AN INVESTIGATION OF THE EFFECT OF FRAUD RISK MANAGEMENT PRACTICES ON FRAUD RISK IN COMMERCIAL BANKS IN KENYA

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2012

DECLARATION

This research project is my original work and has not been presented for a degree in any other University.

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Lucy Waigumo Gikiri

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This research project has been submitted for examination with my approval as University Supervisor.

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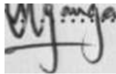
Signature:.  Date:

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DEDICATION

1 dedicate this research project to my parents Mr. & Mrs. Joseph Wilson Gikiri for their sacrifice to educate me while still young. My husband David cannot go unmentioned due to his serious support in this whole journey.

ACKNOWLEDGEMENT

1 take immense pleasure in thanking Mr. James Ng'ang'a for his tireless guidance; availability, input, support and reviewing my work which has jointly enabled me write this study. I will always remember his able guidance and useful suggestions, which helped me in making this document worthwhile. Needless to mention, other lecturers have been a source of inspiration especially during the period of doing the coursework.

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LIST OF ABREVIATIONS

ACFE	Association of Certified Fraud Examiners
ATM	Automated Teller Machine
CBK	Central Bank of Kenya
CEO	Chief Executive Officer
FDI	Foreign Direct Investment
FR	Fraud Risk
FRMP	Fraud Risk Management Practices
GOK	Government of Kenya
IT	Information Technology
MTP	Medium Term Plan
NACD	National Association of Corporations
NSE	Nairobi Securities Exchange
PWC	Pri ce WaterhouseCoopers
SIC	Standard Industrial Classification
SPSS	Statistical Package Program for Social Sciences
UK	United Kingdom
USA	United States of America

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ABSTRACT

This study sought to determine the influence of fraud risk management practices in commercial banks and their effect on fraud risk exposure. The main objective was to find the combined effect of fraud risk management practices; fraud prevention and fraud detection on fraud risk incidence in Commercial banks in Kenya. This study adopted a descriptive survey design. The target population was all the 43 Commercial banks operating in Kenya while stratified random sampling was used to determine the sample from which data was collected.

Due to the sensitivity of the subject matter and the confidentiality nature of the banking information, convenience sampling method was used in arriving at the respondents from thirty sampled commercial banks. The study used a questionnaire and interview to obtain primary data. The collected data was organised, sorted, coded and input into SPSS software which was used to generate statistics and used to make conclusions and generalizations. Descriptive statistical methods and frequencies were employed to analyze the data. The results of the study found that Kenyan commercial banks were applying several fraud risk detection methods and prevention methods to control existing fraud risks. It was found that real time gross settlement related fraud risk was happening with a very high extent. Unapproved loans were also found to be contributing to fraud risk with a high extent. Other areas with moderate, high to very high occurrence were cheque kitting, account opening, computer fraud and credit cards. The fraud risks with small occurrence or none at all were; fund diversion, cheque kitting, account opening, counterfeit securities, money transfer, letters of credit, computer fraud, credit cards, debit cards and waiver of interest.

The regression analysis found that the fraud detection methods and prevention methods led to a negative change in fraud types and vice versa. In terms of p-value, both independent variables are not significant in influencing fraud risk types and hence not significant in explaining fraud risk management among Kenyan commercial banks. Information sharing on fraud matters should be encouraged. There have been instances where banks have suffered loss from the same group of fraudsters due to poor information sharing mechanisms. The commercial banks in Kenya should approach the issue of fraud risk as a sector and not as individual banks.

CHAPTER ONE

INTRODUCTION

1.1 Background

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. Eseoghene (2011) 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. Fraud, which literaly means 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. 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, 2010).

1.1.1 Fraud in Kenya

Association of Certified Fraud Examiners (2011) defines fraud as "any illegal acts characterized by deceit, concealment or violation of trust. These acts are not dependent on the application of threat of violence or of physical force". Frauds are perpetrated by individuals

and organizations to obtain money, property or services; to avoid payment or loss of services; or to secure personal or business advantage.

The global economic crime survey, a publication of the PricewaterhouseCoopers(PwC, 201 \) report that Kenya has the highest incidences of fraud in the world, based on a global ranking of 78 countries surveyed. Kenya'sreported lowest ranking is way ahead other more developed economies like South Africa, UK, New Zealand, Spain and Australia. Further statistics indicate that66 per cent of organisations 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.

PwC reported that from the survey, the direct costs of crimes are difficult to gauge. Approximately 70 per cent of the 4000 responses from senior executives in the 78 countries estimate the loss at Shl0million,25 per cent lost between ShlO Million and Sh 500 Million while 3 per cent of the respondents stated more than half a billion shillings through economic crimes. In terms of frequency of fraud, "white collar theft" or asset misappropriation is cited as the most common type of economic crime in Kenya, followed by accounting fraud, corruption and money laundering. Cybercrime originating from Africa is cited as a worrisome trend, and it is ranked as one of the top crimes in Kenya. "The perception of cybercrime as a predominantly external threat is changing and organizations are now recognizing the risk of cybercrime coming from inside as well" (PWC, 2011). Banks in Kenya lost a staggering Kshs 1.7bn in the three months August to October 2010. Commercial banks lost Kshs 761m in the first six months of 2010 through fraud, according to the Central Bank of Kenya (CBK. 2010).

Many medium and large-sized organisations 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 Government of Kenya earmarked the banking sector as one of the key pillars to the achievement of vision 2030. Vision 2030 is a longer term strategy to achieve sustainable growth by the year 2030 through increased savings, encourage Foreign Direct Investment (FDI), safeguard the economy from external shocks as well as propel Kenya to become a leading financial centre in Eastern and Southern Africa. Within the Medium Term Plan (2008-2012) under vision 2030, some of the target areas include development of a safe and reliable payments system that will ensure smooth transfer and settlement of funds between customers and banks as well as between banks. Towards this end, the use of mobile phone networks, internet and payment cards, operational resilience and security will be pursued in order to increase trust, integrity and confidence in the ICT based payment systems (GOK, 2008).

Banking industry in Kenya is governed by the Companies Act, the Banking Act, the Central Bank of Kenya Act and other various prudential guidelines issued by the Central Bank of Kenya (CBK). All of the policies and regulations that administer the entire banking industry centers in lifting the controls towards the management and equitable services (PwC, 2008).

As at June 30, 2012, the Kenyan banking sector comprised of 43 commercial banks, 1 mortgage finance company, 6 deposit taking microfinance institutions, 2 credit reference bureaus, 3 representative offices and 124 foreign exchange bureaus (CBK, 2011). The banking supervision report of the banking sectors indicate that the sector recorded improved performance as indicated by the size of assets which stood at Ksh. 1.9 trillion, loans and advances of Ksh. 1.1 trillion, deposits of Ksh. 1.4 trillion and profit before tax of Ksh. 40.8 billion as at 30th June 2011 (CBK, 2011). Additional indicators of banking sector performance : the number of bank customer deposit accounts stood at 12.8 million, branch network of 1,102, bank loan accounts, 2.1 million and the number of Agent banking providers, 6,513(CBK, 2011).

1.2 Problem Statement

Academic literature indicate that effective risk management framework is one that is adequate to support business competitiveness in a volatile global financial arena coupled with enormous and ever rising financial innovations, technological developments, erratic economic, social and demographic environments. These developments have the unwelcome effect of increasing the exposure to operational risks; specifically fraud risk.

The 2010 economic crime survey conducted by PwC indicates that incidences of fraud have soared sharply compared to previous years and fraud affects all sectors of the Kenyan economy. More than 90% of respondents said that their organisations have been hit by fraud. Banks in Kenya lost a staggering Kshs 1.7bn in the three months August to October 2010. Commercial banks lost Kshs 761m in the first six months of 2010 through fraud, according to the Central Bank of Kenya. Many medium and large-sized organisations have recently incorporated risk management functions to help identify and address fraud. These functions have devoted significant effort and resources to address internal, financial, environmental, political, economic and commercial risks. Even so, companies that are growing in size and complexity and implementing multiple technology-based systems are at risk of fraud. At some financial institutions, lop 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)

In Kenya, the Central Bank of Kenya (CBK) issued risk management guidelines in the year 2005 that were implemented over a period of five years (2005 - 2010). The risk management guidelines translated to significant improvement in institutionalisation of risk management by commercial banks. Despite the significant compliance with CBK regulation, risk management survey (2011) report an alarming 95% rate of concern over the exposure of commercial banks to operational risk,(human error, system failures, inadequate procedures and controls, inadequate information systems, technology failures, breaches of internal controls, fraud and unforeseen catastrophes). In addition to risks associated with corporate governance,

outsourcing, leasing and online banking, commercial banks further rate risk surrounding fraud as among the emerging issues that need to be addressed as it continue to threaten the reputation of commercial banks and further harm the confidence of investors in Kenya.

Fraud risk is among the first three risks facing commercial banks in Eastern Africa and the most significant affecting governance and management in the region (PWC 2011). Fraud is one of the economic crimes in Kenya. Economic crime is the single most problematic factor for doing business in Kenya hindering her competitiveness in the Global Market (World Economic Forum (2011). Government of Kenya statistics) report an alarming annual 45% average increase in number of economic crimes (excluding corruption). Fraud risks continue to pose a great threat to Commercial banks role in supporting economic growth in Kenya. The recent global financial crisis along with the numerous corporate scandals, have highlighted the importance and urgency of preventing fraud and maintaining investor and consumer confidence.

Despite the importance of effectively managing fraud risk in supporting achievement of investor, organisational and National objectives, there is limited scholarly literature in Kenya to ascertain the effect of fraud risk management practices on fraud risk in commercial banks in Kenya. Majority of the studies have concentrated on risk prevention strategies and this study intends to have a departure from existing literature by carrying out a comprehensive study on the influence of management practices on fraud risk in commercial banks and address what Banks need to address to overcome the growing challenge of fraud reduction. Despite Banks investing millions in fraud control, prevention and fraud detection, it still remains one of the biggest challenges in the industry. This study will add value to existing literature by providing empirical measures that Banks can take to improve on their fraud deterrence. Despite having a highly developed financial sector there is limited literature in the area of fraud risk management.

This study sought to determine the influence of fraud risk management practices in commercial banks and their effect on fraud risk exposure. This will contribute in adding valuable information to guide regulators of the financial sector which has been identified as a

key growth enabler under vision 2030 blueprint and hence the need for the sustainability of its reputation among investors and government. In addition, fraud risk management drivers need to be identified to effectively guide how commercial banks, govern, identify, assess, measure, report and monitor risks related to fraud and further bench mark them with international best practice in order to strengthen this important sector.

1.3 Objectives

i. To investigate the influence of fraud risk detection methods on fraud risk in Commercial banks in Kenya

ii. To find out the effect of fraud risk prevention methods on fraud risk in Commercial banks in Kenya.

iii. To find the combined effect of fraud risk management practices; fraud prevention and fraud detection on fraud risk incidence in Commercial banks in Kenya.

1.4. Importance of the Study

This study will 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 will help banks in fraud risk management and in the development of policies to reduce operational risk within the banking sector. Further, this study will be of invaluable benefits and usefulness to all categories of potential bank clients and users of financial services including existing and potential shareholders, creditors, debtors, fund providers in understanding the susceptibility to bank fraud and how to reduce the same. To the existing body of knowledge as it will develop insights of fraud reduction not only in the Commercial Banks but also the wider market players.

The impact of bank fraud on the operations of banks in Kenya and indeed the economy at large is of interest to researchers and industry practitioners. This study will serve as a stepping stone for new research in fraud risk management. Besides, researchers and students in the field of banking and finance who want to know more about frauds, its causes and possible ways of preventing it will also find the study beneficial.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews the definition and overview of fraud, provides an overview of fraud in the banking sector in Kenya, theoretical and empirical literature on fraud risk develops. The chapter also expounds the research gap in fraud risk prevention and detection.

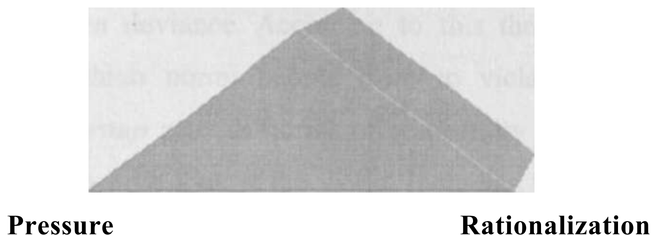
2.2 Theoretical Review

2.2.1 Fraud Triangle theory

Wells (2007) states that "In Other People's Money: A Study in the Social Psychology of Embezzlement", Cressey concluded that individuals commit fraud when three factors are present: (1) a financial need that cannot be shared, (2) a perceived opportunity for illicit gains, and (3) a personal rationalization of the act. Cressey reportedly asked offenders why they had not committed violations at other times and received three basic replies: "There was no need for it like there was this time"; "The idea never entered my head"; and "I thought it was dishonest then, but this time it did not seem dishonest at first." Cressey's ideas have become known as the Fraud Triangle:

Figure 2.1: Fraud Triangle

Perceived Opportunity



Pressure **Rationalization**

(Source: Wells, 2007)

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.

2.2.2 The Fraud Management Lifecycle Theory

According to Wesley (2004), fraud management lifecycle is, a network lifecycle where each node in the network, each stage in the lifecycle, is an aggregated entity that is made up of interrelated, interdependent, and independent actions, functions, and operations. These activities can, but do not necessarily, occur in a sequential or linear flow. The Fraud Management Lifecycle is made up of eight stages; deterrence, prevention, detection, mitigation, analysis, policy, investigation and prosecution. This theory suggests that the last stage, prosecution, is the culmination of all the successes and failures in the Fraud Management Lifecycle. There are failures because the fraud was successful and successes because the fraud was detected, a suspect was identified, apprehended, and charges filed. The prosecution stage includes asset recovery, criminal restitution, and conviction with its attendant deterrent value (Wesley, 2004).The interrelationships among each of the stages or nodes in the Fraud Management Network are the building blocks of the Fraud Management Lifecycle Theory.

2.2.3 Differential Association Theory

Edwin Sutherland (1947) coined the phrase differential association to address the issue of how people *learn* deviance. According to this theory, the environment plays a major role in deciding which norms people learn to violate. Specifically, people within a particular *reference group* provide norms of conformity and deviance, and thus heavily influence the way other people look at the world, including how they rcact. People also learn their norms from various socializing agents—parents, teachers, ministers, family, friends, co-workers, and

the media. In short, people learn criminal behavior, like other behaviors, from their interactions with others, especially in intimate groups.

The differential-association theory applies to many types of deviant behavior. For example, juvenile gangs provide an environment in which young people learn to become criminals. These gangs define themselves as countercultural and glorify violence, retaliation, and crime as means to achieving social status. Gang members learn to be deviant as they embrace and conform to their gang's norms.

Differential-association theory has contributed to the field of criminology in its focus on the developmental nature of criminality. People learn deviance from the people with whom they associate. Critics of the differential-association theory, on the other hand, claim the vagueness of the theory's terminology does not lend itself to social science research methods or empirical validation. Sutherland's work focused on business crime. In *White-Collar Crime,* published in 1949, he examined crimes committed by members of 70 of the largest U.S. corporations. All had at least one criminal or civil decision against them, and most of the corporations had committed multiple offenses. Sutherland charged that 97% of the corporations were recidivist offenders.

2.3 Empirical Review

2.3.1 Empirical Studies on Fraud

Several studies have been conducted on the subject of Fraud by different scholars. For example,Beasley, Carcello, Hermanson&Lapides (2000) examined the differences in corporate governance mechanisms between organizations that were guilty of financial reporting fraud and those that were not. Unlike previous researchers, Beasley et al. segmented the organizations by industry concentrations, technology, healthcare, and financial services. Beasley et al. used allegations made by the Securities and Exchange Commission (SEC) during the period 1987 to 1997 of fraudulent financial reporting to establish fraud organizations and data from the National Association of Corporations (NACD) to match the fraud organizations and establish a no fraud company comparison base. Beasley et al.'s

findings indicated that organizations found guilty of financial reporting fraud, had less independent boards, had fewer audit committees, the audit committees met less often, the audit committees were less independent , the boards and audit committees had less internal audit support.

In another study, Griffith. Fogelberg& Weeks (2002) examined management ownership and financial performance in 100 bank holding companies during the period 1995 to 1999. Griffith et al. used the financial indicators of economic value added, market value added, and Tobin's *q* to evaluate financial performance. The findings indicated that CEO ownership improved performance when ownership was less than 12% or over 67%. When financial ownership was in the midrange, performance decreased. Griffith et al. (2002) posited there were points at which CEO ownership interacted with personal wealth diversification leading to the choice of a less risk-tolerant position. Griffith et al. found the combination of the positions of CEO and chairman of the board of directors had no effect on financial performance. The finding differs from that of Beasley et al.'s (2000) who had found board independence and the separation of the CEO and chairman of the board positions significant.

Similaryly, Crutchley,Jensen& Marshall (2007) examined corporate governance characteristic at firms that suffered accounting frauds during the period 1990 to 2003. Fraud firms were matched to no fraud firms by Standard Industrial Classification (SIC) codes and markets values determined by book value to market value ratios. Crutchley et al. found that certain characteristics increased the likelihood of a firm being involved in an accounting scandal. The characteristics included, high levels of growth, engaging in earnings management techniques, audit committees composed of few outside directors, and overextended outside directors. In another study in Nigeria, Esoghene (2010) studied fraud in Nigeria, with the objective of determining the common types of bank fraud that are frequently carried out in the banking system, the underlying causes, level of staff involvement, consequences and possible means of ameliorating the problem.

On the common fraud in Nigeria, the analysis revealed that respondents did not view unofficial borrowing and foreign exchange malpractice as forms of bank fraud since they

were common and an industry wide practice. Regarding perpetrators, he found that there was an equal level of staff involvement in initiating and executing fraud, with the concealment of fraud coming last in their agenda. Also, among the factors hypothesized to encourage bank fraud; the major individual based factors were greed, infidelity and poverty, while organizational factors were inadequate staffing, poor internal controls, inadequate training and poor working conditions. In this study, respondents also viewed greed, lack of personal ethics and weak corporate governance as managerial factors that help propagate frauds in banks.

Several studies have been conducted in India too. One of the recent studies by Bindiya, Manishi&Navaratan (2011), using a desk study on the impact of information technology on Indian Banks. The objective of their study was to examine the applications of IT in the banking Industry. Bindiya et al (2011) found that advancement in technology to a means to enjoy economies of scale in production, development of new product and services, creation of knowledge, as well as to instill product quality and services efficiency to bank customers. India's banking sector has made rapid strides in reforming and aligning itself to the new competitive business environment.

The study revealed that although IT had increased competition within the industry on; latest trends of IT in banking, IT too had exposed the banks to IT application and system problems; Security of information systems making banks more vulnerable. In this study, IT Fraud was identified as one of the major problem of the banking industry with India and was highly as a result of increased adoption of information technology, inducing more process and product innovations. Bidiya et al (201 I) noted that the future of the banking industry in India will be a shift "conventional banking to convenience banking" and "mass banking to class banking. Financial institutions offering Internet-based products and services should have reliable and secure methods to authenticate their customers. The level of authentication used by the financial institution should be appropriate to the risks associated with those products and services.

2.3.2 Overview on fraud and classification

According to Boniface (2011), fraud is described as "any premeditated act of criminal deceit, trickery or falsification by a person or group of persons with the intention of altering facts in order to obtain undue personal monetary advantage". Frauds usually involve the perpetration of some forgery or falsification of documents or illegal authorization of signature (Ojo, 2008). It can be summarily concluded from the foregoing definitions that fraud arises when a person in a position of trust and responsibility digresses from agreed standards, breaks the rules to advance his personal interest at the expense of the interest of the public.

Fraud has been classified in various ways and using various parameters. Firstly, is the management fraud which is frequently committed by management staff of a reporting entity, which comprises the director, general managers, and managing directors to mention but a few. The category of victims of management frauds are investors and creditors, and the medium for perpetrating the fraud is financial statement. The predilection for management fraud in most cases is to pull in more investment from both existing and potential shareholders to the organization (Fakunle, 2006).

Deprivations are the two elements of fraud and management fraud meets the criteria. According to Ajisebutu (2006), the key elements of management frauds are: material false statement; Knowledge of its (statement) falsification; Reliance on the false statement by victim; and Damage suffered by victim and Though management fraud manifests itself through overstatement of assets or revenues, and understatement of liabilities and expenses, Association of Certified Fraud Examiners (ACFE) (2012) believes it is carried out through the under listed five methods: Fictitious Revenues; Timing Differences; Improper Asset Valuation; Concealed Liabilities and Expenses and Improper and /or inadequate Disclosure.Secondly are the insiders. These perpetrators are purely the employees of the banks. This is also known as non-management fraud and they are usually perpetrated by the employees of the Banks or organizations. It is the application of fraudulent means to obtain money or other property from the organization (Robertson, 2006).

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. Boniface (2011), indentifies some of the typical manifestations of employees frauds in the banks to include: Cash thefts from the tills by banks' staff; Forgeries of customer's signature with the intention of illegally withdrawing money from the account with the bank; Use of forged cheques to withdraw money from the customer's accounts: Opening and operating of fictitious account to which illegal transfers could be made and false balance credited; Lending to fictitious borrowers effected through fictitious account opened at a branch; Claiming of overtime for hours not worked; Suppression of cash / cheques. Fund Diversion: In this case, bank staff (for personal use), sometimes diverts customers' deposits and loan repayment.

Another case of this is the tapping of funds from interest in suspense accounts in the bank (Olatunji, 2009). Computer Fraud: This type of fraud takes the form of alteration of the programmes or application packages and even bursting into the system via remote sensors. Diskettes and flash drives can also be tinkered with to gain access to unauthorized domains or even give credit to accounts for which the funds were not ab initio intended. This kind of fraud can remain undetected for a long time (Olatunji, 2009).

Outsiders also these include customers and/or non- customers of the banks. These are frauds perpetrated by customers and non-customers of banks. The primary function of a commercial bank is to connect customers with capital deficit to customers with capital surplus in the financial market. In implementing this function, banks and bank workers come in contact with both customers and noncustomers, and this contact engenders the risk of fraud. According to Onkagba, (2003), as sited in Idowu,(2009), the most common methods of outsiders' fraud are: This may involve an agent approaching a bank, a company or individual with another to access large funds at below market interest rates often for long term. This purported source of funds is not specifically identified as the only way to have access to it is through the agent who must receive a commission "in advance". As soon as the agent collects the fee, he disappears and the facility never comes through. Any bank desperate for fund especially distressed banks and banks needing large funds to bid for foreign exchange can easily fall

victim of this type of fraud. When the deal fails and the fees paid in advance are lost, these victims are not likely to report the losses to the police or to the authorities.

2.3.3 Overv iew of Fraud in Kenyan Banking Sector

The recent publicity around fraud in Financial institutions like banks has raised many an eyebrow. Some organizations have suffered reputational damage as a consequence of the publicity. Fraudsters have scythed their way into sophisticated bank systems in a considerable fashion as evidenced by recent statistics from the Central Bank of Kenya (CBK). Kenyan banks had lost a staggering KShs 1.7bn in the three months August to October 2010. Commercial banks had lost KShs 761 million in the first six months of 2010 through fraud . Banks have reasonably sufficient (often in-house) response mechanisms to deal with non-electronic fraud (pwc, 2011). It is the increasing incidences of electronic fraud that are now a major concern for banks and other financial services institutions. CBK statistics reveal the worrying trend of electronic fund transfers (i.e., ETR, RTGS or Swift) as targets for fraud. The instantaneous and rapid nature of RTGS and similar electronic fund transfers makes such systems susceptible to fraud attacks. A confidential report from the Banking Fraud Investigation Department (BFID) at the CBK attributes most new fraud (especially electronic fraud) to bank staff working in complicity with third parties (usually staff in other banks or former banking staff).

According to financial services consulting firm, PWC, 2011 Kenyan financial institutions are reeling from increasing fraud cases. The firm estimates that last year alone, the country's banks lost $36 million in 2010, out of which $20.5 million was recovered. In the first-quarter of 2010, about $4.4 million was lost, with the second-quarter recording a higher figure of $4.6 million. In the third-quarter, $20 million was siphoned with $5.9 million disappearing in December alone.

Kenya's banking industry has become a soft target for fraudsters who have been getting away with colossal amounts of cash every month. Last December alone, nearly Sh500 million was reported stolen from 20 banks and 13 other financial institutions. Police think the amounts

reported reflect a small portion of the real losses suffered since banks sometimes prefer internal disciplinary measures in cases involving thieving employees. Fraud investigation reports show that of the cases taken to court in the course of last year, majority of the accused were freed for lack of evidence. In many instances, trials were terminated before hearing was complete (Banking Fraud Investigations Unit, 2011).

Many of the investigations uncovered inside jobs where employees colluded with criminals to fleece banks. Methods used to steal from banks include identity theft, electronic funds transfer systems, bad cheques, credit card fraud, loan fraud, forgery of documents and investment scandals. About 50 cases of fraud are reported every month going by the 2010 official crime statistics.

2.3.4 Fraud Prevention

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. 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 (Webb, 2006). There are also many other practical steps which card users can adopt to detect the possibility of fraud. Some danger signs, for example, include monthly bills not arriving on time, the amount shown on charge slips not corresponding with users' originals, sales assistants being unusually attentive of card details during transactions, renewal cards not arriving on time, double imprinting by cashiers, and sales staff misplacing cards (Grau, 2003).

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. Conducting close examinations of plastic cards to detect forgeries and looking out for suspicious customers have been recommended by both law enforcement and business organisations (Dyson &McKenzie 2006; Van Leeuwen. 2006). 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 behaviour is likely to occur in the future (Sims & Sims, 2005).

It is essential that personnel be regularly monitored in terms of their risk of behaving fraudulently. There are now extensive lists of "red flags" which are available to assist managers in isolating individuals most likely to be at risk of committing fraud which often include behavioural or social characteristics such as problems with addiction to alcohol or gambling or unusual working patterns. Long-term employees who have acquired considerable knowledge of an organisation's security procedures should also be monitored, particularly where work-related disputes develop or where redundancy may be a possibility (Australian Institute of Criminology, 2012).

Finally, 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. A number of organisations are now, for example, using so-called neural networks in the prevention of electronic funds transfer fraud. Software has been devised to analyse 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 (Nestor Inc, 2006).

One of the main strategies used to prevent debit and credit card fraud has been to lower floor limits (the transaction value at which authorisation is required from financial institutions before the card can be accepted). In Britain, the percentage of plastic card transactions which required authorisation increased from approximately 10 per cent in 2002 to close to 50 per cent in 2008. This strategy, along with the introduction of a national "Hot Card File", or

database of stolen cards, led to a 49 per cent reduction in point of sale fraud between 1991 and **1994** (Webb, 2009, p. 24).

A related authorization strategy which has been highly successful in preventing cheque fraud is the Positive Pay system provided by various banks. Businesses are able to provide their bank with electronic lists of cheques issued each day, which are immediately reconciled with cheques actually presented. Any forged or altered cheques will then be detected and payment stopped (Bank of America, 2006).

Centralised fraud reporting has also been important in reducing plastic card fraud. Cardlink Services Limited, for example, maintains extensive records of fraudulent credit card transactions which are used for prosecution purposes (Van Rhoda. 2011). The Australian Bankers Association is also establishing a system to share information relating to card-based fraud between various financial institutions in an attempt to identify suspect transactions and individuals. Biometric identifiers which make use of an individual's unique physical characteristics are the best way to establish identity. Common examples include fingerprints, voice patterns, typing patterns, retinal images, facial or hand geometry, subcutaneous vein structures and body odours (Johnson, 2006). One company, "Fingerscan", has supplied fingerprint identification systems to Woolworths in Australia and to a major Indonesian Banks, which have been used to replace password identification .Because these physical properties are generally impossible to counterfeit, they create a very high level of security.

The costs and volume of data required to be stored online to enable comparison for any potential user may, however, be prohibitive and there is always the possibility that computer security systems could be compromised by reproducing data streams which correspond with the biometric characteristics in question. An additional problem is that users must be required to provide samples of their characteristics and that the security of these samples could be compromised. Some people also find the process of providing personal information in public distasteful, which was one reason given for the reluctance of retailers to make use of a cheque fraud prevention initiative which required customers to leave their fingerprint on cheques before they would be accepted by retailers (Pidco, 2006).

Maintaining extensive databases of individuals is another way of being able to validate identities. However, this raises problems relating to privacy and security of the information which is held. In the United Kingdom, for example, a long and bitter struggle took place before a voluntary national system of identity cards could be introduced in conjunction with photo drivers' licences (Gill, 2007). In Australia in the early 2000s, a complex database was created by the federal government in an attempt to prevent taxation and social security fraud, by identifying individuals who have made claims for benefits from government fund to which they are not entitled. The Parallel Data-matching Program makes use of tax file numbers and permits income records to be compared with payment records held by various benefit providing departments.

The deterrent effects of criminal prosecution and punishment represent the final means of deterring fraud, although quantifying the extent to which they are successful is problematic, to say the least. In addition to conventional judicial punishments such as fines, restitution and compensation orders, forfeiture and disqualification, unsupervised release, supervised release (probation, community service, intensive corrections) and custodial orders, there are a variety of other consequences which may follow the detection of fraudulent conduct including adverse publicity, professional disciplinary sanctions, civil action, injunctive orders and, most recently, various forms of reconciliation or community conferencing (Van Rhoda, 2011).

Whilst many small-scale property offenders behave more or less impulsively, and are unlikely to be deterred by the possibility of a criminal sanction being imposed, white-collar offenders are much more likely to engage in rational calculation, making some assessment of the prospective benefits and costs of a given course of action. In these circumstances, the greater the perceived likelihood of conviction and the more severe the expected punishment, the less the inclination to offend. Individuals who are aware, for example, that their assets may be confiscated following a criminal conviction, may consider that the benefits to be derived from offending are not worthwhile (Van Rhoda, 2011).

35 Fraud Detection

• ay bank is to be aware of and identify the types of frauds prevalent in the society, /fag the international society, the causes and modalities of the frauds and the potentials retrospects of some of them occurring in the bank. This will be a function of volume, types . ..ncentration of the banks operations and the management control systems. There are the and external management controls.

ni management controls are carried out on the inside of the company while external y.6 are carried out on the outside. Internal management control is classified into two -groups: Internal Checks and Internal Audit. Internal checks are the operational controls, . ire built into the banking system to simplify the processing of entries in order to secure - a.services, to help in minimizing clerical errors and to act as insurance against collusion VxRhoda, 2011).

ri Audit on the other hand involves the review of operations and records undertaken : business by specifically assigned staff, which is usually the Internal Auditor. There - :c'e called external auditors too who examine the books of the bank to determine its -"i fairness. This kind of audit is mostly statutory in nature, which is called for by the - r'bgba 2003). The process of identification of frauds will enable the bank to access its - nihility and identify which types it has to address particularly. Having done so, the next - would be to evolve measures to prevent the occurrence of such frauds. The existing "•> systems can be classified into two, those aimed at prevention and those aimed at Nation.

-Kechi (2010) stated that measures aimed at fraud prevention include dual control, operational ^--al. graduated limits of authority, lending units, reporting systems, close circuit ^vision, establishment of inspectorate units, referencing on presentation of document of •aide, segregation of duties, verification of signatures, controls of dormant accounts, detection tf passport sized photos, close watch on the lifestyle of staff and coding/decoding and testing f telex messages. Measures aimed at fraud detection include checking of cashiers, call-over, reconciliation and balancing of accounts at branches, interbank at head office levels,

2.3.5 Fraud Detection

Every bank is to be aware of and identify the types of frauds prevalent in the society, including the international society, the causes and modalities of the frauds and the potentials and prospects of some of them occurring in the bank. This will be a function of volume, types and concentration of the banks operations and the management control systems. There are the internal and external management controls.

Internal management controls are carried out on the inside of the company while external controls are carried out on the outside. Internal management control is classified into two major groups: Internal Checks and Internal Audit. Internal checks are the operational controls, which are built into the banking system to simplify the processing of entries in order to secure prompt services, to help in minimizing clerical errors and to act as insurance against collusion (Van Rhoda, 2011).

Internal Audit on the other hand involves the review of operations and records undertaken within a business by specifically assigned staff, which is usually the Internal Auditor. There are people called external auditors too who examine the books of the bank to determine its truth and fairness. This kind of audit is mostly statutory in nature, which is called for by the law (Onkagba 2003). The process of identification of frauds will enable the bank to access its susceptibility and identify which types it has to address particularly. Having done so, the next stage would be to evolve measures to prevent the occurrence of such frauds. The existing control systems can be classified into two, those aimed at prevention and those aimed at detection.

Ekechi (2010) 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. 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 (Ojeigbede, 2010).

The Central Bank of Nigeria (CBN) as the supervisor and regulator of the banking systems is interested in ensuring that banks put in place comprehensive and effective internal control systems to minimize the incidence of frauds and whenever they occur to ensure that they are detected. From the point of view of supervisors, a good internal control system must have the following attributes: dual control, segregation and rotation of duties, an effective and independent inspection functions, clearly defined levels of authority and responsibility, existence of an efficient Audit Committee and adequate fidelity insurance cover. It is also the responsibility of the supervisor to determine banks' compliance with rules and regulations through exhaustive review of their internal audit reports. They ensure that appropriate steps are taken by the board and management of banks to address issues raised in the audit reports. It is also their duty to ensure that fraudulent bank directors and staff are sanctioned with such report being duly circulated among banks and also that banks take advantage of Risk Management System (credit bureau) to monitor fraudulent customers and accomplices (CBN, 2010). The supervisors are also to cooperate with the external auditors of banks to ensure that the internal audit programme of banks is comprehensive, adequate and effectively executed. The supervisors should also conduct an in-depth investigation into activities of a bank when put on enquiry. In order to enhance the ability of supervisors to carry out their responsibility effectively, they must be adequately trained and equipped with modem tools for supervision.

2.4 Literature Review Summary

This chapter has reviewed the theories of fraud poised by several scholars; fraud triangle theory, the fraud management life cycle theory and the differential association theory. Further, the chapter has reviewed the empirical literature on fraud in sequence as; empirical studies, overview of fraud and classification of fraud and overview of fraud with Kenya as the perspective. Finally the chapter has reviewed literature on Fraud prevention and fraud detection.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter identifies the methodology for conducting this research. The areas to be covered are research design, population, sampling, research instruments, pilot testing and data analysis.

3.2 Research Design

This study adopted a descriptive survey design. 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 analysed and acts as the basis of making interpretations from the data.

This was a descriptive study. Descriptive survey is a method of collecting inform?fion by interviewing or administering a questionnaire to a sample of individuals (Orodho, 2003). It can be used when collecting information about peoples' attitudes, opinions, habits or any other social issues.). Descriptive research is a description of the state of affairs as it exists (Orodho and Kombo, 2002). Sekaran (2011) concurs with Orodho and Kombo (2002) by asserting that descriptive study is undertaken in order to ascertain and be able to describe the characteristics of the variables of interest in a situation. Sekaran (2011) aver that descriptive study has several advantages like; it helps in understanding the characteristics of a group in a give situation, assists in systematic thinking about aspects in a given situation. It als« offers idea for further probe and research and helps in making certain simple decisions. Zikmund, Babin.Carr &Griffin (2010) say that descriptive research is to describe characteristics of objects, people, groups, organizations, or environments. In other words, descriptive research tries to "paint a picture" of a given situation by addressing who, what, when, where, and how questions.

3.3 Population

Kothari (2004) defines a population as all items in any field of inquiry and is also known as the universe. According to Mugenda&Mugenda (2003), a population refers to an entire group of individuals, events or objects having a common observable characteristic. In other words, population is the aggregate of all that conforms to a given specification (Mugenda, 2003). Sekaran (2011) refers to a population as the entire group of people, events or things of interest that the researcher wishes to investigate. For the purpose of this study, the target population was all employees of the 43 Commercial banks operating in Kenya (Appendix III) as at 31^{SI} December, 2010. According to CBK (2010), the total number of Commercial banks was 43 and have their head offices in the city of Nairobi. The study used population from this source since the Central Bank of Kenya is the sole regulator and licensing institution of Commercial banks in Kenya. When the population of the study is small and located in a narrow geographical area, the target population is closely comparable to the accessible population (Mugenda and Mugenda. 2003).

3.4 Sampling Frame

Lavrakas (2008) defines a sampling frame as a list of the target population from which the sample is selected. He goes further to state that for survey designs, a sampling frame usually consists of a finite population. Cooper & Schindler (2011) describes a sampling frame as a list of members of the research population from which a random sample may be drawn. For the purpose of this study, sampling frame consisted of the list of all the 43 licensed Commercial banks operating in Kenya as at December, 2011 as they appear in the Central Bank of Kenya database.

3.5 Sampling Design

A sample is a subset of the population; it comprises some members selected from it Kombo& Tromp (2009) also define a sample as a finite part of a statistical population whose properties are studied to gain information about the whole or universe. Stratified sampling and simple random sampling designs will be used in this study. Stratified sampling is a probability sampling design that first divides the population into meaningful non overlapping subsets, and then randomly chooses the subjects from each subset Sekaran (2011). Mugenda&Mugenda

(2003) state that the essence of stratification is to ensure inclusion, in the sample, of subgroup, which otherwise would be omitted entirely by other sampling methods because of their small numbers in the population. This study used stratified random sampling to determine the sample from which data was collected.

Due to the sensitivity of the subject matter and the confidentiality nature of the banking information, convenience sampling method was used in arriving at the respondents of 30 commercial banks. Mugenda&Mugenda (2003) state that when the population is small, 30 cases are statistically sufficient for the study. In this study, the target population is closely comparable to the accessible population in many characteristics; regulation, supervision , operating environment and location. The selected sample of commercial banks in indicated in Appendix III.

Table **3.1 Commercial banks classification by Market Share Index (MSI)**

Bank classification	Number of banks	Proportion taken
Large (MSI >5%)	6	4
Medium (MSI 1% - 5%)	15	10
Small (MSI <1%	22	16
Total	**43**	**30**

Source (CBK, 2012)

3.6 Data Collection

The study used a questionnaire and interview to obtain primary data. Cooper & Schindler (2011). Yang (2008) states that the questions in a study are directly related to the research questions. The questionnaire contained statements meant to address the research questions and objectives. A questionnaire is a pre-formulated written set of questions to which the respondents record the answers usually within rather closely delineated alternatives. Likert scale is an interval scale that specifically uses five anchors of strongly disagree, disagree, neutral, agree and strongly agree. The likert measures the level of agreement or disagreement. Likertscale is good in measuring perception, attitude, values and behaviour. The likert scale has scales that assist in converting the qualitative responses into quantitative values (Mugenda&Mugenda. 2003, Zikmund, Babin.Carr &Griffin, 2010). The questionnaires were

issued to a management and other employees in each of the thirty (30) commercial banks.. The selected employees were expected to be the most responsible for the fraud risk areas in the bank in the day to day operations of the bank.

3.7 Pilot Testing

A pilot test is an evaluation of the specific questions, format, question sequence and instructions prior to use in the main survey. Questions answered by the pilot test include: Is each of the questions measuring what it is intended to measure?. Are questions interpreted in a similar way by all respondents? Do close-ended questions have a response which applies to all respondents? Are the questions clear and understandable? Is the questionnaire too long? How long does the questionnaire take to complete? Are the questions obtaining responses for all the different response categories or does everyone respond the same?

Pilot testing is a crucial step in conducting a research. Even modest pretesting can avoid costly errors. The questionnaire pre-testing was be done using randomly selected students, lecturers, management and other employees who were not be included in the final data collection.

3.7.1 Validity

Validity is an important element for research instruments. According to Bryman (2008), an instrument is valid if it measures the concept that it is supposed to measure. Then, an instrument is valid if it actually measures the concept it is meant to measure (Gatara 2010). According to Polit& Beck (2003), once the questionnaire has been finalized, it should be tried out on the field. This is called pre-testing the questionnaire. The practice of pre-testing the questionnaire is very important because of the following reasons: Comments and suggestions made by respondents during the pre-testing should be seriously considered and incorporated. Such comments help to improve the questionnaire. Questions which are vague will be revealed in the sense that the respondents will interpret them differently. When this happens, the researcher should rephrase the questions until they convey the same meaning to all subjects (Polit& Beck, 2003).

The questionnaire was discussed with the supervisor as an expert in research to enhance validity. Also two randomly selected managers of two commercial banks were requested to review the questionnaire to improve on its content validity. The comments from both the supervisor and the two bank managers were incorporated to improve the content validity of the questionnaire.

3.7.2 Reliability

The information gathered from the pilot test was subjected to a statistical reliability test to ensure the questionnaire meets the minimum acceptable reliability correlation coefficient. A variable is reliable if it is consistent. A Reliability test provide answers to the consideration whether the procedures of data collection and analysis generated the same results on other occasions or would other observers make similar observations and arrive at the same conclusions from the raw data (Smith *et al.,* 2002 and Saunders *et al* 2007). It means that repeat observations give similar results. The comments and responses of the pre-test respondents were used to adjust the questionnaire to improve its reliability.

Ten questionnaires were distributed to randomly selected employees of the five banks. The particular employees were not included in the sample of the final respondents of the study. The questionnaire responses were input into statistical package for social sciences (SPSS) and Cronbach's alpha coefficient was generated to assess questionnaire internal consistency or reliability. The results of the reliability test produced a Cronbach Alpha correlation coefficient of 0.716. The closer Cronbach's alpha coefficient is to 1, the higher the internal consistency reliability (Sekaran, 2003). A coefficient of 0.7 is recommended for a newly developed questionnaire and therefore it can be concluded that the questionnaire for this study met the benchmark for it to be relied upon.

3.8 Data Analysis

The collected data was organised, sorted, coded and input into SPSS software which was used to generate statistics and used to make conclusions and generalizations. Descriptive statistical methods and frequencies were employed to analyze the data, particularly by deriving the

mean and the percentages of responses. These statistics were generated by using statistical package for social science (SPSS).

To establish whether Fraud management practices; (fraud detection, fraud prevention) influence fraud risk in Commercial banks in Kenya, the following linear regression model was used;

$$FR = a+p,X,+p_2X2 + e$$

Where;

XI = fraud detection methods

X2=fraud prevention methods

e = Error term

The variables; fraud prevention methods and fraud detection methods were measured using likert scale based on the extent of use by the commercial banks with "1" being "not at all" , "2" "to a small extent" ,"3" "to a moderate extent", "4" "to a great extent" and "5" , "to a very high extent". The operational definition of the variables used was; the methods used by commercial banks in fraud detection and fraud prevention and measured on a summated likert scale of 1-5. The operational definition of the dependent variable, Fraud risk was the type of fraud(s) experienced by the commercial bank and measures on a likert scale.

The results are presented primarily in tables and percentages. The study analyzed the results and compared them with studies in literature review. Conclusions and recommendations were be made, based on the results of the analysis on which the data was subjected to.

CHAPTER FOUR
DATA PRESENTATION AND ANALYSIS

4.1 Introduction

Raw data, descriptive statistics and data analysis are presented on this chapter. This study was qualitative in nature but the qualitative responses have been converted into quantitative terms for ease of analysis and interpretation of the results. The objective of this study was to find out the combined effect of fraud prevention and fraud detection on fraud risk incidence among commercial banks in Kenya. A questionnaire was used to gather opinions of various employees in the banking sector in Kenya

4.2 Response Rate

The objective of this study was to reach out to 90 respondents who were distributed between management (n=60) and other employees (n=30). The questionnaires that were completed and returned on time were sixty which converts to an overall response rate of 67% (n=60). The drop and pick method was used with the aid of research assistants. According to Mugenda and Mugenda (2003) a 50% response rate is adequate, 60% good and above 70% rated very good. This implies that basing on this assertion; the response rate in this case is good and suitable to be used to derive reliable generalizations and conclusions for the study.Saunders *et al.* (2007) suggest that an average response rate of 30% to 40% is reasonable for a study that uses a survey method and therefore this study had an above average response rate.

Table **4.1: Sample Distribution**

Category	**Target Sample Size**	**Returned Questionnaires**	**% Sample**
Management	60	38	63
Other Employees	30	22	73
Total	**90**	**60**	**67**

4.3 Sample Characteristics

The following section presents the basic information regarding the employees who responded to the questionnaires.

Table 4.2 shows the age distribution of the respondents in terms of the count and percentage distribution.

Table 4.2; Age of the Respondents

Age Bracket	**Number**	**Percent**
Below 20 Years	4	7~~
21-30 Years	11	18
31-40 Years	24	40
41-50 Years	17	28
Over 50 Years	4	7
Total	**60**	**100**

Majorities (65%) of the respondents are between the ages of twenty years to forty years and only 35% are above forty years. This shows that the most of the employees are in their youthful ages and that commercial banks in Kenya have some preference for a youthful workforce. This can also be explained by the fact that banking is one of the careers being pursued by many Kenyan graduates.

Table 4.3 shows the distribution of the respondents based on the departments where they work within the respective banks.

Table 4.3: Work Departments

Department	**Number**	**Percent**
Fraud Risk	12	20
Operations	15	25
Retail Banking	15	25
Corporate Banking	7	12
Credit/Advances/Loans	3	5
Cash/Cheques	2	3
Information Technology	2	3 •
Customer Service	4	7
Total	60	100

The respondents were distributed among the key departments of the bank in order to capture the element of fraud risk across the bank operations. There were 82% of the respondents coming from the departments of risk management, operations, retail banking and corporateb banking while 18% came from credit, cheque& cash handling, information technology and customer service departments.

Table 4.4 displays the distribution of the respondents based on their working experience in the banking sector.

Table 4.4: Banking Sector Experience

Years	Number	Percent
Less than 1 Year	3	5
Between 1 and 5 years	17	28
Between 5 and 10 Years	21	35
Between 10 and 15 Years	17	28
Over 15 Years	2	3
Total	**60**	**100**

There respondents had worked mainly between a period of one year to fifteen years which w ith a percentage of 97% and only 3% had worked in the banking industry for a period above fifteen years. This indicates again the existence of a youthful workforce within the Kenyan banking sector. It is also indicative of the stickiness of employees within the industry indicating high retention levels which may mean that the working conditions are conducive for employees' retention.

4.4 Data Presentation

This section presents the frequency of responses of the employees based on the objectives of the study. The responses are presented in terms of percentages (%). The response mean score for each statement is also presented in order to appreciate the overall weighted score for the responses. The study had one dependent variable (type of fraud risk) and two independent variables namely; fraud risk detection methods and fraud risk prevention methods. This section later presents regression analysis in order to test the fitness of the study variables in explaining the subject of study.

Table 4.5 shows the frequency of responses from the employees on the types of fraud risks which commercial banks in Kenya face and the frequency of the fraud risks. The employees were requested to indicate their opinion of the frequency of occurrence on each type of fraud risk.

Table 4.5: Types of Fraud Risk

Type of Fraud Risk	Not at all	To a small extent	To a moderate extent	To a high extent	To a very high extent	Total	Mean
Fund Diversion	48	52				100	1.52
Cheque Kitting	47	27		5	22	100	2.28
Account opening fraud	15	52		7	27	100	2.78
Counterfeit securities	43	57				100	1.57
Money transfer fraud	12	55		7	27	100	2.82
Letter of Credit Fraud	25	42		7	27	100	2.68
Computer Fraud		58	12	20	10	100	2.82
Real Time Gross Settlement		5	12	32	52	100	4.3
Credit Cards	32	30	7	15	17	100	2.55
Debit Cards	55	33		12		100	1.68
Un approved Loans		10	55		35	100	4.15
Waiver of Interest	48	52				100	1.52
Average							**2.56**

The data shows that real time gross settlement is where employees agree that there is a very high extent of fraud risk with 84% indicating that there was a high extent (32%) or very high extent (52%). Unapproved loans is another fraud risk where 35% of the respondents indicated the existence of very high extent of fraud risk and 55% indicating a moderate occurrence. Other areas with moderate, high to very high occurrence were cheque kitting (27%), accounting opening (34%), computer fraud (42%) and credit cards (39%). The fraud risks with small occurrence or none at all were; fund diversion (100%), cheque kitting (74%), account opening (67%), counterfeit securities (100%), money transfer (67%), letters of credit (67%), computer fraud (58%), credit cards (62%), debit cards (88%) and waiver of interest (100%). This shows that the extent of prevalence of fraud risk is not great in the sampled

banks and by extension the entire Kenyan banking industry in the areas of cheque kitting (27%), accounting opening (34%), computer fraud (42%) and credit cards (39%). This shows that the employees are concede to the fact that there is fraud risk in the Kenyan commercial banks and it is only the extent that varies from bank to bank. The overall mean score of the responses was 2.56 on a scale of one to five. This shows that most of the respondents indicated that the fraud risk on the questionnaire were not very prevalent to a great extent in their banks but were close to a moderate extent.

The findings are consistent with those of Boniface (2011) who identifies that there was existence of fraud in Nigerian banks and the most prevalent fraud risks were; cash thefts from the tills by banks' staff; forgeries of customer's signature with the intention of illegally withdrawing money from the account with the bank; use of forged cheques to withdraw money from the customer's accounts; opening and operating of fictitious account to which illegal transfers could be made and false balance credited and lending to fictitious borrowers effected through fictitious account opened at a branch.This shows that banking fraud is not a phenomenon of one country alone.Further corroboration of the findings are a report of the Banking Fraud Investigations Unit (2011) which report that the methods used to steal from banks include identity theft, electronic funds transfer systems, bad cheques, credit card fraud, loan fraud, forgery of documents and investment scandals.

Table 4.6 presents responses on the methods used by commercial banks in Kenya to detect fraud and the extent of use of each of the methods.

Table **4.6: Fraud Risk Detection Methods**

Fraud Risk Detection Methods	Not at all	To a small extent	Moderate	To a high extent	To a very high extent	Total Percent	Mean	St Dev
Tip From Customers	7	27	25	20	22	100	3.23	1.25
Tip from Staff	7	22	20	37	15	100	3.32	1.17
Reconciliation and balancing of accounts	5	18	3	28	45	100	3.9	1.30
Management Reviews	7	27	25	20	22	100	3.23	1.25
Document examination		15	22	17	47	100	3.95	1.14
External Audit		13	3	28	55	100	4.25	1.04
Surveillance	12	40	15	3	30	100	3.00	1.46
Police notification	23	20	12	17	28	100	3.07	1.57
Confession	27	28		20	25	100	2.88	1.61
IT Controls	18	28	13	20	20	100	2.95	1.43
Accidental	38	50			12	100	1.97	1.21
Internal Audit	27	22		30	22	100	2.98	1.58
Average							**3.23**	

On the scale of high extent to very high extent, the responses show that the methods commonly used to detect fraud risk were, reconciliation of accounts (73%), external audits (83%) and internal audits (52%). The methods which were least used were; confessions (55%) and accidental discoveries (88%). The other methods were moderately applied to detect fraud. The average mean score for this category was 3.23 indicating that many employees conceded to the fact that there was application of majority of the stated methods for fraud risk detection. This shows that bank management are on the alert to ensure that fraud risk is detected on time to mitigate loss.

This study has found that internal and external audits are applied in detecting fraud. This finding is confirmed by Onkagba (2003) who says that internal and external audits despite being costly excises, they were important in detecting fraud. Similarly, Ekechi (2010) confirms the need for having fraud risk detection measures like; 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 and controls of dormant accounts. Ojeigbede (2010) also insists on the need for measure aimed at fraud detection to 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.

Table 4.7 shows the responses related to risk prevention measures taken by commercial banks in an effort to mitigate on potential losses.

Table 4.7: Fraud Risk Prevention Methods

Fraud Risk Prevention Method	Not at all	To a small extent	Moderate	To a high extent	To a very high extent	Total Percent	Mean	St. Dev
Integrity check on hiring	7	17	25	22	30	100	3.52	1.27
Segregation of duties	25	17		30	28	100	3.2	1.61
Job rotation within Branch	47	28			25	100	2.28	1.64
Job Rotation in branches	32	30		30	8	100	2.53	1.40
Wealth declaration	48	42			10	100	1.82	1.17
Staff training-AFE		12	38		50	100	4.27	.95
Verification of signatures		10	2	57	32	100	4.1	.89
Control over dormant accounts	2	60			38	100	4.33	.66
Cross referencing documents	17	75	7	2		100	1.93	.55
Lifestyle watch	63	35			2	100	1.4	.59
Coding/Decoding messages	12	20	17	40	12	100	3.2	1.23
Average							2.96	

The most commonly used methods of fraud risk detection were; integrity check on hiring (52%), segregation of duties (58%), staff training (50%), verification of signatures (89%) and coding/decoding of messages (52%). The methods which were least used were; job rotation within branches (75%), job rotations in branches (62%), control over domain account (62%), cross referencing of documents (92%) and lifestyle watch (98%). These findings indicate that the Kenya banks are used quite mechanical and outdated methods to prevent fraud compared to the very sophisticated methods like biometric identifiers being used in many developed

markets. This is a challenge to the government and the security agencies to upgrade the prevention methodologies.

A survey by PWC (2011) found that companies that are growing in size and complexity and implementing multiple technology-based systems are at risk of fraud. This therefore poses a challenge to the Kenyan banks to deploy more versatile methods of fraud prevention.The government through the Vision 2030 Medium Term Plan (2008-2012) need to actualize some of the targets mentioned in the document in relation to safe and reliable payments system that will ensure smooth transfer and settlement of funds between customers and banks as well as between banks (GOK, 2008).

Table 4.8 displays the Pearson correlation coefficients for the three variables. One evident observation is that all the variables are negative correlated to one another.

Table 4.8: **Pearson Correlation Coefficients**

	Fraud risk types	**Fraud risk detection methods**	**Fraud risk prevention methods**
Fraud risk types	1		
Fraud risk detection methods	-0.038	1	
Fraud risk prevention methods	-0.046	-0.176	1

Fraud risk types are negative correlated to both detection methods (-0.038) and prevention methods (-0.046). This means that a change in the fraud risk type leads to and opposite or inverse move in the detection methods and prevention methods. This could be concluded to mean that once there is new method of fraud risk the existing detection and prevention methods are rendered ineffective and hence the need for dropping them and pursuing or developing new methods.

This study also employed a regression model in the form of FR = a+fiiXi+fcXi +fWhere;FR - Fraud risk types, XI = fraud detection methods, X2=fraud prevention methods ande = Error term. The model was used to test how significant does the existing fraud risk detection and prevention methods on the fraud risks exist in the Kenyan banking sector. Table 4.9 below shows how the present model is fit in predicting the study phenomenon.

Table 4.9: Regression Model Fitness

Indicator	Coefficient
R	0.065
R Square	0.004
Adjusted R Square	-0.031
Std. Error of the Estimate	0.6508

R coefficient of 0.065 shows that, the overall correlation coefficient for the model is positive and weak. This means that the relationship between the dependent variable (fraud risk types) and independent variables (fraud risk detection methods and prevention methods) is weak. R square is also known as the coefficient of determination which is 0.004. This shows that this model can only explain 0.4% of the fraud risk in Kenyan banking sector while 99.6% is explained by variables not captured by the current model. This shows that the model does not capture variables which are significant to explain the fraud risk phenomenon in Kenya and that there are other factors important in fraud risk than detection and prevention.

Table 4.10 presents analysis of variance for the regression model. Sum of squares show the outcome of the coefficient of determination where the regression can explain 0.103 out of 24.245 (0.4%) of the variances in the study while residual factors or variables not captured by the model can explain 24.142 out of 24.245 (99.6%). The p-value of the model is 0.885 which is statistically different from zero and hence not a good predictor of the phenomenon under study. A level of significance of 0.885 indicates that the model has little significance in explaining the variations in fraud risk in Kenya commercial banks. This also means that a future study will need to incorporate more variables which could be more significant.

Item	**Sum of Squares**	df	**Mean Square**	**F**	**Sig.**
Regression	0.103	2	0.052	0.122	0.885
Residual	24.142	57	0.424		
Total	**24.245**	**59**			

Table 4.11 displays the results of regression of the independent variables against the dependent variable. The results also show the test statistics for each independent variable and the corresponding p-value or level of significance.

Table **4.11: Regression Output**

Factor	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	**Std. Error**	**Beta**		
(Constant)	2.968	0.841		3.53	0.001
Fraud risk detection methods	-0.059	0.167	-0.047	-0.352	0.726
Fraud risk prevention methods	-0.075	0.187	-0.054	-0.403	0.688

The regression analysis shows the beta for the independent variables being negative and shows that a unit change in the detection methods and prevention methods led to a negative change in fraud types of -0.059 and -0.059 respectively and vice versa. In terms of p-value, both independent variables are not significant in influencing fraud risk types. This implies that the methods used by commercial banks in Kenya in fraud prevention and fraud detection have insignificant effect on fraud in the commercial banks. A p-value of 0.726 for fraud risk detection methods and 0.688 for fraud risk prevention methods is significantly different from 0.05 and hence not significant in explaining fraud risk management among Kenyan commercial banks.

CHAPTER FIVE

SUMMARY, CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

5.1 Summary

The results of the study found that Kenyan commercial banks were applying several fraud risk detection methods and prevention methods to control existing fraud risks. It was found that real time gross settlement related fraud risk was happening with a very high extent. Unapproved loans were also found to be contributing to fraud risk with a high extent. Other areas with moderate, high to very high occurrence were cheque kitting, account opening, computer fraud and credit cards. The fraud risks with small occurrence or none at all were; fund diversion, cheque kitting, account opening, counterfeit securities, money transfer, letters of credit, computer fraud, credit cards, debit cards and waiver of interest. On the scale of high extent to very high extent, the responses show that the methods commonly used to detect fraud risk were, reconciliation of accounts, external audits and internal audits. The methods which were least used were; confessions and accidental discoveries.

The most commonly used methods of fraud risk detection were; integrity check on hiring, segregation of duties, staff training, verification of signatures and coding/decoding of messages. The methods which were least used were; job rotation within branches, job rotations in branches, control over domain account, cross referencing of documents and lifestyle watch. The regression analysis found that the fraud detection methods and prevention methods led to a negative change in fraud types and vice versa. In terms of p-value, both independent variables are not significant in influencing fraud risk types and hence not significant in explaining fraud risk management among Kenyan commercial banks.

5.2 Conclusions

Regarding the types of fraud risk it is evident that there are several fraud risks existing in the Kenyan banking sector. The multiplicity of the risks makes it quite difficult to structure adequate and robust controls that can close all the possible gaps to create a fraud risk free banking environment. The responses from the management and employees show that they are well aware of the risks surrounding the banking business and their work environment. The other complexity is the emerging of new types and fraud risk especially due to the growing innovations that are quite dynamic and diverse. Nowadays banking operations are operating on an ICT platform which poses the greatest lifetime challenge to banking business. The emergence of mobile banking and internet banking will continue to challenge system security experts in the banking sector as they look for ways to secure customers money and confidence.

Fraud risk detection methods used in Kenya are still not very versatile and banks tend to rely on mainly manually administered detection methods. The detection methods are widely by passed by fraudsters and hence the need to use multiple methods to safeguards against fraud. Human judgment should be combined with the existing electronic detection methods. The current manual methods of mostly using reconciliations and auditors are mainly after event measures which normally detect past frauds and hence the need for employing methods which detect fraud as it gets executed.

On fraud prevention methods just like detection methods, the methods are old and fail to combine multi security methods which combine both manual and electronic methods. It is notable that the methods used by many banks are not synergized among the banks for the sake of make water tight securities across the banking industry. Banks tend to operate in silos and hence making the prevention methods to be specific to an institution rather than the entire sector. This will make the fraudster face challenges penetrating any of the banks.

5.3 Limitations of the study

In spite of the fact that this study produced some meaningful results, it was subject to a number of limitations. Firstly, the subject of study is regarded as quite sensitive, moie so in

the banking sector. Due to the confidentiality nature of the subject of study, scaled measures were used to find out the influence of the fraud detection and fraud prevention methods on fraud risk in the commercial banks.

Second, the study was conducted in the commercial banks in Kenya. The Kenyan financial sector includes other players; the foreign exchange bureaus, and Micro finance institutions, savings and credit cooperatives and pension funds. This study findings and results may therefore not conclude for players not included in this study.

Third, the findings of the study are arrived at from self reported data from best informed staffs in the banking sector. However, there are additional factors that influence fraud risk in addition to prevention and detections practices; fraud mitigation and regulation, investigation and prosecution. This study did not address the effect of these variables on fraud risk.

5.4 Recommendations

Based on the findings of the study the following recommendations are important for improvement of the fraud risk management environment. The commercial banks in Kenya should approach the issue of fraud risk as a sector and not as individual banks. This will ensure uniform security measures for detection and prevention.

Information sharing on fraud matters should be encouraged. There have been instances where banks have suffered loss from the same group of fraudsters due to poor information sharing mechanisms. Banks even end up employing people who have been dismissed from other banks due to fraud related issues due to poor information sharing among the banks.

All banks use different core banking software which is quite costly. The banks should explore ways of using one single platform in the whole sector. This will make it possible to develop uniform security measures to secure the money.

The government should highly consider implementing the aspirations of the vision 2030 medium term plan for 2008-2012 where a safe and secure banking system is desired. The current trend of bank frauds can easily chase way foreign investors who can bring investible funds in the country.

Due to the high costs of securing core banking software, banks take long before changing the core banking modules to match to changing technology. Due to delays in upgrading the banking modules, the security features of such systems become vulnerable to hacking and other cyber related crime. It is advisable that banks consider leasing such software instead of outright purchase. Leasing enables banks to exit at an appropriate time should a system fail to meet the security and operational requirements of the bank.

5.5 Suggestions for Further Research

Some further areas are suggested for study in order to advance new knowledge in the area of fraud risk managements. A study needs to be conducted to include more variables like the role governance, technology adoption and competition in fraud risk management. This kind of study will test whether the additional variables are significant in explaining fraud risk.

Another area is the effect of delivery channel on fraud risk. The delivery channels to be studies can include mobile banking, internet banking and agency banking. This type of study will seek to establish which delivery channel is prone to fraud and hence empower banks to have targeted security and control strategies for particular channels.

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APPENDIX I- LETTER OF INTRODUCTION

RF: **LETTER OF INTRODUCTION AND QUESTIONNAIRE GUIOF**

Date

To

Dear Sir/Madam,

RE: COLLECTION OF RESEARCH DATA

My name is **Lucy** Waigumo, a student at the University of Nairobi, pursuing Master of Business Administration - Finance option. I am currently carrying out a research on the *"An investigation of the effect offraud risk management practices on fraud risk in commercial banks in Kenya "*.

I am at this point in the process of gathering relevant data for the purpose of this study. You have been identified as one of the collaborators and a key respondent in this study. I therefore write to kindly request for your highly appreciated assistance towards making this study a success by taking some time to respond to the attached questionnaire. I assure you that your responses will be treated with confidentiality and will be used solely for the purpose of this study.

It will be appreciated if you can fill the questionnaire within the next 5 days to enable early ftnalization of the study.

I thank in advance for your valuable time and responses.

Yours Sincerely

Lucy Waigumo Gikiri

Student Reg No.D61/7392/2003

+254 722 297 450

APPENDIX II: QUESTIONAIRE

SECTION A: GENERAL INFORMATION

General information

This questionnaire is meant to investigate the effect of franH 6 ic cuect oi traud risk management practices on Fraud risk exposure in Commercial Banks in Kenya.

Bank Particulars

a. Name of the Bank (Optional)....

b. Size of the Bank (i) Small J(ii) Medium I___| (iii) Large •

Respondent Particulars

Age Bracket (tick as appropriate)

i) Below 20

ii) 21-30

iii) 31-40

iv) 41-50

v) Over 50

3. Department (tick as appropriate)

	Fraud risk,	
ii.	Operations	
iii.	Retail banking	
iv.	Corporate banking	
v.	Credit/Advances/Loans	
vi.	Cash	
vii.	Cheques	
viii.	Information Technology	
iv	Customer service	
X.		

4. How long have you worked in the Banking Sector (tick as appropriate)

a. Less than 1 year

b. Between 1 -5 years

c. Between 5-10 years

d. Over 10 years

SECTION B: Type of Frauds

This section has statements regarding the type of fraud that Commercial banks in Kenya bank face. Kindly respond with the response that matches you opinion. Please tick as appropriate in the boxes using a tick (V) or cross mark (x).

No.	Statement	"a a Z	E (O H	I'o a derate ,«t»nt	a 01 m H	C S « z s
		1	2	3	4	5
1	Fund diversion					
2	Cheque Kitting					
3	Account Opening fraud					
4	Counterfeit Securities					
5	Money Transfer fraud					
6	Letter of Credit fraud					
7	Computer Fraud					
8	Real Time Gross Settlements					
9	Credit Cards					
.0	Debit Cards					
11	Un approved loan awards					
12	Waiver of loan interest					

SECTION C: Practices of Frauds risk detection used by the bank

This action has statements regarding practices fraud risk detection used by Commercial bank in Kenya. In a scale of one (I) to Five (5), kindly respond with the response that matches you opinion in respect to the extent to which you rely on each method of fraud detection. Please tick as appropriate in the boxes using a tick (V) or cross mark (x).

Na	Statement	Not at all	To a small extent	To a moderate extent	To a great extent	To a very high extent
		1	2	3	**4**	5
1	Tip from Customers					
2	Tip from Other staff					
3	Reconciliation and balancing of accounts					
4	Management Keviews					
5	Documents examination					
6	External Audit					
7	Surveillance					
8	Police Notification					
9	Confession					
10	T Controls					
11	Accidental					
12	nternal Audit					

Please include in this space any other information which in your opinion is relevant in regards to regarding the fraud detection in commercial in Kenya.

SECTION D:Practices used by Commercial banks in Fraud Prevention.

This section has statements regarding the fraud mitigation of commercial banks in the Commercial banks in Kenya bank. Kindly respond with the response that matches you opinion. Please tick as appropriate in the boxes using a tick (V) or cross mark (x).

No.	Statement	Not at all	To a small extent	To a moderate rxtrnt	To a great extent	To a very high extent
		1	2	3	4	5
1	Integrity check on Hiring					
2	Segregation of Duties					
3	Job Rotation within Branch					
4	Job Rotation among Branches					
5	Disclosing the Wealth and investments by staff					
6	Training of staff on anti fraud mechanisms					
7	Employees are trained on anti- fraud mechanisms upon hiring					
8	Referencing on presentation of document of value, segregation of duties					
9	Verification of signatures					
10	Controls of dormant accounts					
11	Detection of passport sized photos					
12	close watch on the lifestyle of staff					
13	Coding/decoding and testing of telex messages.					

Please include in this space any other information which in your opinion is relevant in regards to regarding the fraud mitigation of commercial banks in the Commercial banks in Kenya

Thank you for taking your quality time to respond to this research questionnaire.

APPENDIX III - LIST OF BANKS IN KENYA

1. African Banking Corporation Ltd *
2. Bank of Africa Kenya Ltd. *
3. Bank of Baroda (K) Ltd.
4. Bank of India
5. Barclays Bank of Kenya Ltd.
6. CFC Stanbic Bank Ltd.
7. Chase Bank (K) Ltd. *
8. Citibank N.A Kenya. *
9. Commercial bank of Africa Ltd. *
10. Consolidated Bank of Kenya Ltd. *
11. Co-operative Bank of Kenya Ltd. *
12. Credit Bank Ltd.*
13. Development Bank of Kenya Ltd. *
14. Diamond Trust Bank (K) Ltd. *
15. Dubai Bank Kenya Ltd.
16. Ecobank Kenya Ltd
17. Equatorial Commercial bank Ltd. *
18. Equity Bank Ltd. *
19. Family Bank Ltd. *
20. Fidelity Commercial bank Ltd. *
21. Fina Bank Ltd. *
22. First community Bank Limited. *
23. Giro Commercial bank Ltd. *
24. Guardian Bank Ltd. *
25. Gulf African Bank Limited. *
26. Habib Bank A.G Zurich. *
27. Habib Bank Ltd.
28. I & M Bank Ltd.*
29. Imperial Bank Ltd.
30. Jamii Bora Bank Ltd.
31. Kenya Commercial bank Ltd. *
32. K-Rep Bank Ltd. *
33. Middle East Bank (K) Ltd
34. National Bank of Kenya Ltd. *
35. NIC Bank Ltd. *
36. Oriental Commercial bank Ltd. *
37. Paramount Universal Bank Ltd
38. Prime Bank Ltd
39. Standard Chartered Bank (K) Ltd. *
40. Trans-National Bank Ltd. *
41. Victoria Commercial bank Ltd. *
42. UBA Kenya Bank Ltd.
43. Housing Finance Ltd. *

^Sampled banks