motor insurance fraud and Government Regulations and Motor Insurance Fraud in Kenya.

Macro-Economic Factors and Motor Insurance Fraud Risks

There are various common motor insurance frauds that hamper growth and sustainability of insurance business in Kenya. These 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. All these behaviours are viewed as mostly engendered by the policyholders' desire to benefit from the insurer through fraudulent means. However, whether the behaviours are motivated by macro-economic factors such as high interest rates, inflation and high cost of living or are driven merely by greed is another question. Declaration of all material facts by the insured is a requirement in the basic doctrine of insurance of utmost good faith. Withholding of material facts is therefore a type of fraud which occurs when the insured is proposing for cover and in order to avoid paying high premiums depending on the cover the person wants for consideration (Li, Peng and Liu, 2013). For example, in order to avoid PSV insurance cover premium which is often quite high, someone proposes for the private cover which attracts low premiums. In case of an accident, the insurer realizes that the vehicle was being used for hire and reward. This form of fraud may also include a situation where somebody takes Third Party Only cover which also attracts low premiums compared to motor comprehensive cover, but after the loss he/she rushes to take a comprehensive cover from certain insurance because he cannot benefit from a TPO Cover that he had before the loss. After taking the comprehensive cover he/she backdates the date of the loss and launches the claim.

Misrepresentation of facts at the time of a claim is also a common tactic used by fraudsters in motor insurance fraud. This mostly happens when the insured used the vehicle outside the scope of cover during which the vehicle was lost or incurred extensive damage or declared total loss out of accidental or not fortuitous events. The insured will mispresent facts of the loss so that he gets compensation. Misrepresentation of facts at the time of a claim will render the claim null and void. Schlesinger (2013) further talks of rip-offs as another common way policyholders use to con motor vehicle insurance companies. This happens when the insured out of his/her own economic problems sells the subject matter to chop shops then purports that the vehicle was stolen hence seek compensation from an insurance company. The insured benefits twice; that is out of sale of the subject matter of insurance and also the compensation by the insurance. Backdating of covers has also become common among fraudulent insurance claimants (Murthy and Djamaludin, 2012). In some instance, the insured

does not indicate that he was previously insured for example TPO only in a different company. If the vehicle incurs damage while it has a TPO cover and there is declared total loss, the insured will not be eligible for compensation and therefore most likely he/she will take a comprehensive cover from a reputable underwriter. After some time, he makes a claim purporting that the vehicle was compressively insured while in good condition. It is also a common occurrence for insured to stage-manage accidents so that they can make claims from the motor vehicle insurer (Liu, Li and Yeh, 2017). The general rule of insurance on claim settlement is to compensate fortuitous losses. This form of fraud is when the insured causes damage to his/her vehicle intentionally so as to benefit from compensation by the insurance. This occurs when the vehicle has tear and wear which is not insurable but notwithstanding, the insured makes a decision to have the insurance bear the loss.

Individual Factors and Motor Insurance Fraud Risks

Insurance fraud experts have argued that the most common driver for fraud is the perceived economic gain, financial strain or greed exhibited by individual claimants (Picard, 2010). Some fraudsters have merely engaged in insurance fraud for the mere excitement in fraud itself and the personal pleasure derived from this engagement. Some also engage in fraud for prestige, self-importance and revenge (Duffield and Grabosky, 2011).While it is the desire of all players in the insurance market to function well for the benefit of all consumers, the industry is nonetheless fraught with dishonest players (Mwangi, 2013). Some policyholders are thought to commit insurance fraud either through confusion or due to a perception that there is nothing wrong in doing that (Viaene and Dedene, 2014).

Studies have also indicated that fraudsters often feel justified in their actions as they view insurance fraud as a victimless crime (Viaene and Dedene, 2014). Furthermore, according to Gill and Randall (2015), some insurance consumers decide to engage in fraudulent activities based on the widespread perception of corruption as an acceptable norm in modern society. Bourgeon and Picard (2014) postulates that according to behavioral economists there are numerous complex drivers of insurance consumer behaviour. Richards (2014) further contends that fraud has a moral cost and that informal sanctions such as peer pressure, can be more effective than formal sanctions. Regardless of these perceptions however, there is a general belief that the insurance industry has an important role to play in influencing policyholder behavior. The Insurance Regulatory Authority (IRA) emphasizes on the effect of motor insurance fraud to the insurance business and its effect on the economy and the polity in various ways (IRA, 2013). The Underwriters increase premiums also so as to sustain business and this has a negative effect on genuine claimants and insured. There are delays in paying off

the claims as the underwriters try to investigate every single claim so as to separate fraudulent claims from those which are genuine.

Institutional Factors and Motor Insurance Fraud Risks

According to Harris and Daunt (2013), motor insurance fraud involves intentionally giving false information to an insurance company so as to obtain money to which there is no legal claim. Fraud also includes exaggerating a claim to get an increased settlement. There are a number of ways people go about committing insurance fraud. Staged accidents or car theft, making false insurance claims and faking injury claims are just a few examples of motor insurance fraud (Artis et al, 2002). This state of affairs negatively affects profitability of motor insurance companies and the country's economy in general. Insurance experts argue that as much as insurance fraud is viewed as being instigated by policyholders, there are also institutional weaknesses that abet the practice. Ager and Ma (2013) for instance argue that motor insurance fraud is made worse by the fact that often fraudulent activities such as presenting of false claims involve company staff as much as outsiders or clients who are filing the claims. Artis et al (2002) further contend that motor insurance fraud is causing a very serious decline in earnings and reserve deficiencies in the sector. Similarly, the upward momentum of motor insurance fraud is increasing losses incurred by the operators and escalating other operational costs as well as causing pricing difficulties.

According to Bourgeon, Picard and Pouyet, (2008), motor insurance fraud is not a new phenomenon in the insurance industry. However, improved technology amidst globalization and new dynamics in the insurance business sector has made the problem worse. These challenges have led to curtailed expansion of the insurance business both in terms of coverage and investment portfolio (Artis et al, 2002).Dionne and Gagné (2011) state that the high cost of motor insurance businesses as a result of fraud is often passed onto the policyholders in form of increased premiums. Insurance fraud and abuse has therefore increasingly affected the profitability and effectiveness of the insurer thereby immensely denting the general image of insurance services (Boyer, 2004). The negative effect of the value chain in the insurance is a disaster-in waiting for the social and economic fabrics of the society. Insurance experts further argue that motor insurance fraud will certainly escalate the cost of other essential insurance sub-sectors such as health and fire insurances (Dionne, Haye and Bergeres, 2014). Ultimately, this will cause a serious threat to the very principle of solidarity that keeps the insurance concept alive. Using a sample of 30 banks in Kenya, Kiragu, Wanjau & Kanari (2015) found that there was a positive relationship between bank size and level of fraud risk among Commercial banks in Kenya.
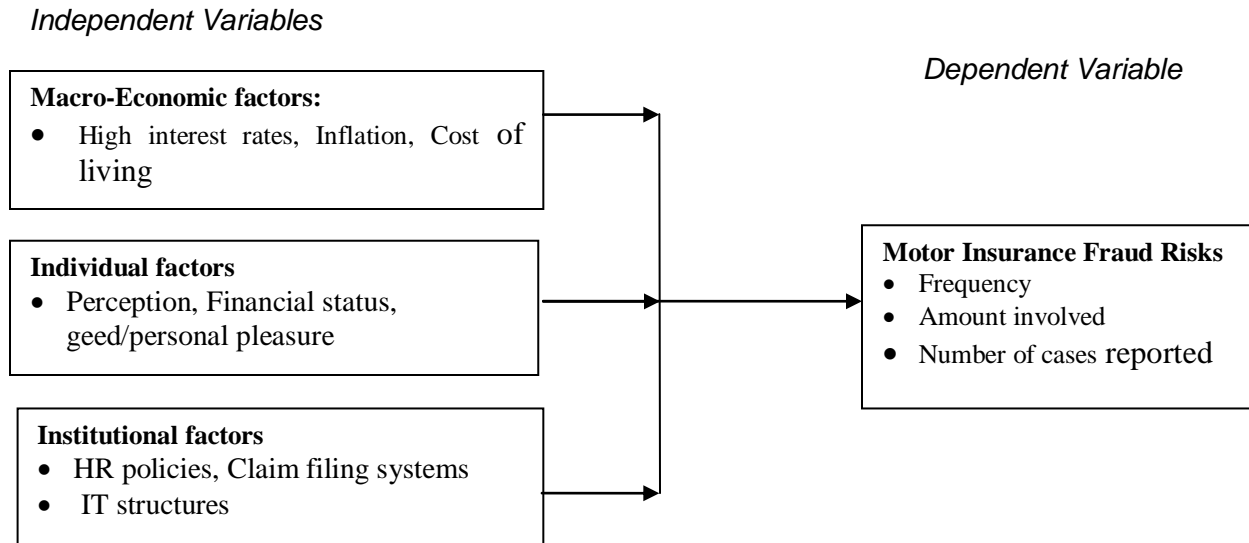
Based on the aforementioned repercussions of motor insurance fraud, it is therefore imperative to put in place appropriate fraud management strategies to minimize or curb the risks. According to Hansen (2009), fraud management strategy should form the most significant part of fraud evasion arrangement in an insurance company. This means that the strategy should not be complicated and must have specific end goal. Company boards are responsible for drafting effective anti-fraud policy guidelines, and the senior management should strive to identify and understand the signs of fraud amongst both staff and the clientele (Biestaker, 2011). Insurance fraud experts argue that efficient fraud risk management strategy should take into account three main objectives, namely detecting, preventing, and responding to crime incidents (Cheptumo, 2014). Further, such a strategy should have four phases which include assessing of risks, designing programs, implementing new controls and evaluating existing controls so as to keep every process up to date.Although every motor insurance company may not be able to practically adopt all fraud risk management strategies due to varied reasons such as lack of enough capital and human resource constraints, every insurance firm can at least embrace what is within reach based on uniqueness of its most outstanding challenge. Insurance experts have argued that the Insurance Regulatory Authority (IRA) needs to come up with a centralized claims management system to help in curbing irregular claims often spearheaded by rogue insurance company employees in collusion with fraudsters who are keen on reaping where they have not sown (Ernest & Young, 2011, IRA,2016).

Conceptual Framework

A conceptual framework is defined as a set of broad ideas and principles taken from relevant fields of inquiry and used to structure a subsequent presentation (Kothari, 2006). The conceptual framework below shows the relationship between independent and dependent variables. Independent variables are considered to be macro-economic factors, individual factors, and institutional factors while the dependent variable on the other hand is motor insurance fraud risks. Fraud risk was measures using likert scale based on interval, amount and numbers of fraud cases. Mwangi, Kiragu & Mathenge (2018) used a similar approach of measuring fraud risk in their study on fraud mitigation strategies of large tax payers in Kenya Revenue Authority.

Figure 1 illustrates the conceptual Framework of Drivers of Motor Vehicle Insurance Fraud Risks among Insurance Companies.

Figure 1: Conceptual framework

Independent Variables

Dependent Variable

Macro-Economic factors:
- High interest rates, Inflation, Cost of living

Individual factors
- Perception, Financial status, geed/personal pleasure

Institutional factors
- HR policies, Claim filing systems
- IT structures

Motor Insurance Fraud Risks
- Frequency
- Amount involved
- Number of cases reported

METHODOLOGY

The study adopted a descriptive research design to address the research objectives. According to Saunders et al (2013), descriptive research design allows a detailed description and analysis of the variables involved in the study without manipulating them. Saunders et al (2009) further state that descriptive research design is a blueprint that makes it possible for a researcher to give an accurate description and presentation of the relationship between variables. Orodho (2005) argues that descriptive research design is suitable in such cases where the researcher intends to determine whether and to what extent a relationship exists between two or more quantifiable variables. The design was relevant to the study, investigating the relationship between motor vehicle insurance fraud risks and performance of insurance companies in Kenya. According to Kothari (2013), the population of the research comprises the total set of elements possessing the characteristics needed by the researcher before sampling can be done. Saunders et al (2013) further defines population as the total group of well-defined elements from which researchers can pick their samples to help them make certain deductions or inferences. The target population for this study consisted 28 General Insurance companies within the Nairobi cosmopolitan. The respondents involved included claims managers, risk managers, and motor assessors from the targeted insurance companies. Using a census approach, data was collected from claims, risk and motor assessment management departments of each company through a structured, self administered questionnaire. The accessible population was therefore 84 respondents. A pilot study was done to test the reliability and validity of the data collection instrument. Nunnally (1978) suggested that where

Cronbach alpha is used for reliability test, as a rule of thumb, Cronbach alpha values for items included in a study should not be lower than 0.7. Zikmund, Babib, Carr and Griffin (2010) view that Cronbach's alpha between 0.8 and above are considered to have very good reliability and those between 0.7 and 0.8 good; while those between 0.6 and 0.7 indicate fair and satisfactory reliability. A Cronbach alpha Coefficient of 0.7 was used as the threshold and all variable items were regarded as acceptable. The reliability results are presented in Table 1.

Table 1. Reliability Test Results

Variable	Variable Type	Cronbach (α) Alpha Coefficient
Macro Economic Factors	Predictor	0.764
Individual Factors	Predictor	0.824
Institutional Factors	Predictor	0.857
Fraud Risk	Predictand	0.930

Both construct and content validity was used. (Saunders et al, 2013, Mugenda & Mugenda, 2003). Both descriptive and inferential analysis was done to achieve the objectives of the study. The results for each study objective were presented using Table and Figures. Kiragu, Gikiri & Iminza (2015) used a similar approach in their study on effect of banks size on occupational fraud risk in Kenya. Similarly, Kamande, Kiragu & Musumba (2018) used a similar methodology ion their study on the drivers of computerized frauds in Commercial banks in Kenya.

FINDINGS AND DISCUSSIONS

Response Rate

Out of the target eighty four (84) respondents, 78 of them managed to successfully completed and returned the questionnaires. This translated into a response rate of 92.9%. The results are presented in Table 2.

Table 2: Response Rate

Category of Respondents	Sample Size		Response Rate	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Claims Managers	28	33.3	26	31.0
Risk Managers	28	33.3	25	29.8
Motor Assessors	28	33.3	27	32.1
Total	**84**	**100.0**	**78**	**92.9**

Of this number, 72 of the respondents said that their respective companies had ever encountered motor vehicle insurance fraud claims. Only 6 of them had contradicting responses. This accounted for 92.3% and 7.7% respectively.

The respondents were asked to indicate whether they had encountered motor insurance frauds in the previous year. The responses were summarized and the results are presented in Table 3. The results indicate that over 92% of the insurance companies had experienced motor insurance fraud. This indicates that fraud is a common phenomena in financial institutions. This corroborate the findings of ACFE (2018).

Table 3: Companies' Fraud Risk Encounters

Fraud Risks Encounter	Frequency (n)	Percentage (%)
Yes	72	92.3
No	6	7.7
Total	78	100.0

Descriptive Analysis of Variables

Macro-Economic Factors and Motor Insurance Fraud Risks

One of the objectives of the study was to analyze the influence of macro-economic factors on motor insurance fraud risks in Kenya. All the respondents said that this played a critical role in motor vehicle insurance fraud risks. Furthermore, based on a 5-point Likert scale where 1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree, the responses given are summarized in Table 4

Table 4: Effect of Macro-Economic Factors on Motor Fraud Risks

Macro-Economic Factors	1= SD	2= D	3= N	4= A	5=SA	Total
	n	n	n	n	n	n
High interest rates on insurance products tend to force most policyholders to file false claims	20	18	17	12	11	78
High inflation rates tend to force most policyholders to misrepresent facts at the time of a claim	19	17	15	15	12	78
Most policyholders tend to engage in rip-offs due to the high cost of living	11	12	16	21	18	78
Most policyholders tend to engage in backdating of covers as they make claims	9	11	18	23	17	78
Most policyholders tend to engage in staging of accidents and exaggerated damage	7	9	19	24	19	78

Individual Factors and Motor Insurance Fraud Risks

The second objective of the study was to explore the influence of individual factors on motor insurance fraud risks in Kenya. On whether individual factors played any role in motor vehicle insurance fraud risks, 67 (85.9%) of the respondents said yes while 11 (14.1%) said no. Based

on a 5-point Likert scale where 1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree, the respondents gave varied opinions as summarized in Table 5.

Table 5: Effect of Individual Factors on Motor Fraud Risks

Individual Factors	1=SD	2= D	3= N	4= A	5= SA	Total
	n	*n*	*n*	*n*	*n*	*n*
Most policyholders tend to have a negative perception about insurance services, which encourages them to engage in fraud	9	11	14	23	21	78
Most policyholders tend to perceive motor vehicle insurance fraud as a means to boost their financial status	5	7	11	29	26	78
Some insurance fraudsters are motivated by their general perception of corruption as a norm in society	7	8	9	28	26	78
Most policyholders are motivated by their personal greed to engage in motor vehicle insurance fraud	2	5	9	32	30	78
Some policyholders file false claims due to their perception that they will not be detected by motor vehicle insurance dealers	11	13	11	23	20	78

Institutional Factors and Motor Insurance Fraud Risks

The third objective of the study was to evaluate the influence of institutional factors on motor insurance fraud risks in Kenya. As to whether these factors influenced motor vehicle insurance fraud risks in any way, 68 (87.2%) of the respondents said yes while 10 (12.8%) of them had a contrary opinion. Therefore, based on a 5-point Likert scale where 1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree, the respondents had this to say as summarized in Table 6.

Table 6: Effect of Institutional Factors on Motor Fraud Risks

Institutional Factors	1= SD	2= D	3= N	4= A	5= SA	Total
	n	*n*	*n*	*n*	*n*	*n*
There are clear and effective HR policies in the company to address motor fraud risks	4	6	7	32	29	78
There are clear and effective claim filing systems in the company to address motor fraud risks	7	9	13	27	22	78
There is enhanced technology in the company to address motor fraud risks	5	6	7	34	26	78
There is elaborate interdepartmental coordination in the company to minimize fraud cases	3	4	6	35	30	78
The company has effective monitoring and evaluation of staff to discourage collusion with policyholders in fraud cases	2	3	10	36	27	78

Inferential Analysis of Variables

Model Summary

In order to determine the effect of drivers of motor vehicle insurance fraud risks on insurance companies in Kenya, a regression analysis was performed. The coefficient of determination R^2 was used as a statistical measure to predict how well the data fitted the model and the degree to which the dependent variable changed. Adjusted R Square (R^2) on the other hand was used to measure unbiased estimate of the population. Table 7 presents both the coefficients of correlation R and that of determination R^2.

Table 7: Model Summary for Drivers of Motor Vehicle Insurance Factors

Model	R	R Square	Adjusted R-Square	Std. Error of the Estimate	R-Square Change	F Change	df1	df2	Sig. F Change
1	.902	.814	.801	1.99881	.814	63.730	5	73	.000

From the findings in the table above, the coefficient of correlation R is 0.092. This implies that drivers of motor vehicle insurance have a strong relationship with fraud risks among insurance companies in Kenya. The coefficient of determination R Square (R^2) is 0.801, implying that 80.1% in fraud risks among insurance companies in Kenya is explained by drivers of motor vehicle insurance. Thus, apart from drivers of motor vehicle insurance, there are other factors that influence fraud risks among insurance companies in Kenya by 19.9%. Future studies should therefore be conducted to focus on these factors.

ANOVA for Drivers of Motor Vehicle Insurance Factors

At 5% level of significance, analysis of variance (ANOVA) was done, to assess the statistical significance of the drivers of motor insurance fraud and the findings are presented in Table 8.

Table 8. ANOVA for Drivers of Motor Insurance Fraud Risk

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1273.094	5	254.619	63.730	.000[c]
	Residual	291.654	73	3.995		
	Total	1564.748[d]	78			

From the findings in the table above, the F calculated is 63.730 while the value of F critical (at df 5, 73) is 2.306. Since the value of F calculated is greater than F critical, it can therefore be inferred that the overall regression model used in the study was significant in predicting how

drivers of motor vehicle insurance influenced fraud among insurance companies in Kenya. Kiragu et al (2015) also found that there is a relationship between meso factors and occupational fraud in financial institutions in Kenya

Regression Coefficients for Drivers of Motor Vehicle Insurance Factors

In order to determine the strength of the relationship between independent and dependent variables, a multiple regression analysis was further conducted. The regression coefficients with P values of individual variables of the study are presented in Table 9 below. Based on the statistics on the table, the following model was established. **Y = 4.192 + 0.163X1 + 0.188X2 + 0.049X3**; where X1 represents macro-economic factors, X2 represents individual factors and X3 represents institutional factors. From the multiple regression analysis in the Table 8 , all factors held into account and at zero, the constant was 4.192. This means that at ceteris paribus, fraud risks would be at 4.192. But, a unit increase in macroeconomic factors, individual factors, institutional factors, and government regulations holding all other factors constant would respectively lead to 0.163, 0.188, 0.049, and -0.004 increase in fraud risks among insurance companies in Kenya.

Table 9: Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	**Std. Error**	**Beta**			**Lower Bound**	**Upper Bound**
Constant	4.192	2.142		2.324	.001		
Macroeconomic Factors	.163	.082	.392	2.004	.049	.001	.326
Individual Factors	.188	.094	.472	2.007	.048	.001	.374
Institutional Factors	.049	.091	.115	.544	.588	-.131	.230

Furthermore, at 5% level of significance, it means that macro-economic factors (P=0.049<0.05), individual factors (P=0.048<0.05), and government regulations (P=-0.457<0.05) all had significant influence on fraud risks among insurance companies. However, institutional factors (P=0.588>0.05) had insignificant effect on fraud risks among insurance companies.

Kiragu et al (2015 also found that there was a relationship between institutional factors and fraud risk. These revelations were in line with what has been reported by the Insurance Regulatory Authority (IRA) in the recent past which showed that cases of insurance fraud were ever on the increase, posing major threats to insurance industry. According to the IRA for

instance, between 1999 and 2010 eight insurers collapsed, with several of those which are still struggling being put under statutory management due to larceny of insurance money. Derring (2012) further observed that this trend, if not checked would easily ultimately lead to collapse of the sector.

SUMMARY

The study employed descriptive research design and targeted 84 respondents in 28 registered insurance companies in Nairobi. Using a structured questionnaire to collect primary data, 78 respondents managed to complete the interviews which was 92.9% response rate. In terms of gender, 45 (57.7%) of the 78 respondents were males while 33 (42.2%) of them were females. Regarding the respondents' age, 24 (30.8%) which made the majority were aged 25-30 years, indicting a relatively young and vibrant workforce at management levels of the insurance sector. Concerning education levels, 57 (73.1%) had obtained a Bachelor's degree followed by those who had Masters (n=13, 16.7%). This could indicate that most of the insurance managers were well educated, hence understood well the kind of challenges the industry faced. Regarding the period the respondents had served in the insurance industry, most of them indicated that they had served for 6-10 years. In order to gauge their understanding of the workings of the companies they served hence a further determination of their knowledge of fraud risk history of those companies, the respondents were also asked about the period they had served in their respective companies. Majority of them had served for 1-5 years, accounting for 44 (56-4%) of the total respondents. Based on the inferential statistics, drivers of motor vehicle insurance had a strong relationship (coefficient correlation R of 0.902) with fraud risks among insurance companies in Kenya. The coefficient of determination R Square (R^2) was 0.801, inferring that an 80.1% change in fraud risks would be explained by drivers of motor vehicle insurance. This meant that only 19.8% was accounted for by other factors. Also, conducted at 5% level of significance, the ANOVA of processed data showed that the value of F calculated at 63.730 was far greater than the value of F critical hence showing a very strong relationship between independent and dependent variables.

CONCLUSIONS AND RECOMMENDATIONS

Based on the study findings, a conclusion can be drawn that drivers of motor vehicle insurance had a very significant role to play when it came to fraud risks among insurance companies in Kenya. This means that there was need for all the insurance players to be keen on these factors and for the Insurance Regulatory Authority to tighten all the loopholes to curb fraud in the industry.

Based on the findings, the study recommends insurance companies should be more vigilant in times pf hard economic times as the macro factors were found to have a statistically significant relationship with motor insurance fraud. Similarly Insurance companies should take keen interest in individual profiles of insures as the same was found to have a relationship with motor insurance fraud. On the other hand government anti-fraud regulations should be strengthened so that they can be more effective in curbing fraud amongst motor insurance companies in Kenya. IRA should also institute relevant and effective policies for management of fraud in the insurance industry and sensitize all the stakeholders on the need to conduct clean businesses in the sector.

REFERENCES

Artis, M., Ayuso, M. and Guillen, M. (2002). "Detection of Automobile Insurance Fraud with Discrete Choice Models and Misclassified Claims", Journal of Risk and Insurance, 69 (3), pp. 325–340.

Association of Certified Fraud Examiners (ACFE) (2018b). Insurance Fraud Handbook, Association of Certified Fraud Examiners, Inc, 716 West Ave | Austin, TX 78701-2727 | USA.

Association of Kenya Insurers (AKI)(2012), the Kenya Insurer, Nairobi.

Bierstaker, J. L. (2011). Differences in Attitudes about Fraud and Corruption Across Cultures. An International Journal, 16 (3), 241- 250.

Bourgeon, G. and Picard, P. (2014) Fraudulent Claims and Nitpicky Insurers, American Economic Review, vol. 104.

Boyer, M. (2004). Overcompensation as a partial solution to commitment and renegotiation problems: the case of ex-post moral hazard, Journal of Risk and Insurance, 71(4): 559-582.

Cheptumo, N. K. (2010). Response Strategies to Fraud-Related Challenges by Barclays Bank of Kenya. (Unpublished Doctoral Dissertation), University of Nairobi.

Dionne, G. and Gagné, R. (2011). Replacement cost endorsement and opportunistic fraud in automobile insurance, Journal of Risk and Uncertainty, 24: 213-230.

Dionne, G., La Haye, M. and Bergeres, A. S. (2014). Does asymmetric information affect the premium in mergers and acquisitions? Canadian Journal of Economics.

Duffield, G. and Grabosky, P., (2011). The Psychology of Fraud in Trends and Issues in Crime and Criminal Justice, 199. Canberra, ACT: Australian Institute of Criminology, March.

Durkheim, E (2001). Sociological imagination, Oxford University Press - Oxford

Earnst & Young (2011). Fraud in insurance on the rise. Survey 2010-2011.

Ernest and Young. (2012). Fraud, The Unmanaged Risk an International survey of the effect of fraud on businesses. 2000 International Survey Ernst and Young. www.E&Y.com

Federal Bureau of Investigation. (2010). Insurance Fraud investigation, http://www.FBI.Gov/hq/cid/fc/video_text/if_txt.htm downloaded 05/08/2018.

Gill, H. and Randall, A. (2015). Insurance Fraudsters, Insurance Law Journal, USA, vol 4. No 3,

Hansen, L. L. (2009). Corporate Financial Crime: Social Diagnosis and Treatment. Journal of Financial Crime, 16 (1), 28-40.

Harris, L.C. and Daunt, K. (2013). Managing customer misbehavior: Challenges and strategies, Journal of Services Marketing, 27(4): 281-293.

Insurance Regulatory Authority (IRA) (2013). Kenya Insurance Industry Outlook. Nairobi.

Insurance Regulatory Authority (IRA) (2015). Kenya Insurance Industry Outlook. Nairobi

Insurance Regulatory Authority (IRA) (2016), Annual Insurance Industry Report for the Year Ended 31st December 2016, Nairobi

Jakubowski, B, and Stone, C. (2012). SAS 82's effects on fraud discovery.(Illuminating Fraud Detection Responsibility) (Statement on Auditing Standards): The CPA Journal, Feb 2002 v 72 i2 P42(5). New York State Society of Certified Public Accountants. Article # A83486543.

Kamande R.W; Kiragu D.N Musumba G. (2018). Internal Controls, staff Red frags and Computerized Financial Frauds among Commercial Banks in Kenya. International Journal of Economics, Commerce and Management.VI (5), 95-111

Karl Marx (1978). The Marx-Engels Reader. Ed. Robert C. Tucker. New York: W.W. Norton & Company.

Kiragu D.N., Gikiri W.L.; & Iminza N.W. (2015). Bank Size and Occupational Fraud Risk: Empirical Evidence from Commercial Banks in Kenya. European Journal of Business Management. 2 (1), 189-203.

Kiragu N.D; Wanjau L.K; Gekara J.M; & Kanali C. (2015). Effect of Management Control Systems on Occupational Fraud Risk in Commercial Banks in Kenya. European Journal of Business Management. 2 (1), 68-86.

Kothari, C. K. (2013). Research Methodology: Methods and Techniques (2nd ed.). Mumbai: New Age International Publishers.

Kothari, J. A. (2006). Research Methodology: Qualitative and Quantitative approach. New Delhi. McGraw Hill.

Li, C.S., Liu, C.C., and Peng, S.C. (2013). Expiration dates in automobile insurance contracts : The curious case of last policy month claims in Taiwan, Geneva Risk and Insurance Review, 38(1): 23-47.

Li, C.S., Liu, C.C., and Yeh, J.H. (2017). The incentive affects of increasing per-claim deductible contracts in automobile insurance", Journal of Risk and Insurance, 74(2): 441-459.

MacRae, J. (2011). The Evolution of Insurance Fraud Detection: Claims, Sept 2001 v49 i9 p 51. Insurance Week, Inc. Article #A78542863.

Mena, J. (2012). Investigative Data Mining for Security and Criminal Detection, Butterworth-Heinemann.

Mugenda, O.M., & Mugenda A.G. (2003). Research Methods. Nairobi: Act Press.

Murthy, D.N.P. and Djamaludin, I. (2012). New product warranty: A literature review, International Journal of Production Economics, 79, 231-260.

Mwangi, H. K. (2013). The Relationship between Underwriting Profit and Investment Income for the General Insurance Industry in Kenya. PhD Thesis, University of Nairobi.

Mwangi I. Kiragu D. & Mathenge D. (2018). Effect of Technology adoption and staff Training on Tax Fraud among Large Tax Payers in Kenya Revenue Authority. International Journal of Economics, Commerce and Management. VI (5), 595-614.

Ngosiah (2012). Effect of Fraud Control Mechanisms on the Growth of Insurance Companies in Kenya: International Journal of Innovative Social & Science Education Research, 2(1), 26-39.

Njenga, N. and Osiemo, M. (2013). Effect of fraud risk management on organization Performance. (A case of deposit-taking microfinance institutions in Kenya). International Journal of Social Sciences and Entrepreneurship, 1(7), 490-507.

Nunnally, J. C., & Bernstein, H. (1978). Factored scales for measuring characteristics of college environments. Educational and Phychological Measurements. Sage Journals, 23, 239 -248.

Orodho, J.A. (2005). Elements of Education and Social Science Research Methods. Nairobi: Masola Publishers.

Picard, P., 2010, ''Economic Analysis of Insurance Fraud'', Chapter 10 in Dionne, G. (ed.), Handbook of Insurance. Boston, MA: Kluwer Academic Publishers.

Samociuk, M. and Iyer, N, (2013). Fraud Resistance, A Practical Guide, SIRCA 01-2003, Standards Australia International Limited ISBN 073375028 1

Saunders, M.; Lewis, P., & Thornhill, A. (2013). Research Methods for Business Students, London: Pearson Education Limited

Schlesinger, H. (2013), The theory of insurance demand, Handbook of Insurance, 2nd Edition, G. Dionne (Ed), Springer, 167-184.

Sybase, M. (2012). Fraud is a Significant and Costly Problem for both Policyholders and Insurance Companies in the Insurance Sector. International Journal of Innovative Social & Science Education Research, 2(1): pp. (26-39).

The Nilson Report, (2012) Credit Card Fraud Losses 1980-2011, Issue # 730 Oxnard, CA.

U.S. Department of Justice. (2012). Financial Institution Fraud and Failure Report, Fiscal Year 2002, Financial Institution Fraud Unit, Financial Crimes Section, Page 2.

Viaene, J. and Dedene, M. (2014), Insurance fraud: issues and challenges, The Geneva Papers on Risk and Insurance, vol 29 no. 2

Visa, U.S.A. Inc. (2011). Resource Manual for Prosecutors and Investigators. VBS.10.01.00.

Webster's New Collegiate Dictionary (1997).

Wilhelm, J (2004), the Elementary Forms of Religious Life. Emile Durkheim. Translated by Carol Cosman. Oxford University Press, 358pp

Wilhelm, W. K. (2004), the Fraud Management Lifecycle Theory: A Holistic Approach to Fraud Management, Journal of Economic Crime Management, www.jecm.org

Zikmund, W. G., Babin, B. J., Carr, J. C., & Griffith, M. (2010). Business Research Methods (8th edit.). Canada, South-Western Cengage.