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EFFECT OF FORENSIC ACCOUNTING SERVICES ON FRAUD MITIGATION IN FIRMS LISTED AT THE NAIROBI SECURITIES EXCHANGE, KENYA

Florence Chepngeno Kirui
School of Business and Public Management, KCA University, Kenya
kiruiflo2@yahoo.com

Abstract

Corporate fraud is reported as being the problematic issues for business organizations and as a result, several instances of collapse of big companies have been witnessed globally in the recent past. This is attributed to inadequacy of the statutory audit in detection of fraud. This study sought to establish effect of forensic accounting services on fraud mitigation in firms listed at the Nairobi Securities Exchange, Kenya. Specifically the study sought to assess the effect of forensic data analysis on fraud mitigation in firms listed at the Nairobi Securities Exchange. The target population comprised of all firms listed at the NSE that have evidently used forensic accounting services. The study employed purposive sampling technique to choose the sample frame. Primary data was collected from purposively selected staff working with the aforesaid firms. The collected data was analyzed using both descriptive and inferential statistics with the aid of Statistical Package for Social Sciences (SPSS) version 25 and Statistics and data (STATA) version 13 analytical tools. Diagnostic tests were carried out for multicollinearity and heteroscedasticity. The results of the analyses were presented in tabular form and were accompanied by pertinent interpretations and discussions. The study revealed that, there existed significant correlations between forensic data analysis and fraud mitigation. The study recommends that listed firms should ensure that they have accountants with forensic accounting skills and analytical capacity in order to control and mitigate fraudulent activities.

Keywords: Forensic Data Analysis, Forensic Accounting Services, Fraud, Fraud Mitigation, Listed Firms, Nairobi securities exchange

INTRODUCTION

Oyebisi, Olusogo and Ifeoluwa (2018) defines fraud as a way that causes suffering loss to an innocent individual by a person who has clear knowledge of his intentions of deceiving the other person through misuse or stealing of company resources. Okoye, Maimako, Jugu and Jat (2017) claim that fraud can involve exclusion of facts, forgery, dishonesty and can be written or oral with an intention of gaining advantage from it. Albrecht (2008) pointed out that deception involve a volume of actions for example corruption, bribe and worker fraud upon an organization. The aforementioned definitions about fraud seem to agree that it involves cheating in order to have monetary gain over another person whether a natural or legal person.

Enofe, (2015) gave examples of fraud as employee embezzlement, vendor fraud which is a type of external fraud usually in the form of overpricing of procured stock, over-invoicing, delivery of substandard goods or the non-shipment for goods that have already been paid for. Arguably, some forms of fraud include forging creditors, paying ghost workers, faking sales, writing off the debtors' accounts without authority and making false claims (Akinyomi, 2010). Ozkul and Pamuku (2012) put forward that fraud possibly will engage the modification of substantial monetary reports, intentional misstatements and misrepresentation of events, deliberate misapplication of accounting standards and principles in order to permit corporations to conceal the financially viable matter of their achievements.

The effect of fraud has a chain reaction on the community as a whole since it goes a long way to determine its success and can lead to public criticism as well as increased operating expense (Yego, 2016). According to Nipion (2015) fraud can lead to bankruptcy, reduced income and can affect the economic system of a country. The same sentiment was echoed by (Isa, 2011) who purport that financial fraud will damage the real economy in different areas. Okonkwo and Ezegbu (2016) alleged that the scam has become an unfortunate staple in Nigerian's international reputation and that it make staff scared of making some decisions because they are afraid of being connected in a business matter.

Saidu (2015) defined forensic accounting as the application of analytical, arithmetical, auditing and investigative skills acquired by an accountant in evidence gathering and adjudication for legal matters, without causing harm to the culprit. Forensic accounting can also be known as investigative or fraud audit or even judicial accounting and is the unification of accounting, auditing, investigation and law (Aigienohuwa, Okoye & Uniamikogbo, 2017). Forensic accounting services is the application in specific areas of law, the measurement methods, computer expertise, accounting as well as auditing skills to assist in collating, analyzing and evaluating proof of a matter which is called evidence in the forensic area.

Fraud mitigation is described as fast actions that are intended to reduce the extent of the fraud, the amount of the associated fraud losses, and the effort and expense required to recover and correct the impact of the fraudulent activity. The success of fraud mitigation is in the appropriate identification of red flags by the forensic auditor (DiNapoli, 2016). A red flag refers to an anomaly in business activities and human behavior. However, their presence is not evidence that an illegal act has happened, but they simply indicate that the potential for fraud is high to warrant an investigation. DiNapoli (2016) gives examples of red flags for fraud, the most common being the changes in behavior of employees and management. Apart from assisting companies to avert the loss of income, setting up valuable management procedures against fraud also plays a role in improving the quality of the companies' goodwill in the industry (Yego, 2016). According to Isa (2011) fraud mitigation mechanisms may reduce the number of fraud cases. According to Effiong (2012) identifying issues that induce frauds to occur by knowing who the perpetrators are and why they are committing fraud is imperative for businesses prior to working hard in an attempt to decrease fraud as well as controlling the menace practically.

One of the major factors to consider when mitigating fraud is the opportunity. Opportunity can be termed as when internal controls come into play (Okoye, 2013). Chimwene (2017) pointed out that fraud is mostly committed by those employees who due to having worked longer in an organization and in various departments are believed to be honest and cannot do any harm. Due to their trust, there is laxity in safeguarding the internal controls which creates opportunity for these employees to commit fraud. The Kenya Integrity plan (2015) highlighted some of the factors that contribute to corruption in which fraud is one of the offences that constitute it to include; poor governance, lack of balances checks, weak enforcement of policies and laws, political patronage, greed and unfettered discretionary powers among others. According to Akani and Oladutire (2013) fraud is a product of poor internal control systems in organizations and can be reduced if there is an efficient and effective system in place. Okoye (2013) assert that there are very less opportunities for employees of a company to commit fraud where a company has come up and implemented more mitigation strategies. If opportunities for committing fraud are eliminated then fraud can greatly be mitigated in the firms.

The other factor that needs to be considered in fraud mitigation is the presence of pressure among employees. Hooper and Pornelli (2010) assert that pressure is something that has happened in the fraudster's personal life that creates a stressful need of funds and urges that person to steal. He further says that it can be caused by almost anything including family situations, medical bills, expensive tastes, extra-marital affairs or addiction problems. According to (Brumell, 2010) pressures can include money problems, gambling debts, alcohol or drug addiction, overwhelming medical bills and greed. He further says that by identifying any possible pressures that the company could have an impact on such as money problems, substance abuse, among others can relieve these issues and can help reduce criminal behavior. Listed firms should therefore ensure that they identify any possible pressures among their employees in order to mitigate fraud.

Statement of the Problem

Firms listed at the NSE are significant participants in the securities sector and in the Kenyan economy as a whole. Without frauds, these firms would benefit a lot since more investors would invest their resources there leading to increase in revenue (Kamau, 2015). In addition, it would benefit the Kenyan economy by enhancing the achievement of Vision 2030 which aimed at achieving an average gross domestic product (GDP) growth rate of ten percent per annum beginning 2012.

The CMA (2014) statistics shows that the financial performance of most quoted firms in Kenya have been declining due to the effect of fraudulent activities. Noteworthy, the problem has been attributed to collusion of the auditors with the management to falsify the companies' financial statements in order to defraud the shareholders Kimani (2015). According to Meshack (2016) auditors could not uncover the fraudulent activities because their only concern is to add credibility to the financial statements by expressing an independent opinion. The magnitude of the financial losses to the companies caused by the fraudulent activities is in terms of millions or billions, and such examples of the companies would include Kenya Airways Ltd. Ksh. 10b loss, Uchumi supermarkes Ltd. Ksh. 226m loss, Mumias Sugar Co. Ltd. 3.4b loss, and Eveready East Africa Co. Ltd. 248m loss (Kinyua, Gakure, Gekara & Orwa, 2015). Kiprono (2018) affirmed that the fraudulent activities have cost big losses of not less than four billion Kenya shillings to the taxpayers annually. It is based on the above challenges that the study sought to effect of forensic data analysis on fraud mitigation in firms listed at the Nairobi securities exchange.

Research Objectives

To determine the effect of forensic data analysis on fraud mitigation in firms listed at the Nairobi Securities Exchange

LITERATURE REVIEW

Theoretical Review

The study is informed by the Fraud triangle theory and Fraud Diamond Theory.

Fraud triangle theory

Fraud triangle theory is involved in trying find out the reasons that lead to people to commit fraud (Sutherland, 1939). The theory was explained through the white color crime and later emphasized by Sutherland's student Donald Cressey in 1950 (Noorhayati, Muhammad & Nuhu, 2015). Cressey, who was a criminologist, carried out a research on the reasons that compels persons to breach their expectations by interviewing two hundred and fifty (250) criminals in a period of 5 months (Noorhayati et. al. 2015).

According to Cressey (1953) people happen to breach their faith because they might have incurred a financial obligation which must be satisfied by secret means. In his findings, Cressey (1953) concluded that the reason is when the trust violators consider that they have a financial difficulty that gives him pressure and knows that this difficulty is capable of being dealt with in secret by taking advantage of the financial status bestowed if there is an opportunity to do so and when fraudsters are people who are committing the offence for the first time and therefore perceive themselves as normal people with integrity who have just been caught in a horrific condition. In summary, pressure, opportunity and rationalization are the three elements discussed in the theory.

Fraud Diamond theory

Fraud Diamond theory is an enlarged version of the Fraud Triangle Theory and was offered by Wolfe and Hermanson (2004) in his CPA journal. It consists of four elements which are Incentive (Pressure), Opportunity and Rationalization plus Capability which is the fourth element that was added by Wolfe and Hermanson to the previously existing Fraud Triangle Theory elements. The theory maintain that even though the identified pressure may perhaps exist at the same time with the opportunity of committing fraud and a rationalization to do it, fraud is not probable to occur if not the element of capability is as well at hand, meaning that the impending trust violator ought to hold expertise as well as the capability of committing the fraud. The proponents of the theory uphold that the presents of the three initial elements (pressure, opportunity and rationalization) alone cannot lead to fraud except the employee has the capacity to be familiar with the open entrances as an opportunity and exploit it. Aigienohuwa, et.al. (2017) assert that capacity is the possession of relevant traits and ability to turn such opportunity to a reality, thus one need to understand the internal control system and its lapses that could be exploited in planning and implementation of the fraud.

Forensic Data Analysis and Fraud Mitigation

DiGabriele (2009) noted that forensic accountants have a set of competencies that comprise deductive ability, creative thinking and crisis solving capability, analytical elasticity written communication capacity, specific knowledge on legal issues and good self-possession. Di Gabriele (2009) further uphold that evidence exists on the demand for superior level of proficiency that is required to scrutinize the modern complex financial matters and it is perceived that forensic accounting emerges to be on top of the crusade against financial fraud

Owojori and Asaolu (2009) examined how the vexed problems in the corporate world can be solved with the use of forensic accountants in their study in which they used secondary data. It was found out that in order for the complex business transactions to be properly understood, forensic accountants often aid in the analysis, summary and presentation of the transactions. They further reiterated that manipulated or destroyed financial accounting records are often made complete by forensic accountants through reconstruction. They acknowledged that there has been an increase in cases of frauds in Nigeria which are carried out through manipulation the financial statements and regretted that this fraudulent behavior in the corporation is becoming a norm in Nigeria.

Ofiafoh and Otalor (2013) sought to examine forensic accounting as a tool for fighting financial crime in Nigeria. They argued that in the developed economies, investigation of financial crime cases are now being done by forensic accounting experts who are being hired because of the persistent failure of auditors to unearth fraud cases. They claim that the skills held by forensic accountants are peculiar because of their capability to detect errors, make inferences from the financial information and identify the abnormal transactions that contradict the usual way of doing business. Ofiafor and Otalor (2013) further claim that forensic accountants do not just look at the audit track but also look beyond the transactions to focus on material matters of the transactions. Their recommendation was that the anti-corruption bodies ought to think of employing the forensic accountants' services in order to improve judgment of the fraud offenders and aid them in courtyard cases involving financial as well as economic crimes.

Onodi, Okafor and Onyali (2015) sought to examine how forensic investigative method impacted on corporate fraud deterrence in banks in Nigeria. Survey research design was adopted in the research where they used primary and secondary methods to collect data. In the primary source, interviews and questionnaires were used while in the secondary method, the researcher used reports on forgery and fraud in the banks. To analyze data, statistical tools were used and Z-test was also carried out. The findings of the study was that additional forensic accountants are being searched for in order to search through documents thoroughly in an effort to find out new information and help in reconstruction of irregular portions of company's financial problems to solve the difficult problems. They further reiterated that in persecution of fraud, forensic accountants' expert services are required.

Nwaiwu (2018) examined the relevance of forensic accounting services on financial performance which constituted listed companies' detection process and performance in Nigeria. During investigation, the researcher used a cross-sectional quasi experiment design. Primary data collection method was used whereby well-structured questionnaires were administered to employees of randomly selected five listed companies which included banks and manufacturing companies. Structured likert scale was used to generate the questionnaires. The researcher used convenience sampling technique because of the limited time frame which was given for the completion of work. It was found out that forensic accountants have the power to give proper reporting where the answerability of the fraud is established the report considered as evidence in by the jurors. It was recommended that in the public companies, measures to mitigate and prevent fraud as well as investigative accounting measures should be put in place.

Enyi (2009) employed real case problem in his research on the Nigerian manufacturing firms to establish how to investigate variances and suspected fraudulent behavior by use of forensic accounting services. The results of the study revealed the instance of forensic investigation by use of ratios and statistical methods to arrive at clues showed the proper direction to follow in an examination to expose sequence of deceptive tricks that were hidden in company's books of accounts. The police use the findings of the forensic investigator as the main evidence and they were able to detain and put on trial the people who were responsible for the fraud.

Ehioghiren and Atu (2016) examined forensic accounting and fraud management in Nigeria's Edo and Delta states where five hundred and seventy two (572) respondents were sampled including senior management staff, external and internal auditors, public as well as private companies' accountants and also shareholders and academicians. The analyzing, interpreting, summarizing and presentation of complex financial issues are involved in forensic accountants as their main duty.

According to Oyedokun (2013) forensic accounting is used by many parties to find evidence that is presented in court to find out who did the fraud, how it was done and where the recovered assets are kept. The witnesses are also presented in court where forensic accounting is used to analyze their and document their proof. Nigeria was studied and how forensic accountants' litigation was affected by its role in assessment of its public sector. Oyedokun (2015) postulated that forensic accounting services have a positive influence on the integrity of financial statements of business organizations. This was revealed in his survey study on the integrity of financial statements and forensic accounting techniques in the internal control of business organization in which three hundred and fifty (350) questionnaires were administered to members of the Institute of Chartered Accountants of Nigeria.

Warshavsky (2010) in his article on forensic accountants' role in litigation support asserted that forensic accountants are proficient at investigating, identifying and analyzing financial information, in conjunction with determining the people associated with the fraud eventually. He further argued that the financial forensic results could uncover hidden assets and assist the legal representative in whatever specific financial issues the case requires. It was also put forward that in the data collection and analysis phase of the case, the forensic accountant would investigate the financial documents received, perform research, and apply financial forensic tools and techniques such as trending, benchmarking, and ratio analysis.

Kamau (2015) carried out a study on insurance companies in Kenya to establish the effect of forensic accounting services on fraud mitigation. He obtained data from 42 out of the 49 insurance companies which have their headquarters in Nairobi. He used structured questionnaires to collect data. Where necessary, the researcher used descriptive analysis and regression analysis with the aid of SPSS was used to analyze quantitative data. Forensic analysis of transaction flow for proper advice in court of law and proper calculation of complex disputed values had a mean of 3.5 and 3.1 respectively, while records examination and reconstruction of financial statements for correct values in consequential claims had a mean of 4.2, which all shows a significant relationship connecting the independent variables and fraud mitigation. Results of the study showed forensic accounting services are better tools used to evaluate the quality of normal financial statements produced by auditors thus assist the audit committee to carry on oversight functions.

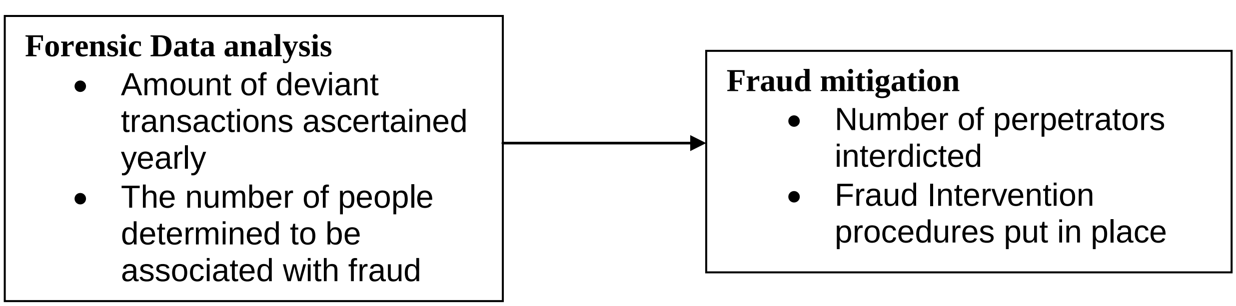

Figure 1: Conceptual Framework

RESEARCH METHODOLOGY

Descriptive research design was adopted in the current study. Population for this study comprised of all the 61 companies listed at the Nairobi Securities Exchange as at June, 2019. The target population for the study was limited to 168 senior officers working at the respective headquarters of the listed firms that have evidently used forensic accounting services. They included; accountants, internal auditors, middle and lower level managers and the procurement officers.

The sample frame for this study comprised of five firms listed at the NSE. They included; Kenya airways Co. Ltd., Mumias Sugar Co. Ltd., East African Portland Cement Ltd., National Bank of Kenya Ltd. and Uchumi Supermarkets Ltd. A sample size of 119 respondents was drawn from a population of 168 senior staff of the five firms which constituted the middle and lower-level managers, accountants, auditors and procurement officers. The sample size was arrived at using Yamane (1967) formula. The sample size was found to constitute 119 senior staff working with the 5 listed firms practicing forensic accounting.

Primary data was collected using a structured questionnaire. To authenticate reliability and validity of the questionnaire, a pilot test was performed on the senior managers, accountants, internal auditors and the procurement officers of the National Bank of Kenya, Nakuru branch where a total of 17 questionnaires were administered.

Data collected was then analyzed using both descriptive and inferential statistics with the aid of Statistical Package for Social Sciences (SPSS). Descriptive statistics used included percentages, measures of central tendencies and measures of dispersion. The results of analysis were presented in tabular form and were accompanied with relevant interpretations and discussion.

FINDINGS

Response Rate

With regard to the present study, the sample size was 119 and as such, the total number of questionnaires issued to the respondents was the same (119). The number of questionnaires that were filled and collected from the sampled staff totaled 110. This translated to a response rate of 92.44% which was considered adequate in a survey study.

Distribution of Respondents by Highest Academic Qualification

Table 1: Distribution of Respondents by Highest Academic Qualification

Highest Academic Qualifications	Frequency	Percentage
Diploma	15	13.6
Higher National Diploma	2	1.8
First Degree	68	61.8
Masters	17	15.5
Non-responses	8	7.3
Total	**110**	**100.0**

In respect of academic qualifications, the results in Table 1 indicated that 13.6% of the respondents were diploma holders. A total of 1.8% had higher diploma certificates while the majority of respondents (61.8%) had first degrees and only (15.5%) of respondents had masters degrees. The results were interpreted to mean that senior staff working in listed firms, especially the ones which had embraced forensic accounting, was adequately qualified to dispense their respective duties.

Table 2: Descriptive Statistics for Forensic Data Analysis

								Skewness		Kurtosis	
	SA (%)	A (%)	I (%)	D (%)	SD (%)	Mean	Std. Dev.	Statistic	Std. Error	Statistic	Std. Error
The use of forensic data analysis facilitates fraud mitigation in your company because it enables determination of people associated with fraud hence assisting in fraud mitigation.	58.2	41.8	0.0	0.0	0.0	4.58	.496	-.336	.230	-1.922	.457
Forensic data analysis assists in fraud mitigation in your company by helping to ascertain deviant transactions before they crystallize into fraud.	15.5	57.3	.9	26.4	0.0	3.62	1.040	-.620	.230	-.913	.457
Forensic data analysis summarizes complex financial issues thus resulting in reduced financial criminality in your company.	15.5	47.3	13.6	21.8	1.8	3.53	1.055	-.478	.230	-.773	.457
The number of people determined to be associated with fraud has reduced considerably in your company over the past 5 years.	11.8	54.5	1.8	25.5	6.4	3.40	1.175	-.620	.230	-.881	.457
The annual number of ascertained deviant transactions has reduced significantly over the past 5 years.	18.2	43.6	.9	24.5	12.7	3.30	1.358	-.429	.230	-1.241	.457

According to the results presented above, it was found that the majority of the respondents (58.2%) strongly agreed that the use of forensic data analysis facilitated fraud mitigation in their respective companies because it enabled determination of people associated with fraud hence assisting in fraud mitigation. The rest (41.8%) also admitted to the view. None of the respondents disagreed or remained indifferent. This concurred with the findings of Warshavsky (2010) that forensic accountants are proficient at investigating since they are capable of determining the people associated with fraud. On the view that forensic data analysis helps ascertain deviant transactions before they crystalize into fraud, 15.5 % of the respondents strongly agreed with it, while 57.3 % registered their agreement. This resulted into a total of 72.8% of the respondents concurring with the argument. These results were similar to the ones of a past study conducted by Aduwo (2016) which revealed that forensic data analysis had a significant relationship with fraud mitigation since they can detect errors and deviant transactions before they turn into fraud.

Regarding the opinion that forensic data analysis summarized complex financial issues, thus resulted in reduced financial criminality in the companies more than half (62.8%) of the sampled staff concurred to the view. This is the total of those who strongly agreed (15.5 %) and those who agreed (47.3 %). The findings concur with the ones of a past empirical analysis conducted by Owojori and Asaolu (2009) in Nigeria which established that in order for complex business transactions to be properly understood, forensic accountants often aid in the analysis, summary and presentation of transactions. Though, a significant number (66.3%) of the respondents agreed that the number of people determined to be associated with fraud had reduced considerably in their companies over the past 5 years, 25.5% of the staff disagreed with the assertion. Moreover, the study revealed that most (61.8%) of the employees concurred that the annual number of ascertained deviant transactions had reduced significantly over the past 5 years, hence an improvement in fraud mitigation.

It was further noted that on average the respondents strongly agreed to the assertions that the use of forensic data analysis facilitated fraud mitigation in the companies because it enabled determination of people associated with fraud hence assisted in fraud mitigation (mean = 4.58); In relation to the foresaid proposition the views of respondents were largely similar (std dev <1.000). The study, further, found that the respondents generally concurred that forensic data analysis assisted in fraud mitigation in the companies by helping to ascertain deviant transactions before they crystallized into fraud (mean = 3.62); and that forensic data analysis summarized complex financial issues thus resulted in reduced financial criminality in their respective companies (mean = 3.53). The views of respondents with regard to the foregoing propositions were also similar with (std dev <1.000). Furthermore, the study acknowledged that generally the respondents disagreed regarding the opinion that the number of people determined to be associated with fraud had reduced considerably in their company over the past 5 years (mean = 3.40). Similarly, the respondents also generally disagreed to the argument that the annual number of ascertained deviant transactions had reduced significantly over the past 5 years (mean = 3.30). The respondents held largely similar views in respect of the foregoing views (std dev <1.000).

The study further revealed that all responses regarding forensic data analysis were negatively skewed. This implied that the views of the surveyed staff regarding the aforesaid assertion were largely similar and inclined towards the same side. In respect of results of kurtosis, the study revealed that all the statements had negative cases of kurtosis ranging from -.773 to -1.922 which is also inclined toward the same direction.

Fraud Mitigation

The study findings regarding fraud mitigation are illustrated in Table 3. The analysis of the opinions of the surveyed staff as shown in Table 3, established that more than half (48.2 %) of the sampled employees strongly agreed that a zero-tolerance policy towards fraudulent behavior had been set up in their companies to make it more difficult for perpetrators to engage in fraudulent activities, thereby mitigating of fraud. 10 % of the respondents agreed with the view, translating to 58.2 % of the respondents registering their agreement on the same. This was slightly over half of the number of responses. This supported the argument of Brummell (2015) that it is important for companies to create a zero tolerance policy towards fraudulent behavior because it will make it more difficult for perpetrators to engage in fraud activities for fear of the consequences. However, quite a significant number (41.8 %) of the respondents disagreed with the assertion, giving mixed reactions. In view of the argument that investigations were immediately commenced to any perceived fraudulent transactions and that fraud was mitigated as fast as possible, (53.6%) of the surveyed staff strongly agreed while 18.2 % agreed. This meant that majority (71.8 %) concurred with the proposition. Other firms listed at the NSE should therefore ensure that they also adopt the same strategy so as to enhance the fight against fraud. Less than 1 % was indifferent on the view and 27.3 % disagreed. This difference could be the different views of the firms under study.

Table 3: Descriptive Statistics for Fraud Mitigation

								Skewness		Kurtosis	
	SA (%)	A (%)	I (%)	D (%)	SD (%)	Mean	Std. Dev	Statistic	Std. Error	Statistic	Std. Error
A zero-tolerance policy towards fraudulent behavior has been set up in your company to make it more difficult for perpetrators to engage in fraudulent activities.	48.2	10.0	0.0	41.8	0.0	3.65	1.431	-.232	.230	-1.892	.457
Investigations are immediately commenced to any perceived fraudulent transactions that fraud as mitigated as fast as possible.	53.6	18.2	.9	27.3	0.0	3.98	1.285	-.758	.230	-1.210	.457
New employees are recruited only after their past working history is devoid of fraudulent implications, allegations or convictions.	8.2	30.9	26.4	24.5	10.0	3.03	1.137	-.131	.230	-.865	.457
Control procedures put in place in your company have led to reduced fraudulent activities over the past 5 years.	38.2	29.1	0.0	32.7	0.0	3.73	1.277	-.441	.230	-1.515	.457
The number of perpetrators of fraudulent activities interdicted or laid off in your company has increased significantly over the past 5 years.	.9	68.8	0.0	20.2	10.1	3.30	1.118	-1.030	.230	-.588	.457

On the proposition that new employees were only recruited after knowing their past history, the findings also showed varied views since 8.2 % of the participants strongly agreed on the assertion while 30.9 % agreed with it. This meant that a lesser percentage 39.1 % of the employees concurred that new employees were recruited only after their past working history was devoid of fraudulent implications, allegations or convictions. However, 26.4% of the respondents were indifferent to the view. An almost similar percentage of the respondents (34.5%) disagreed with the view. In this regard, the study could not fully establish whether the companies under study actually feted new employees before their recruitment.

A significant percentage (67.3 %) of the respondents registered their agreement with the view that control procedures put in place in the company had led to reduced fraudulent activities over the past 5 years. This is the total of those who strongly agreed and those who agreed. This supported the findings of Brumell (2015) who opined that opportunity for employees to commit fraud is facilitated by lack of appropriate control procedures in place. This can be inferred to mean that organizations need to put appropriate control procedures in place in order deter employees from committing fraud since this will help mitigate fraud. The remaining percentage (32.7 %) disagreed with the proposition. The study further established that less than 1 % of participants strongly agreed with the proposition that the number of perpetrators of fraudulent activities interdicted or laid off in the companies had increased significantly over the past 5 years, resulting in fraud mitigation. Majority of the respondents (68.8 %) agreed with the proposition, concurring with the findings of Ofiafor & Otalor (2013) which revealed that forensic accounting services enabled easy prosecution of fraud perpetrators thereby enhancing mitigation of fraud.

The results also demonstrated that on average the respondents strongly agreed to the arguments that a zero-tolerance policy towards fraudulent behavior had been set up in their companies to make it more difficult for perpetrators to engage in fraudulent activities (mean = 3.65); and that investigations were immediately commenced to any perceived fraudulent transactions and that fraud was mitigated as fast as possible (mean = 3.98). In relation to the foresaid views the respondent's opinions varied significantly (std dev > 1.000). The study further revealed that on average the respondents were indifferent in relation to the propositions that new employees were recruited only after their past working history was devoid of fraudulent implications, allegations or convictions (mean = 3.03); and that control procedures put in place in the companies had led to reduced fraudulent activities over the past 5 years (mean = 3.73). Similarly, the staff were generally disagreed on the proposition pertaining the argument that the number of perpetrators of fraudulent activities interdicted or laid off in the companies had increased significantly over the past 5 years (mean = 3.30). The respondents held significantly differing opinions with regard to the aforementioned views (std dev> 1.000).

In respect of fraud mitigation, the empirical results as shown in Table 3 indicated that the primary data collected was skewed negatively and inclined in the same direction. This meant that there were substantially similar opinions regarding fraud mitigation in listed firms. The results of kurtosis (see table 3) corroborated the results of skewness since high and negative kurtosis results were seen across almost all the statements on fraud mitigation.

Correlation Analysis, Interpretations and Discussion

The pairwise correlation was used to determine how forensic accounting services (forensic data) were related to fraud mitigation with regard to various firms listed at the Nairobi Securities Exchange.

The significance of the relationship between the variables was tested at 95% confidence level (p-value = 0.05).

Table 4: Correlation Matrix

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pwcorr fm fda, sig star (0.05)
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	fm	fda
fm	1.0000	
fda	0.7649*	1.0000
	0.0000	

The results of the correlation analysis as shown in Table 4, indicated that the relationship between forensic data analysis and fraud mitigation was positive, strong and statistically significant ($r = 0.7649$; $p < 0.05$). This meant that increased use of forensic data analysis was bound to enhance mitigation of fraudulent activities in listed firms. The component of forensic data analysis was observed to be significantly correlated with fraud mitigation at 0.05 level of significance. Therefore, it was imperative to infer that there was a great likelihood that forensic data analysis would result in substantial enhancement of fraud mitigation amongst listed firms.

Hypothesis Testing

From the findings the value of F-statistics, $F(1,108) = 152.31$; $p < 0.05$ was statistically significant. This meant that forensic data analysis was significant in mitigating fraud in firms listed at the Nairobi Securities Exchange. Based on the rule of significance, the study rejected the null hypotheses (H01) that Forensic data analysis has no statistical significant effect on fraud mitigation in the listed firms at the Nairobi Securities Exchange and concluded that all the independent variable has a statistical significant effect on fraud mitigation in the listed firms at the Nairobi Securities Exchange.

CONCLUSIONS

The study determined the effect of forensic data analysis on fraud mitigation in firms listed at the Nairobi Securities Exchange. It was concluded that the use of forensic data analysis facilitated fraud mitigation in NSE listed companies by helping identify the people associated with fraud, ascertaining deviant transactions, and summarizing complex financial issues. It was also noted that forensic data analysis helped in mitigation by looking beyond audit trails and helping in the reconstruction of financial statements. It was further concluded that financial data analysis helped fraud mitigation by summarizing complex financial issues. The research findings further conclude that though the objective of forensic data analysis had a positive effect on fraud mitigation in firms listed at the NSE, it did not have a considerable impact as compared with the other two objectives of the current study since it was found to have the least effect. One of the major limitations that the researcher encountered is the administration of questionnaires. In this case some of the managers were skeptical to provide the information need for fear of being reprimanded by their superiors which meant that the researcher had to do an intense follow-up to see that the questionnaires were filled.

RECOMMENDATIONS

The Nairobi Securities Exchange operates under the jurisdiction of the Capital Markets Authority with an objective of endowing companies with instruments which enables them in raising capital for expansion. It is a securities exchange that is growing faster in the African Sub-Saharan economies as compared to other exchanges. Corporate fraud has become a major concern among the listed companies at the NSE. Because of the bad reputation caused by involvement of fraudulent activities, investors will shy from investing their money on such companies resulting in decrease in the firms' liquidity and making them unable to meet their obligations.

Firms listed at the NSE are significant participants in the securities sector and in the Kenyan economy as a whole. Research has shown that the probability of foreign direct investment points higher in countries that are free of corruption. Without frauds, firms listed at the NSE would benefit a lot since more investors would invest their resources there leading to increase in revenue as well as benefiting the Kenyan economy as a whole by enhancing the achievement of Vision 2030 which aimed at achieving an average gross domestic product (GDP) growth rate of ten percent per annum beginning 2012.

The findings from the current study are of great importance to the managers and shareholders of the listed firms who intent to reverse the seepages caused by frauds in their companies. Capital Markets Authority should also ensure that the firms listed at the NSE adopt forensic accounting services as part of the internal strategy in their organizations in order to mitigate fraud and eventually attract potential investors. This will in turn increase the firms' liquidity apart from building a good reputation.

Companies should invest in forensic data analysis as it was found to have an influence on fraud mitigation, though not substantial as compared with the other forensic accounting services. These services will allow companies to identify the employees involved in instances of fraud, track and map the trails left by such fraud cases and reconstruct the financial statements to establish impact of these crimes. Moreover, these companies will be able to summarize complex financial issues and present them to other stakeholder involved in crime mitigation in a way they can easily understand. This further helps to strengthen the fight against fraud in the foresaid companies. Finally, the study recommends that listed firms should ensure that they have accountants with forensic accounting skills and analytical capacity in order to control and mitigate fraudulent activities.

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