



# **FRAUD RISK PREVENTION STRATEGIES AND FRAUD OCCURRENCE IN LARGE AND MEDIUM SIZED COMMERCIAL BANKS IN KENYA**

**Kingori Julius Wangombe** 

MBA Student, Dedan Kimathi University of Technology, Kenya

kingorijulius120@gmail.com

**David Kiragu**

Dedan Kimathi University of Technology

School of Business Management and Economics, Kenya

**Riro Kamau**

Dedan Kimathi University of Technology

School of Business Management and Economics, Kenya

## **Abstract**

*Operational risk is one of the serious challenges facing financial sectors globally. This study sought to investigate the effect of fraud risk prevention strategies on fraud occurrence among large and medium sized commercial banks in Kenya. The study adopted a descriptive survey design. The target population was 57 managers of seven large and twelve medium sized commercial in Kenya. A questionnaire was used to collect primary data. Analysis was done using SPSS software Version 20. Ordinary Logistic regression was used to evaluate the relationship between the regressor and fraud occurrence. The study findings revealed that fraud risk prevention strategies reduce the fraud occurrence in commercial banks in Kenya significantly. In addition, referencing of documents of value, segregation of duties, wealth declaration & investments, control over dormant accounts, integrity check on hiring, verification of signatures, Job rotation within branch, staff training on hiring and cross referencing of documents were aspects of fraud risk prevention methods found to be commonly used to*

*address fraud occurrence among large and medium size commercial banks in Kenya. The study recommends that commercial banks should continuously evaluate effectiveness of the various strategies that commercial banks should adopt in order to control fraud occurrence.*

*Keywords: Fraud risk prevention strategies, fraud occurrence, large and medium sized commercial banks*

## **INTRODUCTION**

The banking sector in Kenya plays a fundamental role in increasing the level of economic activity. As intermediaries to both suppliers and users of funds, banks are effectively situated in a continuum that determines the pulse of the economy. Worldwide, the ability or inability of banks to successfully fulfill their role as intermediaries has been a central issue in some of the financial crisis that has been witnessed so far. Diamond (1984) posits that a special feature of banking activities is to act as delegated monitors of borrowers on behalf of the ultimate lenders (depositors). In this special relationship with depositors and borrowers, banks need to secure the trust and confidence of their numerous clients. Though this requires safe and sound banking practices, it is not always the case as bank failures in different countries have come to prove. The failure of banks to adequately fulfill its role arises from the several risks that they are exposed to; many of which are not properly managed. One of such risks which is increasingly becoming a source of worry is, the banking risk associated with fraud. Association of Certified Fraud Examiners (ACFE, 2016) has documented that a typical organization losses 5% of its annual revenue to fraud. ACFE defined fraud as a conscious and deliberate action by a person or group of persons with the intention of altering the truth or fact for selfish personal gain, is now by far the single most veritable threat to the entire banking industry.

Fraud theory points that fraud occurrence is a phenomena that can be predicted and whose possibility of occurrence can be known. It is indeed worrisome that while banks are constantly trying to grapple with the demands of monetary authorities to recapitalize up to the stipulated minimum standards, fraudsters are always at work threatening and decimating their financial base. Also more worrying is the rise in the number of employees who are involved in the act as well as the ease with which many escape detection thus encouraging many others to join in perpetuating fraud (PwC, 2014). This being the case, it might then be that the fraud anti forensic measures can also be put in place to deter the same. Various techniques in fraud management have been developed and are used by commercial banks to manage the menace of fraud. However, since the fraud management process goes through various stages, the

practices are based on the particular stage of fraud management. According to Dolan (2004) the fraud management lifecycle is made up of eight stages. Deterrence, the first stage, is characterized by actions and activities intended to stop or prevent fraud before it is attempted; that is, to turn aside or discourage even the attempt at fraud through, for example, card activation programs. The second stage of the fraud management lifecycle, prevention, involves actions and activities to prevent fraud from occurring. In detection, the third stage, actions and activities, such as statistical monitoring programs are used to identify and locate fraud prior to, during, and subsequent to the completion of the fraudulent activity. The intent of detection is to uncover or reveal the presence of fraud or a fraud attempt.

The goal of mitigation, stage four, is to stop losses from occurring or continuing to occur and/or to hinder a fraudster from continuing or completing the fraudulent activity, by blocking an account, for example. In the next stage, analysis, losses that occurred despite deterrence, detection, and prevention activities are identified and studied to determine the factors of the loss situation, using methods such as root cause analysis. The sixth stage of the Fraud Management Lifecycle, policy, is characterized by activities to create, evaluate, communicate, and assist in the deployment of policies to reduce the incidence of fraud. Balancing prudent fraud reduction policies with resource constraints and effective management of legitimate customer activity is also part of this stage. Many large and medium sized organizations have recently incorporated risk management functions to help identify and address fraud. These functions have devoted significant efforts and resources to address internal, financial risk, environmental risk, political risk, economic risk and Commercial risks. Even so, companies that are growing in size and complexity and implementing multiple technology-based systems are at risk of fraud. Financial institutions' top management has delegated detailed supervision to middle management and operational clerks. Internal risk management systems are losing ground to highly-networked, sophisticated fraudsters (PwC, 2011).

The global economic crime survey, a publication of the PricewaterhouseCoopers (PwC, 2011) report that Kenya has the highest incidences of fraud in the world, based on a global ranking of 78 countries surveyed. Kenya's reported lowest ranking is way ahead other more developed economies like South Africa, UK, New Zealand, Spain and Australia. Further statistics indicate that 66 per cent of organizations surveyed in Kenya were victims of economic crime during the year 2011. This statistic is nearly double the global average of 34 per cent and significantly higher than the fraud incidence average in Africa of 57 per cent. In 2009, Kenya ranked second after South Africa with 57 per cent reported incidence of economic crime. Global

economic crime survey 2018, states that three-quarters of Kenyan respondents reported having experienced at least one form of economic crime in the past two years. This figure is higher than the global average of 49% and the African average of 62%, it also marks a 23% increase from Kenya's 2016 figure. In addition, 37% of the respondents stated that the most disruptive economic crime over the past two years cost them at least USD100, 000. In an already challenging economic environment, losses attributable to economic crime continue to prove a challenge for Kenyan organizations. PwC's 2018 Global Economic Crime and fraud survey found that 49% of the global organizations say they've experienced economic crime in the past two years. It states that fraud hides in the shadows; one of the most powerful weapons in a fraudster's armory is a lack of awareness within the organizations. The report states that it's time for all businesses to recognize the true nature of the threat: not as just a nuisance or cost of doing business, but a shadow industry with tentacles in every country, sector and function.

### **Statement of the Problem**

Fraud is a global problem that mostly affects financial institutions (ACFE 2017). It can be estimated that jointly, commercial banks lose approximately Kshs. 20.9 Billion to fraud annually. Kenya's banking industry has become a soft target for fraudsters who have been getting away with colossal amounts of cash every month. According to a forensic report prepared by Deloitte Kenya 2018, banking fraud in Kenya is estimated to have tripled to Kshs. 3 billion in 2017. During the same period banks were defrauded an average amount of Kshs. 246 million a month with almost half of the total amount lost during the year not yet recovered. Fraud is one of the single most problematic factors for doing business in Kenya hindering her competitiveness in the Global Market. Global statistics point that the fraud risk is on the rise hence the need to evaluate the effect of fraud risk prevention strategies on fraud occurrence.

### **Study Objective**

To investigate the effect of fraud risk prevention strategies on fraud occurrence among large and medium sized commercial banks in Kenya.

### **Significance of the Study**

This study could be of help to the government as it seeks to leverage on regulation to grow the financial services sector and enhance financial access and inclusion. In addition, the study would help banks in fraud risk management and in the development of policies to reduce operational risk within the banking sector.

## LITERATURE REVIEW

### Fraud Triangle Theory

Fraud Triangle theory was propounded by Cressey who hypothesized that three influencing factors are necessary for fraud to occur: perceived pressure, opportunity and rationalization. This triumvirate constitutes his fraud triangle as set out in Figure 2.1. Kiragu, Wanjau, Mouni & Kanali (2013) used a similar theory effect of bank growth on occupational fraud risk in commercial banks in Kenya.

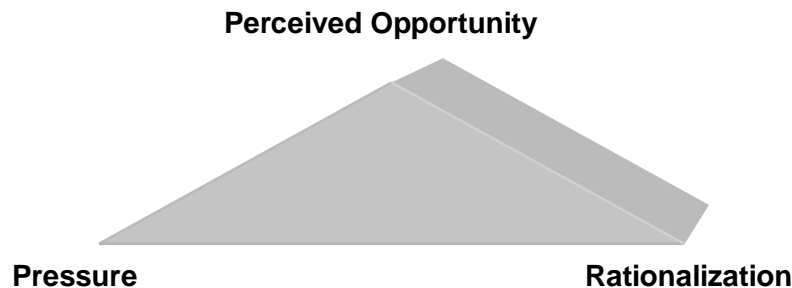


Figure 1: Fraud Triangle

Source: Wells, 2014

Associations of Certified Fraud Examiners (ACFE) 2016 assert that to commit fraud an ordinarily person must be present with three factors: pressure, opportunity and rationalization. Vona (2008) argues that each element should be identified. This is because at least one of them has the strength to make the defrauder commit the act and make him or her not worry about detection. Cressey catalogued six types of “nonshareable” problems that provoke fraud: inability to pay debts, problems resulting from personal failure, business reversals, physical isolation, status gaining, and employer employee relations. Individuals rationalized their crimes as noncriminal, justified, or as part of an environment over which the offender had no control. The opportunities for fraud are always myriad, though the lack of internal controls over funds is a chief factor. Removing temptation remains the best deterrent of all.

### Fraud Prevention and Fraud Occurrence

Fraud remains a sensitive issue across every sector of business, whether public or private businesses. As a result, a considerable proportion of businesses are vulnerable to fraud and misconduct. Hence, it is critical to rather prevent fraud than to nurse the effects of fraud. It is thus vital to an organization large or small to have a fraud prevention plan. ACFE, (2014) reveals that the fraudulent activities studied lasted an average of 18 months before being detected. Within that long period a company could suffer a lot with an employee committing

fraud. Luckily there are ways you can minimize fraud occurrences by implementing different procedures and policies. Rahman and Anwar (2014) contend that although there is a dire need to eliminate fraud, there is no ultimate solution to fraud. This notwithstanding, it is imperative that a number of different methods and techniques should be simultaneously used or integrated to help to combat fraud. Lowers (2014) affirms that potential employees with high probability to committing fraud should be eliminated during the recruitment process. He also asserts that employees who are leaving an organization might have valuable information that can be used to combat fraud hence the need to conduct an exit interview. The challenge that employers have is to encourage them to speak of fraudulent activities or potential occurrence.

Stephen, (2014) states that knowing; observing and listening to the employees can help to identify potential fraud risk. It is important for the management to be involved with their employees and take time to get to know them. Often, an attitude change can clue you in to a risk. This can also reveal internal issues that need to be addressed. Any attitude change should cause you to pay close attention to that employee. It is therefore imperative for the employer to know their employees and engage them in conversation. He further affirms that making employees aware/ and by setting up reporting system can prevent or minimize incidences of fraud. Awareness affects all employees in the organization and therefore everyone in the organization should be aware of the fraud risk policy including types of fraud and the consequences associated with them. Also a company should not be impressed by employees who haven't missed a day of work in years. While this might sound like loyal employees, it could be a sign that these employees have something to hide and are worried that someone will detect their fraud if they were out of office for a period of time. It is also a good idea to rotate employees to various jobs within the company. This may reveal fraudulent activity as it allows a second employee to review the activities of the other employees. It's therefore important to monitor vacation or leave balances for all employees.

Another potential red flag that fraudulent employee activities may be taking place in your company is to be on the lookout for employees who appear to be living beyond their means. Since you know the salaries that you are paying your employees, be on the lookout for the following items; employees taking extravagant vacations, buying very expensive automobiles, wearing expensive and excessive jewellery, paying for elaborate weddings for their children. Any one of these do not necessarily mean fraud is occurring, but it should cause you to ask yourself, does the life style they are living make sense based on what you know about your employees?. The annual Fraud Indicator 2017 and The Office for National Statistics (ONS) 2017 indicates that employees who are defensive and appear to be disgruntled and/or disengaged can be another potential red flag that fraudulent employee activities may be taking

place in the company. Perhaps they were passed over for a promotion or thought they deserved a bigger raise. They may be committing fraud as a way of getting revenge and their defensive attitudes may indicate a sign of guilt

Implementing internal controls is another technique of preventing fraud occurrence, ACFE (2014). Internal controls are the plans and / or programs implemented to safeguard the company's assets, ensure the integrity of its accounting records and deter and detect fraud and theft. Segregation of duties is an important component of internal control that can reduce the risk of fraud from occurring. To be effective internal control programs should be monitored and revised on a consistent basis to ensure they are effective and current with technological and other advances. Hiring of experts is another way for fraud prevention especially where an internal control process or fraud prevention program is not in place. Professionals with experience in this area will help analyze the company's policies and procedures, recommend appropriate programs and assist in implementation. A company can hire experts such as, Certified Fraud Examiners (CFE), Certified Public accountants (CPA) and CPAs who are certified in Financial Forensics (CFF) to help the company in establishing anti-fraud policies and procedures. Thus fraud policy is a useful preventative measure against fraud. The policy provides guidelines on how to prevent, detect and respond to fraudulent activities within an organization (Lowers, 2014).

Another way to help prevent fraud from taking place in an organization is to make sure that all checks, purchase orders and invoices are numbered sequentially. Question any that are out of sequence. Make sure all checks that are received are immediately stamped "For deposit only" on the endorsement line (Lowers, 2014). Fraud can also be prevented by use of password and password protection: Rahman and Anwar (2014) and Lowers (2014) assert that the use of passwords prevents unauthorized access to certain confidential information for non-privileged users. They postulate that internet has been invariably used as a trading platform by various companies across the globe, the use of password deter illegitimate users from gaining access to unauthorized information. Various companies' uses passwords creation criteria which helps to bar hackers, furthermore biometric passwords have also gained prominence that is the use of fingerprints, voiceprints, digital signatures etc (Rahman & Anwar, 2014). Finally, Corporate culture and a, positive work environments can prevent employee fraud and theft. There should be a clear organizational culture, written policies and procedures and fair employment practices. An open-door policy can also provide a great fraud prevention system as it gives employees open lines of communication with the management. Business owners and senior management should lead by example and hold every employee accountable for their action regardless of their position in the organization.



## Conceptual Framework

Cooper & Schindler (2011) define a conceptual framework as a set of broad ideas and principles taken from relevant fields of enquiry and used to structure a subsequent presentation. The scholars further reiterate that a conceptual framework is a hypothesized model identifying the model under study and the relationship between the dependent and the independent variables. Maengeli, Kiragu, & Kamau (2018) also used a similar technique of measuring the fraud occurrence on their study on the effect of Financial Misstatements and Corruption on Fraud Risk among State Corporations in Mombasa County in Kenya. Similarly, Kiragu et al (2015) used a measure for the dependent variable in their study on the effect of management control Systems on occupational fraud risk in commercial banks in Kenya.

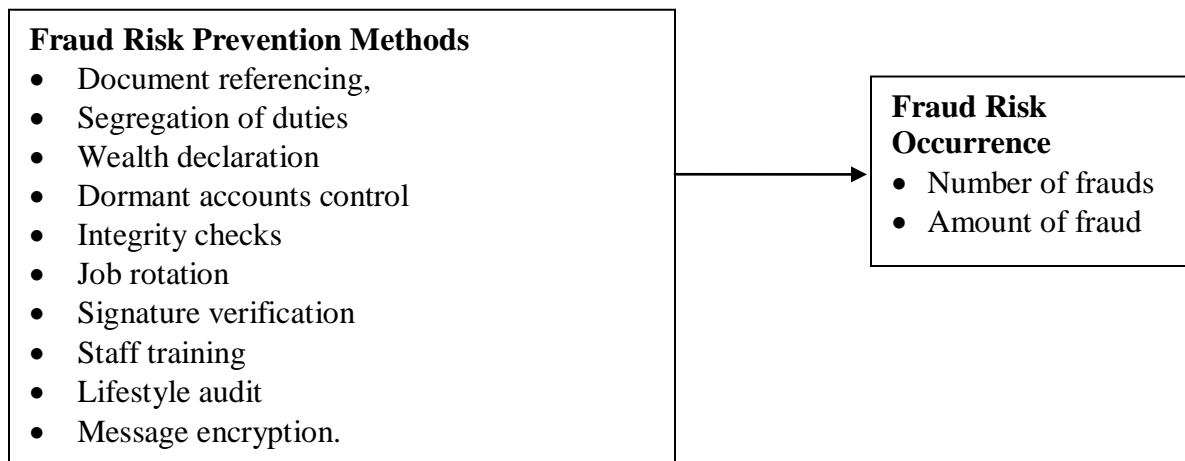


Figure 2: Conceptual Framework

## RESEARCH METHODOLOGY

According to Bryman (2012), research design is the arrangement of condition from collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. It is the logical manner in which individuals or other units are compared and analyzed and acts as the basis of making interpretations from the data. This study adopted a descriptive survey design. Descriptive survey is a method of collecting information by interviewing or administering a questionnaire to a sample of individuals (Orodho, 2003; Sekaran (2011). The target population of the study was 57 bank managers of the nineteen commercial banks (CBK, 2015). All of them had their head offices in the city of Nairobi. Since the numbers of banks are few, no sampling was done but instead a census study was done. Three managers of each commercial bank were used as the key respondents as they are the ones largely



involved in the management of the entire operation of the bank, that is, branch manager, operations manager and the risk management manager.

The study used a questionnaire to obtain primary data. Yang (2008) states that questionnaire contain statements meant to address the research questions and objectives. A pilot study was conducted to tests the validity and reliability of the data collection instrument. The results of the reliability test were produced and a Cronbach Alpha correlation coefficient of 0.893 was obtained. Sekaran (2003), recommended a Cronbach Alpha coefficient of 0.7 and above. Both construct and content validity were used; Saunders et al, 2013, Mugenda & Mugenda, 2003. The results for each study objective were presented using Table and Figures. Kiragu, Gikiri & Iminza (2015) used a similar method in their study on effect of banks size on occupational fraud risk in Kenya. Similarly, Kamande, Kiragu & Musumba (2018) used a similar methodology in their study on the drivers of computerized frauds in Commercial banks in Kenya. The results of the reliability test were produced and a Cronbach Alpha correlation coefficient was presented in Table 1.

Table 1: Reliability Test Results

| Variable                 | No. of Items | Cronbach Alpha ( $\alpha$ ) |
|--------------------------|--------------|-----------------------------|
| Fraud Prevention Methods | 8            | 0.893                       |

From the findings, fraud prevention methods had Cronbach Alpha ( $\alpha$ ) of 0.893. Sekaran (2003) recommended a Cronbach Alpha coefficient of 0.7 and above.

This data collection instrument met the benchmark for it to be relied upon. The collected data was organized, sorted, coded and input into SPSS software which was used to generate descriptive and inferential statistics used to make conclusions and generalizations. Ordinal logistic regression is a statistical technique that is used to predict behavior of ordinal dependent variables with a set of independent variables. In this study, a 5% level of significance was used and all the statistics were generated and interpreted. The logistic model used was in the form;

$$\text{Log} \left( \frac{\pi}{1 - \pi} \right) = \beta_0 + \beta_1 + \beta_2 + \beta_3 + \varepsilon$$

Where;  $\text{Log} \left( \frac{\pi}{1 - \pi} \right)$  is the Logit of the fraud occurrence for the specific antifraud occurrence strategy adopted by the commercial banks for each of the predictor, and  $\beta_i$  is the coefficient for each of the predictor variables. Before running the ordinal regression, some diagnostic tests were done. First, correlation among the variables was tested using correlation

coefficient ( $r$ ). In addition, Q-Q plots were used to assess the normality of the fraud occurrence among the large and medium size commercial banks.

## FINDINGS AND DISCUSSION

### Response Rate

The study was conducted in a total sample of 57 selected through random sampling technique. All respondents responded and this gave a response rate of 100.0%. According to Mugenda and Mugenda (2003) a response rate of 50% is adequate, 60% is good and 70% and above is very good. Therefore, 100.0% response rate in this study was very good and adequate for analysis.

### Respondents' Experience

The study sought to find out the work experience of the respondents with the aim of ascertaining the extent to which responses could be relied upon to make conclusions.

Table 1: Experience of Respondent

| Experience of Respondent | Frequency (n) | Percent (%)  |
|--------------------------|---------------|--------------|
| Between 1 and 5 years    | 21            | 36.8         |
| Between 5 and 10 Years   | 32            | 56.1         |
| Between 10 and 15 Years  | 4             | 7.0          |
| <b>Total</b>             | <b>57</b>     | <b>100.0</b> |

Table 1, shows that majority of the respondents had years of experience between 5 and 10 years. This clearly demonstrated that majority of the respondent had adequate experience in commercial banks. In this case, given that 63.1% of the total respondents had more than 5 years in service in the banking institutions, it is expected that the respondents had in-depth information regarding the anti-occupational fraud strategies used by large and medium size commercial bank in Kenya.

### Normality Test on the Dependent Variable

To further verify the above results a Q-Q test for normality was performed on the dependent variable (fraud occurrence) to determine normality; the output of normal Q-Q plot was used. For that data that are normally distributed, the data points will be close to the diagonal line (Thode, 2002). The results are presented in Figure 3.

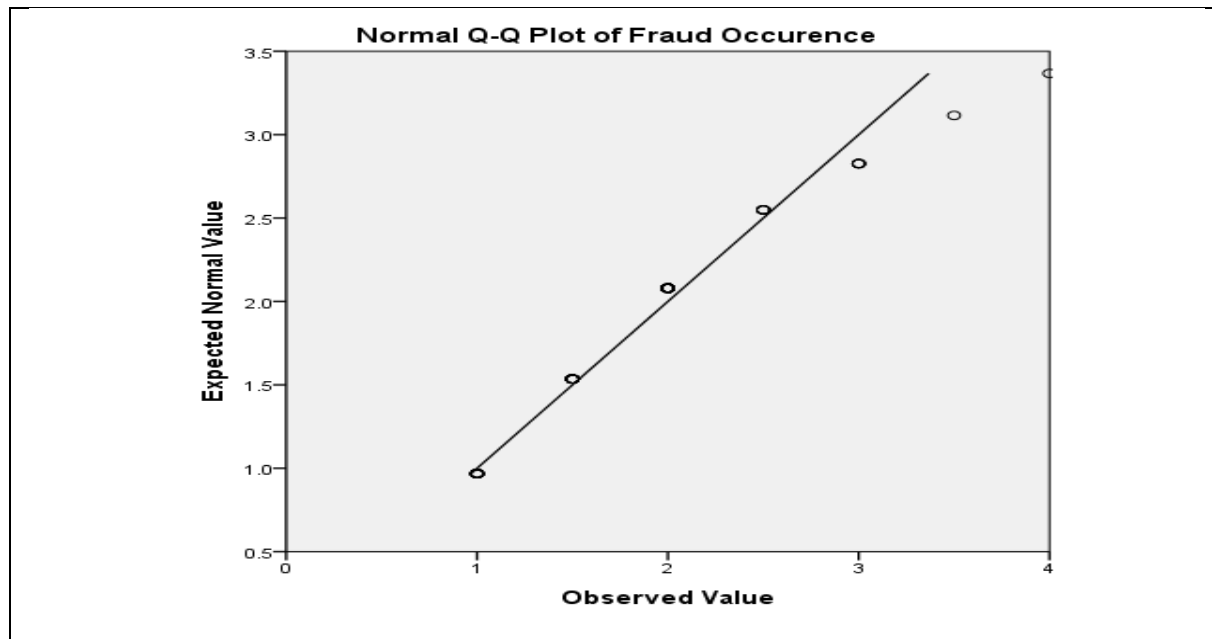


Figure 3: Normal Q-Q plot of the Dependent Variable

From the figure 3, the data plot shows a flow with a normal line therefore a high level of normality.

### Fraud Risk Prevention Methods and Fraud Occurrence

The objective of the study sought to find out the effect of fraud risk prevention methods among large and medium size commercial banks in Kenya on fraud occurrence. In testing influence of fraud risk prevention on fraud occurrence it was deemed necessary to compute the mean of the parameters of fraud risk detection as this would help establish a weighted value of fraud risk prevention as shown in Table 2. Ordinal logistic regression analysis was then generated to show the relationship of fraud risk prevention on fraud occurrence as shown on Table 2.

Table 2: Fraud Risk Prevention Factors

| Fraud Risk Prevention Methods     | N  | Mean | Std. Error | Std. Dev |
|-----------------------------------|----|------|------------|----------|
| Referencing of documents of value | 57 | 4.30 | .115       | .865     |
| Segregation of duties             | 57 | 4.12 | .109       | .825     |
| Wealth Declaration & Investments  | 57 | 4.12 | .109       | .825     |
| Control over dormant accounts     | 57 | 4.12 | .109       | .825     |
| Integrity check on hiring         | 57 | 3.25 | .098       | .739     |
| Job Rotation in branches          | 57 | 3.02 | .126       | .954     |
| Verification of signatures        | 57 | 3.02 | .126       | .954     |

| <b>Fraud Risk Prevention Methods</b> | <b>N</b> | <b>Mean</b> | <b>Std. Error</b> | <b>Std. Dev</b> |
|--------------------------------------|----------|-------------|-------------------|-----------------|
| Job rotation within Branch           | 57       | 2.81        | .151              | 1.141           |
| Staff training on Hiring –AFM        | 57       | 2.81        | .151              | 1.141           |
| Cross referencing of documents       | 57       | 2.81        | .151              | 1.141           |
| Lifestyle watch                      | 57       | 2.19        | .105              | .789            |
| Coding/Decoding messages             | 57       | 1.96        | .090              | .680            |

From Table 2, referencing of documents of value, segregation of duties, wealth declaration & investments and control over dormant accounts were highly rated fraud risk prevention methods with a mean score above 4.00. Integrity check on hiring had a mean score of 3.25. Job rotation in branches and verification of signatures had a mean score of 3.02. Job rotation within branch, staff training on hiring – AFM and cross referencing of documents had a mean score of 2.81. Lifestyle watch had a mean score of 2.19 while coding/decoding messages had a mean score of 1.96. The finding of the study that referencing of documents of value, segregation of duties, wealth declaration & investments, control over dormant accounts, integrity check on hiring, job rotation in branches, verification of signatures and staff training on hiring were highly rated fraud risk prevention methods asserts earlier finding by Ekechi (2010) who stated that measures aimed at fraud prevention include dual control, operational manual, graduated limits of authority, lending units, reporting systems, close circuit television, establishment of inspectorate units, referencing on presentation of document of value, segregation of duties, verification of signatures, controls of dormant accounts, detection of passport sized photos, close watch on the lifestyle of staff and coding/decoding and testing of telex messages. Ojeigbede (2010), also noted that measures aimed at fraud detection include checking of cashiers, call-over, reconciliation and balancing of accounts at branches, interbank at head office levels, periodical submission of statement of accounts, stock taking of security items and cash in the vaults and inspection by bank inspectors.

According to Dyson & McKenzie (2006), educating retailers and particularly sales staff about the ways in which fraud may be perpetrated has also been effective, although care is needed to ensure that staffs are not alerted to ways in which they may act dishonestly themselves. Sims & Sims (2005), noted that in addition to having detailed job application forms and checking references with named as well as independent referees, managers should be trained in interviewing skills in order to ensure that dishonest conduct in a potential employee's past may be identified and an assessment made as to whether or not dishonest behavior is likely to occur in the future.

Table 3: Model Fitting Information of Fraud Risk Prevention

| Model          | -2 Log Likelihood | Chi-Square | Df | Sig. |
|----------------|-------------------|------------|----|------|
| Intercept Only | 21.885            |            |    |      |
| Final          | 14.003            | 7.882      | 1  | .005 |

Link function: Logit.

From the model fitting information results above, chi-square statistic test has p value 0.135. This is an indication that fraud risk prevention has a statistically insignificant effect on fraud occurrence with the chi-square statistic of 7.882 at p value  $0.005 < 0.05$ .

Table 4: Parameter Estimates for Fraud Risk Prevention

| Fraud Risk Prevention |                   | Estimate | Std. Error | Wald  | df | Sig. |
|-----------------------|-------------------|----------|------------|-------|----|------|
| Threshold             | [FOccurrence = 1] | -2.591   | .852       | 9.257 | 1  | .002 |
| Location              | Prevention        | -.703    | .268       | 6.871 | 1  | .009 |

From the parameter estimates Table 4 above, at 95% confidence interval, fraud risk prevention was found to have negative and statistically significant effect on fraud occurrence at estimate coefficient of -0.703 with an associated p-value of  $0.009 < 0.05$ . This implies that when fraud risk prevention is increased by one unit, fraud occurrence reduces by 0.703. Therefore the above analysis take the model of fraud occurrence =  $-2.591 - 0.703X_1 + \epsilon$ . This implies that fraud risk prevention was the main factor that can reduce fraud occurrence significantly. According to Olatunji (2009), insiders frauds in the bank involves falsification of some kind, lying, exceeding authority, violation of employer's policies, embezzlement of company's funds, usually in form of cash or other assets. Webb (2006), stated that informing the public of the need to protect PINs and passwords which are used in conjunction with card-based transactions is a simple and effective strategy which can have highly beneficial results. They noted that in the United Kingdom, one particularly effective plastic card fraud prevention strategy involved a high profile publicity and education campaign by the Association for Payment Clearing Services to raise public awareness of the problem and to encourage card holders to take more care of their cards which was highly successful in reducing plastic card fraud.

Nestor Inc. (2006) opined that employment practices such as regular training, supervision and job rotation assist in fraud minimization. Having separate control systems in place, such as for purchasing and payment, has also been found to be effective. Nestor Inc. noted that a number of organizations are now using so-called neural networks in the prevention

of electronic funds transfer fraud. According to Nestor Inc. (2006), software has been devised to analyze plastic cardholder spending patterns in order to alert individuals to the presence of unauthorized transactions, and also merchant deposit monitoring techniques to detect claiming patterns of corrupt merchants. Software has also been created which will maintain records of lost cards, stolen cards, counterfeit cards, fraudulent applications, and cards never received mail order, phone order and catalogue sales as well as merchant fraud.

## **CONCLUSIONS AND RECOMMENDATIONS**

The main objective of the study was to investigate the effect of fraud risk prevention methods among large and medium size commercial banks in Kenya. The study revealed that referencing of documents of value, segregation of duties, wealth declaration & investments and control over dormant accounts were the major fraud risk prevention methods used to address fraud occurrence among large and medium size commercial banks in Kenya. In addition, Integrity check on hiring, job rotation in branches, verification of signatures, Job rotation within branch, staff training on hiring and cross referencing of documents were aspects considered to address fraud occurrence. The study further revealed that commercial banks in Kenya are reluctant to notify police on issues relating to fraud. Ordinal logistic regression analysis revealed that at 95% confidence interval, fraud risk prevention methods had negative and statistically significant effect on fraud occurrence. This implies that fraud risk prevention strategies can reduce the fraud occurrence in commercial banks in Kenya significantly. Therefore the study recommend that commercial banks should develop policies of referencing of documents of value, segregation of duties, wealth declaration & investments and control over dormant accounts, integrity check on hiring, job rotation in branches, verification of signatures, Job rotation within branch, staff training on hiring and cross referencing of documents with the aim of reducing fraud occurrence among large and medium size commercial banks in Kenya.

## **AREAS FOR FURTHER RESEARCH**

Arising from this study, the researcher recommends a case study should be carried out to compare the findings in different SACCOs and Micro Finance Institutions to establish whether the finding can be generalized to financial Institutions. This study considered fraud prevention strategies future researchers should focus on other types of composition variables that affect fraud occurrence among large and medium size commercial banks in Kenya such as fraud risk detection strategies and fraud reporting strategies.

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