THE EFFECT OF FINANCIAL INNOVATIONS ON RISK MANAGEMENT OF COMMERCIAL BANKS IN KENYA

BY

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DECLARATION

This research project is my original work and has never been presented in any other University or College for the award of degree or diploma or certificate.

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

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DEDICATION

I dedicate this research project to to my lovely mum, Lucy.

ABSTRACT

The purpose of this study was to to establish the effect of financial innovations on risk management of commercial banks in Kenya. Secondary data was collected from risk manual, financial products reports and audited financial reports of 18 commercial banks that made were selected to represent the 43 commercial banks in kenya. Data was analyzed using SPSS through correlation analysis, regression analysis ad autocorrelation techniques were used to analyse the data. The findings were presented in tables and graphs. The major findings of the study indicated that total new current accounts, total new savings accounts, credit reference bureaus and automated trading system at the stock exchange had a postive correlation with the overall risk management framework for commercial banks. On the other hand mobile banking and real time gross setllments had a negative correlation with the risk management framework.

The main conclusions were that financial innovations have exposed commercial banks in Kenya to various risks including credit risk, liquidity risk, strategic risk, interest rate risks, country risk, compliance risk and repuational risk and all these risks should therefore inform overall risk management of the institutions through a realistic risk index factor at any one period. The researcher recommends more robust risk mitigation practices and policies to ensure that all elements of risk are captured in the risk index factors of commercial banks. The researcher suggests that a similar study be carried out targeting MFIs to get their perspective of the effect of financial innovations on the risk management framework.

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LIST OF ABBREVIATIONS

CBK: Central Bank of Kenya

IPO: Initial Public Offering

IT: Information Technology

KBA: Kenya Bankers Association

SCB: Standard Chartered Bank Kenya Limited

MFIs: Micro Finance Institutions

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CHAPTER ONE

INTRODUCTION

1.1Background of the Study

The world financial markets are characterized by increased volatility of interest rates, inflation, equity prices and exchange rates. There are also unprecedented advances in computer and telecommunication technologies coupled with greater sophistication and educational training among professional market participants. In a bid to take advantage of the emerging business opportunities, the world markets are getting embroiled in stiff competition more especially among the financial intermediary business players. The rapidly changing global pattern of financial wealth has also fueled the motivation of financial market participants to get around existing regulation and tax laws and has resulted in the introduction of financial instruments that are more efficient for redistributing risks among the market participants. Most of the world financial innovations take place in derivatives markets. The derivatives are used for several purposes, including protection against the market risk of financial losses on commercial transactions and financial instruments (hedging), reflection of a view of the future direction of the market (speculation); and to locking in of arbitrage profit without incurring the costs of selling one portfolio and buying another (arbitrage) (Mervyn, 2010)

The primary function of the financial system is to facilitate the allocation and deployment of economic resources, both spatially and across time, in an uncertain environment (Merton, 1992). This function, in turn, encompasses a payments system with a medium of exchange; the transfer of resources from savers to investor-users of the resources (and the eventual repayment to the savers); the gathering of savings for the purposes of pure time

transformation (i.e., deferral/smoothing of consumption); and the reduction of risk through insurance and diversification. The operation of a financial system involves real resource costs, such as labour, materials, and capital employed by financial intermediaries (e.g., banks, insurance companies, etc.) and by financial facilitators (e.g., stock brokers, market makers, financial advisors, etc.). The possibility of new financial products/services/instruments that can better satisfy financial system participants' demands is always present.

1.1.1 Financial Innovations Concept

Ross (1989) holds that financial innovations are the new financial products (financial assets and derivative instruments) that are better suited to the circumstances of the time (for example to inflation) and to the markets in which they trade and the strategies that primarily use these new financial products. The Bank for International Settlements (2006) has classified financial innovations based on more specific functions: Price-risk-transferring innovations provide market participants with more efficient means for dealing with price or exchange-rate risk. Credit-risk-transferring instruments reallocate the risk of default while liquidity-generating innovations increase the liquidity of the market, allow the borrowers to draw upon new sources of funds and also allow market participants to circumvent capital constraints imposed by regulations. Credit-generating innovations increase the amount of debt funds available to borrowers while equity-generating innovations increase the capital base of financial and non financial institutions.

A financial innovation represents something new that reduces costs, reduces risks, or provides an improved product/service/instrument that better satisfies participants' demands (Merton, 1992). Financial innovations can be grouped as new products (e.g., adjustable rate mortgages; exchange-traded index funds); new services (e.g., on-line securities trading; Internet banking); new production processes (e.g., electronic record-keeping for securities; credit scoring); or new organizational forms (e.g., a new type of electronic exchange for trading securities; Internet-only banks). Of course, if a new intermediate product or service is created and used by financial services firms, then it may become part of a new financial production process.

1.1.2 Risk Management Concept

Risk management is interconnected with financial innovations; one main purpose of financial innovations is to help firms do the risk management. Risks are usually defined by the adverse impact on profitability of several distinct sources of uncertainty. While the types and degree of risks an organization may be exposed to depend upon a number of factors such as its size, complexity business activities, volume etc, it is believed that generally the financial institutions face Credit, Market, Liquidity, Operational, Compliance / legal / regulatory and reputation risks. Credit risk arises from the potential that an obligor is either unwilling to perform on an obligation or its ability to perform such obligation is impaired resulting in economic loss to the bank. It is the risk that the value of on and off-balance sheet positions of a financial institution will be adversely affected by movements in market rates or prices such as interest rates, foreign exchange rates, equity prices, credit spreads and/or commodity prices resulting in a loss to earnings and capital. Liquidity risk is the potential for loss to an institution arising from either its

inability to meet its obligations or to fund increases in assets as they fall due without incurring unacceptable cost or losses. Operational risk is the risk of loss resulting from inadequate or failed internal processes, people and system or from external events. Operational risk also consists of the risk related failure to comply with the laws and regulatory frameworks and the resultant reputational risks (Van, Henrise & Bratanovic (2000)

1.1.3 Banking Industry in Kenya

Kenya is an East African nation that serves as a regional hub for trade and finance .The Central Bank of Kenya (CBK) was established in 1966 out of a desire to have an independent monetary and fiscal policy. The banking sector was liberalized in 1995 and exchange controls lifted. Currently, the Central Bank of Kenya recognises 44 commercial banks. The players in the industry have experienced increased competition over the last few years resulting from increased innovations among the players and new entrants into the market(www.centralbankofkenya.go.ke).

The financial innovations in the Kenyan banking industry range from institutional innovations including introduction of a credit referencing bureau in 2009, embracing of mobile banking with the most conspicous innovation being the M-pesa service by the mobile telephone operator Safaricom that has been integrated by commercial banks to support their mobile banking platforms. Other institutional iinovations by Kenyan commercial banks include the investments in brokerage and investment banking businesses through acquiring of brokerage firms and investment banks. The introduction of Islamic Banking has also revolutionalised the banking industry in Kenya. Among the

notable process innovations in Kenya include office automations and computerization of operations leading to sophisticated softwares in the management of data. Other process innovations include the Automated Teller Machines upgrades to handle bills payments more especially electricity and telephone bills. The introduction of internet banking platforms has also facilitated the growth of electronic commerce among the clients of Kenyan commercial banks. Lastly, examples of product innovations in the Kenyan banking industry include introduction of new deposit accounts, new types of loans, credit cards, debit cards and bancassurance products (www.centralbankofkenya.go.ke).

1.1.4 Commercial Banking

A commercial bank is a profit-seeking business firm, dealing in money and credit. It is a financial institution dealing in money in the sense that it accepts deposits of money from the public to keep them in its custody for safety. It also deals in credit, whereby it creates credit by making advances out of the funds received as deposits to needy people. It thus, functions as a mobilizer of saving in the economy. There are many types of commercial banks such as deposit banks, industrial banks, savings banks, agricultural banks, exchange banks, and miscellaneous banks (Fabozzi et al 2009)

Commercial banks have to perform a variety of functions which are common to both developed and developing countries. The modern banks perform a variety of functions both primary functions and secondary functions. Primary banking functions of the commercial banks include: Acceptance of deposits, advancing loans, creation of credit, clearing of cheques, financing foreign trade and remittance of funds. Secondary banking functions of the commercial banks include agency services like insurance services and general utility services like custodian of precious items (Pandey 2011)

1.2 Statement of the Problem

Market volatility has been identified as a stimulus to financial innovation leading to invention of new risk management systems and measures, online services and transactions and new valuation techniques (Bank for International Settlements, 2006)). This has been supported by many other scholars including Ross (1989) who holds that with greater globalization, firms, investors and governments are exposed to new risks (exchange rates or political risks) and financial innovations help them to manage these risks.

In Kenya, commercial banks' risk management frameworks ensure effectiveness in risk management for the financial products and processes within the banks' risk appetite. However the risk management framework cannot be static due to the rapid development of financial products and the evolving of the strategies that primarily address the new financial products. In other words, financial innovations in the financial market are piling pressure on the risk management framework of commercial banks and other financial institutions.

Several studies have been conducted to establish the link between financial innovations and risk management practices of organizations. Mwangi (2007) carried out a study on factors influencing financial innovation of companies listed at Nairobi Stock Exchange. The objective of the study was to explain the macro and micro-environmental factors influencing financial innovation in Kenya's securities market. The researcher found out that macro-environmental factors are the main drivers of financial innovations while micro-environmental factors usually affect the response rate of organizations to the

financial innovations. Batavia (1999) conducted an analysis of financial performance of Kenyan commercial banks and found out that risk management is central to any commercial bank's ability to register consistent profits and higher shareholders' returns. Tufano (1989) did a research on financial innovation and first mover advantages. The objective of the study was to determine whether financial products innovators enjoy first mover advantages. The researcher concluded that the innovators that created new financial products did not charge higher prices in the period before imitative products appear and in the long run charged lower than rivals hence leading to losses. The researcher underscored the need for a robust risk management framework for all functions of the organization including marketing and promotions.

Overall, the studies have exposed the factors that influence financial innovations, the role played by risk management frameworks in financial performance of commercial banks and the necessity of risk management frameworks for all operations and functions of a business enterprise. From the discussion above, it is clear that financial innovation can either impact positively or negatively on risk management leading to a puzzle that this study was seeking to unearth. This was addressed by answering the following research question: What is the effect of financial innovations on risk management of commercial banks in Kenya?

1.3 Objective of the Study

The research objective was be to establish the effect of financial innovations on risk management of commercial banks in Kenya.

1.4 Importance of the Study

The knowledge on the impact of financial innovation on risk management will be of help to commercial banks in understanding the current status of innovation in the global market and help the commercial banks in developing products and also controls to avert the negative impact of financial innovation and be in a position to take full advantage of the opportunities it avails.

The knowledge of the ever changing global business environment will enable the banks to develop financial products and instruments so as to gain competitive advantage as well as to survive the turbulent operating environment. The study will provide bank managers with a holistic picture of the existing business landscape and proficiencies within it, this will enable them to monitor progress and remove impediments to financial innovation.

The findings of this study will also benefit other researchers in the area of financial innovation in the context of the banking industry. University of Nairobi and other institutions of higher learning especially the graduate students will benefit from the outcome of this research as a point of reference especially in relation to financial innovation and its effects on the Kenyan banking industry.

Regulators and other policy makers like the KBA will also benefit in formulating regulations in the sector and also in ensuring the regulations are followed for the benefit of the entire financial sector.

The study will also contribute to theory through providing more insight into ways in which companies can use financial innovation to gain competitive advantage despite the dynamic business environment. It will also identify areas that need further study and will

be used by students and researchers to come up with more theory on the subject of financial innovations and risk management.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter opens with the definitions of the concepts of financial innovation and risk management. It also explores financial innovation theories and explains the concept of integration of risk management into an organization. It proceeds to document the empirical literature on past studies related to financial innovation and risk management. It closes with an exploration of financial innovations and risk management practices in Kenya.

2.2 Theoretical Literature

This section discusses the concepts of financial innovation and risk management, It also documents the financial innovation theories and the current practice in integration of risk management.

2.2.1 Financial Innovations

Smith, Smithson & Wilford, (1990) document the increase in the volatility of interest rates, exchange rates, and commodity prices, and draw a link between this increase in riskiness and financial innovation. In their view, shocks to technology are thought to provide a supply-side explanation for the timing of some innovations. They observe that advances in information technology support sophisticated pooling schemes that we observe in securitization while IT and improvements in telecommunications (and more recently the Internet) has facilitated a number of innovations (not all successful),

including new methods of underwriting securities (e.g., Open IPO), new methods of assembling portfolios of stocks (folioFN), new markets for securities and new means of executing security transactions. White (2000) refers to this phenomenon as the technological view of financial innovation.

Miller (1991) contends that financial innovation is not a new phenomenon and urgues that it is a response to the increasing volatility in the financial markets. He argues that there are three main reasons for the increasing volatility: The oil crises in the early 1970s and early 1980s that directly and indirectly resulted in the significant drops in the stock prices and increases in commodity price volatility; the increased inflation and interest rate risk; and the breakdown of Bretton Woods System and the end of fixed exchange rates for most industrialized countries. He also holds the view that financial innovation is the act of creating and then popularizing new financial instruments as well as new financial technologies, institutions and markets. The innovations are sometimes divided into product or process innovation, with product innovations exemplified by new derivative contracts, new corporate securities or new forms of pooled investment products, and process improvements typified by new means of distributing securities, processing transactions, or pricing transactions.

Merton (1992) holds that the period from the mid-1960s to mid-1980s shows that financial innovation has been a critical and persistent part of the economic landscape of the world financial markets. He holds that financial markets have continued to produce a multitude of new products, including many new forms of derivatives, alternative risk transfer products, exchange traded funds, and variants of tax-deductible equity. He

concludes that financial innovation, like innovation elsewhere in business—is an ongoing process whereby private parties experiment to try to differentiate their products and services, responding to both sudden and gradual changes in the economy.

Merton's (1992) identifies six functions delivered by financial systems: Moving funds across time and space, the pooling of funds, managing risk; extracting information to support decision-making, addressing moral hazard and asymmetric information problems; and facilitating the sale and purchase of goods and services through a payment system. Different scholars use slightly different lists of functions, but there is much overlap in these descriptions. For example, Finnerty (1992) identified a set of functions, two of which correspond closely to Merton's functions (reallocating risk and reducing agency costs), and a third (increasing liquidity) which is a blend of Merton's movement of funds and pooling of funds functions.

2.2.2 Risk Management

Hindy (1993) also holds the view that in every financial institution, risk management activities broadly take place simultaneously at following different hierarchy levels: The Strategic level encompasses risk management functions performed by senior management and BOD. For instance definition of risks, ascertaining institutions risk appetite, formulating strategy and policies for managing risks and establish adequate systems and controls to ensure that overall risk remain within acceptable level and the reward compensate for the risk taken. The Macro Level: It encompasses risk management within a business area or across business lines. Generally the risk management activities performed by middle management or units devoted to risk reviews fall into this category.

The Micro Level: It involves 'On-the-line' risk management where risks are actually created. This is the risk management activities performed by individuals who take risk on organization's behalf such as front office and loan origination functions. The risk management in those areas is confined to following operational procedures and guidelines set by management.

Allen & Gale (1994) hold that risks are usually defined by the adverse impact on profitability of several distinct sources of uncertainty. While the types and degree of risks an organization may be exposed to depend upon a number of factors such as its size, complexity business activities, volume etc, it is believed that generally the banks face Credit, Market, Liquidity, Operational, Compliance / legal / regulatory and reputation risks. He therefore contends that Risk Management is a discipline at the core of every financial institution and encompasses all the activities that affect its risk profile. It involves identification, measurement, monitoring and controlling risks to ensure that: The individuals who take or manage risks clearly understand it, the organization's risk exposure is within the limits established by Board of Directors, risk taking Decisions are in line with the business strategy and objectives set by BOD, the expected payoffs compensate for the risks taken, risk taking decisions are explicit and clear and that sufficient capital as a buffer is available to take risk.

Heffernan (1996) suggests that a risk management framework encompasses the scope of risks to be managed, the process/systems and procedures to manage risk and the roles and responsibilities of individuals involved in risk management. The framework should be

comprehensive enough to capture all risks a bank is exposed to and have flexibility to accommodate any change in business activities. He concludes that an effective risk management framework includes clearly defined risk management policies and procedures covering risk identification, acceptance, measurement, monitoring, reporting and control, a well constituted organizational structure defining clearly roles and responsibilities of individuals involved in risk taking as well as managing it.

2.2.3 Financial Innovations Theories

Silber (1975) articulated the constraint-based notion of innovation. He suggested that the smallest, weakest firms, who face the most constraints, would be the most likely to innovate. In the broad field of innovation, this seems to be the case, with smaller firms thought to be more innovative. There is some anecdotal evidence that supports this conclusion in financial services. However, this anecdotal observation is not consistently supported by the empirical data. At least for securities innovations, larger, more financially secure investment banks have consistently been the leading innovators.

Tufano (1989) carried out a study on the incentives of investment banks to innovate, focusing on the market shares they capture and the underwriting spreads they charge on new types of securities. Both studies found that innovators earn higher market shares than followers, even though imitation is rapid. These studies reached different conclusions about whether innovating investment banks charge higher underwriting spreads than do follower banks. In some academic models, parties most constrained or inconvenienced by imperfections would be the most likely to innovate, as the shadow costs of releasing

these constraints would be greatest for these firms. The same view was shared by Carrow (1999).

Matthews, (1994) adapted industrial organization models to show why there might be a self-reinforcing cycle between innovation and market share, with larger firms innovating and thereby increasing their size at the expense of their rivals. It is probably fair to note that cross sectional determinants of the locus of financial innovation is still an eminently researchable question. Financial risk has always been an element of financial systems regardless of the pace of financial innovations. It has been argued that the primary function of financial intermediaries has always been to manage and even bear risks such as credit risks, interest rate risks foreign exchange risks, legal risks, operational risks, fraud, and so forth.

Santomero (1995) contends that financial innovation is motivated by four main factors: Managerial self Interest, the non-linearity of taxes, the costs of financial distress and the existence of capital market imperfections. In each case, the economic decision maker is shown to face a non-linear optimization, and this leads it to concern itself with the variability of returns. In the first case the objective function itself is concave, while in the others the effect of some feature of the economic environment is to lead firm managers to behave in a risk averse manner.

Chilton and Bloodgood (2010) articulated the adaption-innovation theory that holds that the availability and appropriate use of knowledge within organizations is important for financial innovations .The knowledge-based view of the firm suggests that organizations that possess better knowledge resources than their competitors will have a better chance

at achieving a competitive advantage through financial innovations. Implicit within this argument is the idea that these knowledge resources must actually be converted into innovations for them to lead to enhanced competitiveness. However, this raises the question of what factors contribute toward the appropriate use of knowledge resources because the planning for their use is critical to the organization (Flores et al., 2008).

2.2.4 Integration of Risk Management

Hanson (1998) brings forth the concept of Integration of Risk Management and suggests that risks must not be viewed and assessed in isolation, not only because a single transaction might have a number of risks but also one type of risk can trigger other risks. He contends that since interaction of various risks could result in diminution or increase in risk, the risk management process should recognize and reflect risk interactions in all business activities as appropriate. The Business Line Accountability requires that in every banking organization there are people who are dedicated to risk management activities, such as risk review, internal audit etc. and it must not be construed that risk management is something to be performed by a few individuals or a department. Business lines are equally responsible for the risks they are taking. Secondly, Risk Evaluation/Measurement concept is the view that until and unless risks are assessed and measured it will not be possible to control risks. Further a true assessment of risk gives management a clear view of institution's standing and helps in deciding future action plan.

Mervyn (2010) holds the view that, in addition to risk management functions for various risk categories, banks may institute a setup that supervises overall risk management at the bank. Such a setup could be in the form of a separate department or bank's Risk

Management Committee (RMC). The structure should be such that it ensures effective monitoring and control over risks being taken. The individuals responsible for review function (Risk review, internal audit and compliance) should be independent from risk taking units and report directly to board or senior management who are also not involved in risk taking. He also brings in the dimension of independent review and contingency planning. He holds that one of the most important aspects in risk management philosophy is to make sure that those who take or accept risk on behalf of the institution are not the ones who measure, monitor and evaluate the risks. In his view, contingency planning activities include disaster recovery planning, public relations damage control, litigation strategy and responding to regulatory criticism.

2.3 Empirical Literature

Stulz (1984) first suggested a viable economic reason why a firm's managers, who are presumed to be working on behalf of firm owners, might concern themselves with both expected profit and the distribution of firm returns around their expected value. He provided a rationale for why firm's objective functions may be concave so they actively want to avoid risk. His contribution is widely cited as the starting point of this burgeoning literature. Since that time a number of alternative theories and explanations have been offered

Rogalski & Seward (1991) studied foreign exchange currency warrants and found that their issuers apparently benefited from this innovation, although they also found that investors substantially over-paid for this innovation. They proposed that, we have a great

deal more to learn about the pricing of financial innovations and how benefits, if any, are shared among participants.

Lang & Nolle (2002) used logit models and found that a bank's choice of adopting Internet banking is related to holding company affiliation, location in an urban area, higher fixed expenses, and higher non-interest income. Among banks that offer Internet-related services, a greater number of service offerings were positively related to bank size and the length of time offering Internet banking.

Lerner (2006) investigated the origins of innovation in US financial Service firms between 1990 and 2002; He identified two sources -Wall Street Journal Index (WSJI) from Wall Street articles as an innovation indicator and Factiva Database. Of the total 20916 observations or entries in the journal only 651 items meet the required criteria for innovations. The distribution was further reclassified into various panels and industry of innovators. The analysis focused on the nature of the financial institutions that undertake the innovations. He estimated both pool and random effects panel data models under different specifications (e.g. negative binomial, poisson). He found out that smaller firms account for a disproportionate share of the innovations, as do less profitable firms though their profitability increases significantly in subsequent years. Older, less leveraged firms and those located in regions with more financial innovation were found out to be more innovative.

Mwangi (2007) carried out a study on factors influencing financial innovation of companies listed at Nairobi Stock Exchange. The objective of the study was to explain the macro-environmental and micro-environmental factors influencing financial

innovation in Kenya's securities market. The population used in this study was 48 companies listed on the Nairobi Stock Exchange in 2005. An exploratory survey was conducted between September 2005 and March 2006, of which 31 respondents were involved. The data was analyzed using descriptive statistics. Semi-structured questionnaire, drop and pick method was employed. Data in this study was summarized and presented in forms of tables, percentages, frequencies, mean scores and standard deviations. Based on regulatory factor, the finding concluded that Kenyan laws protecting investors was the major factor influencing financial innovation. This result is similar to the finding by Frame and White (2002). Further, the research finding showed that unstable forex rates were the most important factor influencing financial innovation among market volatility factors. Mwangi also observed that the absence of automated trading systems as a technological factor was found to influence financial innovations regularly. Finally he argued that global financial competition and integration had an influence on financial innovation with increased financial competition amongst financial institutions influencing financial innovation the most.

Kamotho (2009) carried out a study on Mobile Phone Banking: Usage Experiences in Kenya. The study cover the two main dominant mobile banking service providers-Safaricom and Zain - during the three year period 2006-2008, from inception with total outlets of 8000 agents. This number tripled compared to 876 branches and 1424 ATM for commercial banks (CBK, 2008) The study was informed by a quantitative survey on M-Banking services and demand. Data on usage and exploitation patterns was gathered through reliable cluster sampling techniques using comprehensive questionnaire. Kamotho; observed that competition triggers innovation and creativity. Continuous

innovation not only yield new products but rather promotes efficiently in the performance of activities. Hence lowering the transaction cost. Contrary to popular wisdom that mobile phone money services are meant for funds transfer and remittances, his findings concluded that 96% of the respondents used the M-banking service as form of funds storage.

Sullivan (2000) compares banks in the 10th Federal Reserve district that had transactional Internet websites as of the first quarter of 2000 to those that did not have such web-sites. He found the former to be significantly larger and located in areas with a more educated population and a higher population fraction in the 18 to 64 age group. Banks offering transactional Internet web-sites are also found to have higher non-interest expenses and higher non-interest income

2.4 Financial Innovation and Risk Management in Kenya

Financial innovations in Kenya have taken place in all the three spehers: Instituions, Processes and Products. Risk management, spearheaded by regulatory agencies, has also constantly mutated to measure up to the new challenges posed by the financial innovations. For instance, currently in Kenya the credit reference bureau collects, manage and disseminates customer information to lenders within a provided regulatory framework. Regulations on credit rating came in effect in 2009 and provide for the licensing and establishment of credit bureau operations. There is also Mobile Banking which involves provision and availing of banking and financial services with the help of mobile telecommunication devices. M-Pesa, a mobile funds transfer service, invented in 2007 has evolved with time and now organizations are able to pay employee salaries

using the Bulk Payment function and mobile phone users are able to pay for their utility bills using the service. Indeed, mobile banking is a powerful tool that can be used to deliver financial services to millions of Kenyans who have a mobile phone but do not have a bank account due to challenges associated with accessing financial services, especially in the rural areas of the country (www.centralbankofkenya.go.ke).

In Kenya, commercial banks are moving to acquire stock brokerage and investment banks to get involved in the stock market activity. Banks are thus likely to slowly compete out brokerage firms because they have more cash and they are better managed than brokerage firms . Banks in Kenya are also offering insurance services on behalf of insurance companies (www.centralbankofkenya.go.ke). Another recent institutional innovation os the Islamic Banking which is guided by Islamic law or Islamic Sharia Law. Process Innovations cover the introduction of new business processes leading to increased efficiency and market expansion. Among the main process innovations include; office automation, use of computers in accounting systems and client data management software. Banks are also able to provide services more efficiently and at relatively low cost. Traditionally transactions were effected in batches but now the Central Bank of Kenya has introduced the Real Time Gross Settlement (RTGS). RTGS is a funds transfer mechanism where transfer of money takes place from one bank to another on a "real time" and Gross basis. Product Innovations include introduction of new deposit accounts, new credit arrangement, credit cards, debit cards, insurance and other financial products. Product innovations are introduced to respond better to changes in market demand or to improve efficiency. Among the main product innovations include; Business

Club, Personal unsecured loans, Money transfer services, Products tailored to favour certain groups like the Diva and X accounts of Standard Chartered Bank Kenya Limited.

The Central Bank of Kenya has put forward guidelines to all financial institutions on minimum requirements for risk management systems and frameworks. The guidelines are in line with international best practices. While the types and degree of risks an organization may be exposed to depend upon a number of factors such as its size, complexity business activities, volume etc, these guidelines cover the most common risks in financial institutions namely; Strategic Risk, Credit Risk, Liquidity Risk, Interest Rate Risk, Foreign Exchange Risk, Price Risk, Operational Risk, Reputational Risk and Compliance/Regulatory Risks. The risk management programme of each financial institution should at least contain the following elements of a sound risk management system: Active Board and Senior Management Oversight, Adequate Policies Procedures and Limits, Adequate Risk Monitoring and Management Information Systems (MIS) and Adequate Internal Controls. (Central Bank of Kenya, Prudential Guidelines 2006).

In Kenya, risk-taking is an inherent element of banking and, indeed, profits are in part the reward for successful risk taking in business. On the other hand, excessive, poorly managed risk can lead to losses and thus endanger the safety of a bank's deposits. Such outcomes could either result in direct loss of earnings/capital or may result in imposition of constraints on bank's ability to meet its business objectives. These constraints pose a risk as they could hinder a bank's ability to conduct its ongoing business or to take benefit of opportunities to enhance its business. As they make everyday decisions, managers of financial institutions are expected to ensure that the risks a financial institution is taking are warranted.

2.5 Summary

The chapter has explored the various theories on financial innovations and risk management concepts. Apart from the attempts to define and describe the concepts, the scholars and practitioners contend that financial innovations require robust and comprehensive risk management policies and procedures to avoid failure of financial institutions. The key elements of a robust risk management framework include active board and senior management oversight, adequate policies procedures and limits, adequate risk monitoring and management information systems and adequate internal controls. In Kenya the Central Bank of Kenya has put in place robust risk management policies in a document referred to as the Prudential Guidelines which guide the commercial banks in their risk management endeavors.

Nonetheless, there is no specific empirical study that has been carried out on the effect of financial innovations on risk management practices of commercial banks in Kenya. Therefore, this study seeks to fill that knowledge gap by ascertaining the effect of financial innovations on risk management practices of commercial banks in Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The chapter provides an outline for conducting the study. It identifies research design and and data collection procedures. It also describes the technique for data analysis and methods for data presentation and checking for validity and reliability of the findings.

3.2 Research Design

The research was conducted through a survey design. According to Kothari (2004) descriptive research includes surveys and fact-finding enquiries and describes the state of affairs as it exists at present. It also assists to ascertain and be able to describe the characteristics of the variables of interest in a situation (Kombo and Tromp, 2006). Therefore, the survey design assisted to portray the current status of financial innovations and risk management practices in Kenya. The design also enabled the researcher to summarize the findings in a way that provided information on the effect of financial innovations on risk management practices of commercial banks in Kenya.

3.3 Population and Sample

According to Curvery et al. (2003) a population refers to an entire group of persons or elements that have at least one thing in common. A population is a group of individuals, objects or items from which samples are taken for measurement. The target population was made of all the 43 commercial banks in Kenya licensed by the Central Bank of

Kenya as at 31st December 2011.These included 6 large commercial banks, 14 medium sized banks and 23 small banks (Appendix I).

The study employed stratified random sampling design. All the 43 commercial banks were stratified into three strata consisting of six large commercial banks, 14 medium sized banks and 23 small commercial banks. All the six large commercial banks were included in the sample and 6 commercial banks were randomly selected from each of the other two strata to make a sample size of 18 commercial banks.

3.4 Data and Data Collection Instruments

This study sought to collect secondary data for the period between 2002-2011. The data was collected from the relevant documentations and official records like the Financial Products Report and the Risk Manuals of the selected commercial banks.. The data collection tools enabled a trade-off between cost, speed, accuracy, detail, comprehensiveness, response rate, clarity and anonymity which are useful for validity and reliability.

3.5 Data Analysis

The collected data was analyzed using the Statistical Package for Social Sciences (SPSS). The multiple regression technique was used to quantify the relationship between the dependent variable and the independent variables. The technique assisted to come up with estimated coefficients in the empirical equation that measure the change in the value of the dependent variable for each one-unit change in the independent variable, holding the other independent variables constant. This enabled the researcher to determine the

independent variables that have a positive effect on the dependent variable at a given level of significance. The empirical model was as follows:

3.5.1 Empirical Model

$Y= a + b_1X_1 + b_2 X_2 + b_3X_3+ b_4X4+ b_5X_5+ b_6X_6 + ε$.....(1)

The basis of the model was the theory on risk integration by Hanson (1998) which holds that risks (operational risk, credit risk, liquidity risk, compliance risk, legal risk, reputational risk, market risk and others) must not be viewed and assessed in isolation, not only because a single transaction might have a number of risks but also one type of risk can trigger other risks. Therefore, since interaction of various risks could result in diminution or increase in risk, the risk management process should recognize and reflect risk interactions in all business activities as appropriate. In order to measure the dependent variable (Y) the researcher used the annual risk index factor of commercial banks being the expression of an integrated risk status associated with products, processes and institutions. The researcher sought to establish the relationship between the total risk(dependent variable) and the total value of investments in financial innovations (product, process and institutional) being the independent variables. The components and measurements of the variables was as follows:

a = constant(The Risk Factor that exists without any investments in innovations)

$\mathbf{b_{1....}\ b_6}$ are co-efficients of the independent variables (X_1.....X_6) respectively.

$\mathbf{X_1}$ = Value of New Current Accounts,

$\mathbf{X_2}$ = Value of New Savings Accounts,

$\mathbf{X_3}$ = Value Transacted through Mobile Banking,

$\mathbf{X_4}$ = Value Transacted through Real Time Gross Settlement System,

$\mathbf{X_5}$= Value of Bad Debts Refferred to Credit Referencing Bureaus,

$\mathbf{X_6}$ = Value of Investments in the Automated Trading System at NSE

$\boldsymbol{\acute{\varepsilon}}$ = the error term

Mean scores were appropriately used to establish how financial innovations influenced the risk management practices of commercial banks in Kenya as was indicated by scores put against each descriptive statement. Percentages and frequencies were equally used, the sum of which determined the mean scores. The findings of the study were presented in tabular form for ease of interpretation and reporting.

Correlation analysis was used to establish existing relationship between the dependent and independent variables. The Pearson's Correlation Coefficient was be used to establish the strength of relationship between the variables, and the relationships' linearity. The correlation coefficients measured the degree to which the variables were related ranged from 0 to +1 if positively correlated and 0 to -1 if negatively correlated.

3.5.2 Data Validity and Reliability

Validity is concerned with whether the findings are really about what they appear to be about while reliability refers to the extent to which the data collection techniques or analysis yields consistent findings. In order to establish the validity of the instrument SPSS was used to determine the coefficient of determination that indicated the extent to which the independent variables explained the changes in the dependent variable. The ANOVA model was also established to indicate the level of fitness and validity of the model with the existing set of independent variables.

CHAPTER FOUR

DATA ANALYSIS AND DISCUSSIONS OF FINDINGS

4.1 Introduction

This chapter presents analysis and findings of the study as set out in the research methodology. The study findings are presented as an evaluation of the relationship between financial innovations and risk management framework of selected commercial banks in Kenya. The data was gathered exclusively from the audited financial statements being the source of secondary data in line with the objectives of the study.

4.2 Summary Statistics

Table 4.2 Risk Management Framework and Financial Innovations

Variable	N	Minimum	Maximum	Mean	Std. Deviation
New Current Accounts	10	676453	1397650	1055998.8	214295.4049
New Savings Accounts	10	1123000	1849050	1437246.1	208078.902
Mobile Banking	10	307950	758002	578771	148818.5316
RTGS Volumes	10	111234	501234	260840.6	109073.9647
Credit Referencing Bureaus	10	568120	1308200	1043579.9	216145.7718
NSE-ATS Volumes	10	13612	234000	115940.6	79044.99456
Risk Index Factor	10	24.73	25.02	24.892	0.13482602

The findings indicated that t the current account deposits fluctuated highly during the period under study. Similarly, the average total saving accounts deposits had significantly high fluctuations. The mobile banking transaction levels and RTGS transactions also fluctuated highly during the period of study. On the other hand, bad debts did not have very high fluctuation rates during the period of study. The volume of transactions traded via the Automated Trading System at Nairobi Stock Exchange indicated a high fluctuation during the study period. Finally, the risk index factor fluctuated marginally during the study period.

Figure 4.2.1 Investments in Financial Innovations

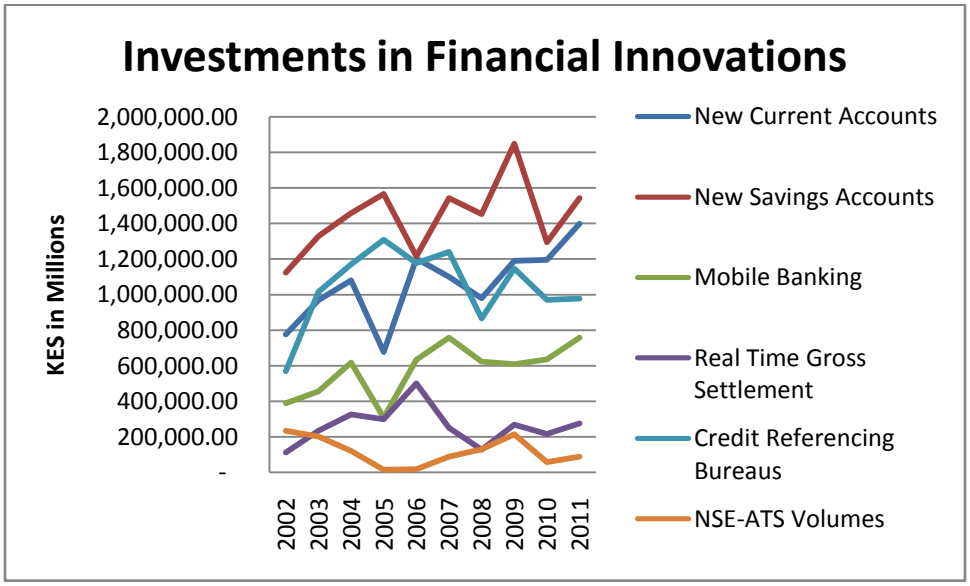
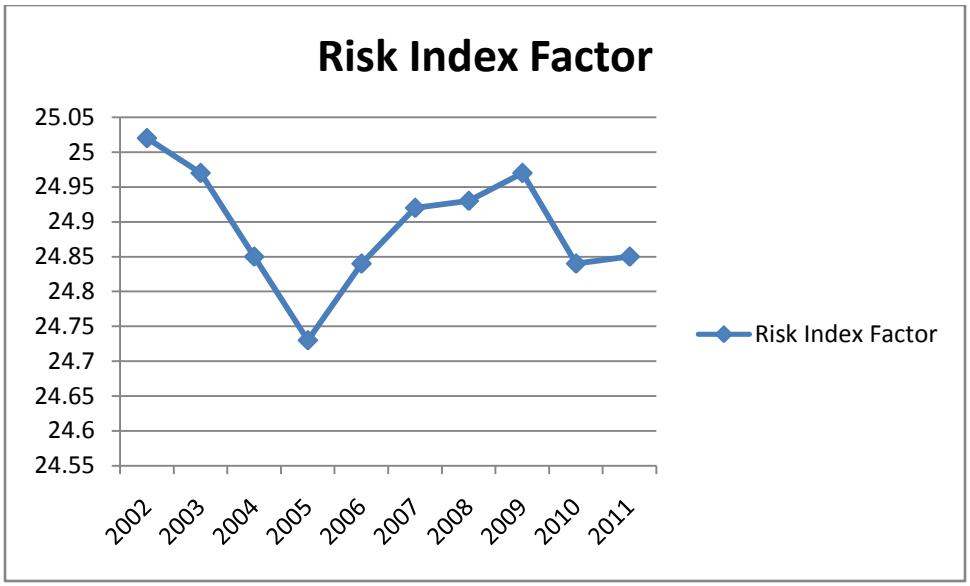


Figure 4.2.2 Risk Index Factor Performance


Risk Index Factor
25.05
25
24.95
24.9
24.85
24.8
24.75
24.7
24.65
24.6
24.55
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
Risk Index Factor

4.2.1 Correlation Analysis

Table 4.3 Correlation between Financial Innovations and risk index factor

Correlations		
		ROTA
Total Current Assets	Pearson Correlation	0.575276373
	Sig. (2-tailed)	0.081867681
Total Current Liabilities	Pearson Correlation	0.046320631
	Sig. (2-tailed)	0.898890746
Mobile banking	Pearson Correlation	0.499655163
	Sig. (2-tailed)	0.141431734
Real time gross settlement	Pearson Correlation	-0.49094305
	Sig. (2-tailed)	0.149623194
CRB	Pearson Correlation	0.946045394
	Sig. (2-tailed)	0.00873775
NSE-ATS volumes	Pearson Correlation	0.412222811
	Sig. (2-tailed)	0.236501978
****Correlation is significant at the 0.01 level (2-tailed).**		

The findings indicated that at the commercial banks during the period 2001-2011 the financial innovations that had a positive correlation with the risk index factor included

new current accounts assets at 0.58 (2dp), new savings accounts at 0.05 (2dp), mobile banking volumes 0.50(2dp) and automated trading system volumes at 0.41(2dp). The working capital elements with a negative correlation with the risk factor included RTGS volumes at -0.49 (2dp) and credit referencing bureau referrals at -0.56 (2dp). Notably, all the elements except the credit referencing bureau referrals did not have a significant correlation with the risk factor at 0.01 level of significance. However, the credit referencing bureau referrals had a significant correlation coefficient of 0.00873775 at the same level of significance. This indicated that only the credit references bureau referrals could be conclusively held as being positively correlated with the risk index factor at the sampled commercial banks during the study period, 2002-2011.

4.3 Empirical Model

In addition to the above analysis, the researcher conducted a multiple regression analysis so as to test relationship among variables (independent). The researcher applied the statistical package for social sciences (SPSS) aid in the computation of the measurements of the multiple regressions for the study.

Table 4.4.1 Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.985267711	0.931123254	0.820171633	0.062114338

Coefficient of determination explains the extent to which changes in the dependent variable can be explained by the change in the independent variables or the percentage of variation in the dependent variable (risk index factor) that is explained by all the seven independent variables (total new current accounts, total new savings accounts, total mobile banking transaction volumes, real time gross settlement volumes, credit referencing bureaus referrals and automated trading system volumes at NSE)

The six independent variables that were studied, explain 82.02% of the relationship between financial innovations and risk management framework (risk index factor) at the selected commercial banks as represented by the R^2. This therefore means that there are other factors not studied in this research which contributes 17.98% of the relationship between financial innovations and risk management framework at the commercial banks. Therefore, further research should be conducted to investigate these factors affecting (17.98%) of the risk issues at the commercial banks.

Table 4.4.2 ANOVA Model

ANOVA						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	155.6103958	7	37.02223006	69.75300466	.001607906
	Residual	118.0079921	190	.623996052		
	Total	343.1636025	196			

From the ANOVA Model the analysis of variance and the '*F*' statistic (69.75) suggested that the model is fit and it is valid with the existing set of independent variables.

4.3.1 Coefficient of Determination

Table 4.5: Coefficient of determination

Coefficients		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
Model		B	Std. Error	Beta		
1	(Constant)	0.6047	0.5609		1.0387	0.7358
	Total new current accounts	0.4364	0.1571	0.6936	1.0278	0.8072
	Total new saving accounts	0.2149	0.1081	0.3317	1.0268	0.8608
	Mobile banking volumes	-0.3341	0.3935	-0.3688	-1.8491	0.4853
	RTGS	-0.1012	0.5022	-0.8092	-1.9917	0.1847
	Credit referencing bureau referrals	0.4741	0.2146	0.5721	2.9209	0.0084
	NSE-ATS volumes	0.7192	0.4226	0.0126	1.0519	0.6633

In order to determine the relationship between the risk factor and the six independent variables at the commercial banks, the researcher conducted a multiple regression analysis. As per the SPSS generated table 4.5, the equation ($Y= a + b_1X_1 + b_2 X_2 + b_3X_3+ b_4X4+ b_5X_5+ b_6X_6 + ε$) becomes:

$Y= 0.605+ 0.436\ X_1+ 0.215X_2+ -0.334X_3+ -0.101X_4+ -0.474X_5+ 0.719\ X_7$

Where Y is the dependent variable (risk index factor), X_1 is the total new current accounts, X_2 is total new savings accounts, X_3 is total mobile banking volumes, X_4 is real time gross settlement volumes. X_5 is credit reference bureaus referrals and X_6 is nairobi stock exchange –ATS volumes

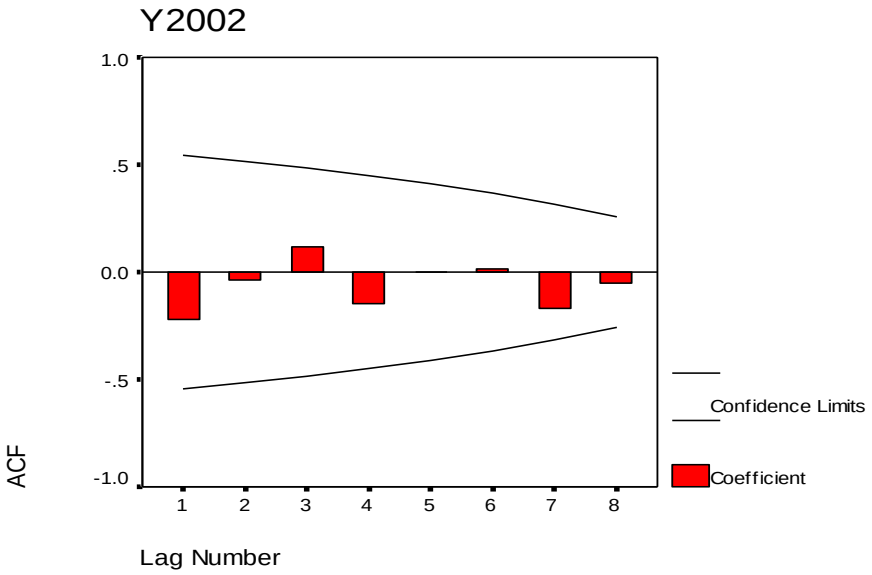
As per the regression equation established, if all financial innovation factors were taken to be constant at zero, risk index factor at the commercial banks will be 0.6047. The data findings analyzed also shows that if all other independent variables are taken at zero, a unit increase in total new current accounts will lead to 0.436 unit increase in the risk factor at the commercial banks. Further, a unit increase in total savings accounts will lead to a 0.215 increase in the risk factor at the commercial banks whereas a unit increase in mobile banking volumes will lead to 0.334 decrease in the risk factor at the commercial banks and a unit increase in real time gross settlement transactions will lead to a 0.101 decrease, a unit increase in credit refrencing bureau will lead to a 0.474 increase, while a unit increase in nairobi stock exchange automated trading transactions will lead to a 0.719 increase in the risk index factor at the selcted commercial banks. The results of the test show that the coefficient estimates of all the independent variables, except that of the mobile banking volumes and real time gross settlements volumes are positive conveying the message that these four independent variables (new current accounts volumes, new savings accounts totals, and automated trading system volumes) have positive effect on the return on the risk index factor. From the above analysis of the betas, it can also be inferred that nairobi stock exchange automated trading transactions contributes a lot on the risk factor at the commercial banks followed by total new current accounts and total

new savings accounts respectively. The t critical at 0.01 level of significance at k = 7 degrees of freedom is 1.415. Since only the credit referencing bureaus' referrals t calculated value was above 1.415 then it is the only financial innovations elements that was significant in explaining the risk factor at the selected commercial banks. Therefore, the amount of referrals to credit reference bureaus is the only statistically significant variable at 0.01 level of significance.

4.3.2 Test of Autocorrelation

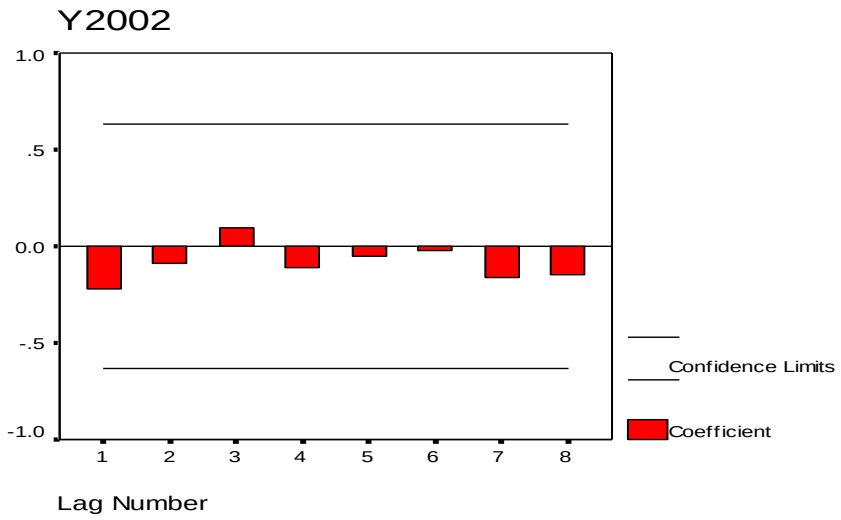
Autocorrelation is a statistical method used for time series analysis. An auto-correlated time series is predictable, probabilistically, because future values depend on current and past values.

Figure 4.6.1 Test of Autocorrelation of risk index factor



The autocorrelation function was the tool used for assessing the autocorrelation of the risk index factor at the commercial banks. It was established that generally the risk index factor had a negative autocorrelation. Therefore the risk index factor was not predictable, probabilistically, because future values did not depend on current and past values within the 10 year period (2002- 2011).

Figure 4.6.2 Partial Autocorrelation of the risk index factor



A partial autocorrelation is the amount of correlation between a variable and a lag of itself that is not explained by correlations at all lower-order-lags. The findings indicated a negative partial autocorrelation of the risk index factor at the selected commercial banks. This indicated that at the selected commercial banks the amount of the risk index factor and a lag of itself was not explained by correlations at all lower-order-lags.

4.3.3 Remedy for Autocorrelation

The components of financial innovations that were identified to be negatively correlated with the risk factor were mobile banking volumes and the real time gross settlement

transactions. Therefore, the remedy for autocorrelation of the risk index factor at the commercial banks would be maintenance of a steady and predictable level of secure mobile banking and international money transfer platforms.

4.4 Discussion of Results

The results were discussed in relation to empirical studies and linkage of the findings to the established theories on financial innovation.

4.4.1 Relationship to Empirical Studies

Many researchers in the past have studied the relationship between financila innovations and the risk management practices of financial institutions. Mwangi (2007) carried out a study on factors influencing financial innovation of companies listed at Nairobi Stock Exchange. The objective of the study was to explain the macro and micro-environmental factors influencing financial innovation in Kenya's securities market. The researcher found out that macro-environmental factors are the main drivers of financial innovations while micro-environmental factors usually affect the response rate of organizations to the financial innovations. The findings of this study have also indicated that the main financial innovations affecting the risk factor at commercial banks are the automated trading volumes at the stock exchange, new current accounts opened at commercial banks and the amounts of savings mobilised by the public. These bears confirms that the risk factor is affected by macro-economic factors.

Batavia (1999) conducted an analysis of financial performance of Kenyan commercial banks and found out that risk management is central to any commercial bank's ability to register consistent profits and higher shareholders' returns. The findings of this study

have also indicated that the main element of financial innovations that has a significant correlation with the rsik factor are the bad debts referred to credit reference bureas. This confirms that risk management is aimed at delivering profits through avoidance of losses occassioned by bad debts.

Tufano (1989) did a research on Financial Innovation and first mover advantages. The objective of the study was to determine whether financial products innovators enjoy first mover advantages. The researcher concluded that the innovators that created new financial products did not charge higher prices in the period before imitative products appear and in the long run charged lower than rivals hence leading to losses. The researcher underscored the need for a robust risk management framework for all functions of the organization including marketing and promotions. The findings of this study indicated that the financial innovations with positive correlation with risk factor were the total new current accounts and the total new savings accounts. Ideaaly, commercial banks are margin traders of the bank deposits which are usually collected through the current and savings accounts. Therefore, this research confirms that there is need to manage risks across all functions of the commercial banks including the collection of deposits through current and savings accounts because they ultimately contribute to the risk factor of the organisations.

4.5 Summary

Merton's (1992) identifies six functions delivered by financial systems: Moving funds across time and space, the pooling of funds, managing risk; extracting information to support decision-making, addressing moral hazard and asymmetric information problems; and facilitating the sale and purchase of goods and services through a payment

system. The components of the empirica model included current accounts, savings accounts, mobile banking, real time gross settlement, credit reference bureaus, automated trading system and the automated trading system at the stock market. The test of validity returned a 69.75 percentage in validity. Therefore, the positive validity of the model confirms that all the stated functions are wihin the scope of the commercial banks and well captured by the risk management framework of the commercial banks.

Heffernan (1996) suggests that the risk framework should be comprehensive enough to capture all risks a bank is exposed to and have flexibility to accommodate any change in business activities. He concludes that an effective risk management framework includes clearly defined risk management policies and procedures covering risk identification, acceptance, measurement, monitoring, reporting and control, a well constituted organizational structure defining clearly roles and responsibilities of individuals involved in risk taking as well as managing it. The findings of this study was based on the overall risk index factor of commercial banks upon considering the credit risk, liquidity risk, default risk, settlement risk, interest rate risk, country risk and operational risk within the commercial banks. Therefore, the validity of empirical model is testimony that the risk index factor was comprehensively covering all the risks the commercial banks were exposed to including the interest rate risk that is driven by the macro-environmental forces.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter provides the summary and conclusions of the findings of the study .It also identifies the limitations of the study. Finally it provides suggestion for further study

5.2 Summary of the Study

The findings established that the commercial banks in Kenya operated within an average risk factor of 24.892 points between 2002 and 2011. The average new current accounts deposits were 1055998.80, new savings accounts deposits were kes1437246.10, mobile banking volumes were kes578771.0, real time gross settlement transaction volumes were 260840.60, credit reference bureau referrals amounted to 1043579.90 while the stock exchange automated trading volumes averaged 115940,6 within the same period.

The regression analysis indicated that all the financial innovations elements had a positive correlation with the risk factor except for mobile banking transactions and real time gross settlement transactions. This could be explained by the fact that these two elements are determined more by the security of the payment platforms than the prevailing market conditions like infalation and exchange rates.

The coefficient of determination (R^2) indicated that the six independent variables that were studied, explained 82.02% of the relationship between financial innovations elements and risk factor of commercial banks. The ANOVA model '*F*' statistic (69.75) suggested that the model was fit and valid with the existing set of independent variables.

Lastly, the findings established that generally the risk factor at the commercial banks had a negative autocorrelation during the 10 year period (2002- 2011). In other words, the risk factor was not predictable, probabilistically, because future values did not depend on current and past values.

5.3 Conclusions

From the above findings the researcher concluded that in the period between 2002-2011; commercial banks operated within a risky environment but managed to mitigate the risk by investing more on secure money transfer platforms like mobile banking, internet banking and real time gross settlement as depicted by their negative correlation with the risk index factor. However, during the same period, the commercial banks had significant increases in bad debts that were referred to credit reference bureaus and the bad debts had a positive correlation with the risk factor, signifying that commercial banks incorporated the risk element in their pricing of lending facilities.

The coefficient of determination (R^2) at 82.02% and '*F*' statistic at 69.75 indicated that the model was fit and valid with the existing set of independent variables. This therefore signified that the management of financial innovations elements was the main determinant of the risk index factor levels at the selected commercial banks and by extension any other commercial bank and financial institution. However, the unpredictability of the risk factor as evidenced by the negative autocorrelation pointed to other factors beyond the control of the commercial banks like culture of the borrowers, political climate, natural calamities and risk appetite of the investors as the other possible factors that could explain the risk index factor at the commercial banks.

5.4 Limitations of the study

The study relied on secondary data collected from audited financial statements and risk manuals of the sampled commercial banks. Therefore, the integrity of the findings is affected by the accuracy and reliability of the financial statements, financial products reports and risk manuals of the respective commercial banks.

5.5 Suggestion for further study

The researcher suggests a similar study be conducted through a survey of the MFIs. This will allow for a comparison of the findings to come up with recommendations that be applicable to all the players in the lending business in Kenya

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APPENDIX I:

LIST OF COMMERCIAL BANKS & THEIR MARKET SHARE IN GROSS ASSETS

Rank	BANK	% Gross Assets
	6 LARGE BANKS>5%	
1	Kenya Commercial Bank Ltd	14.2%
2	Equity Bank Ltd	8.6%
3	Co-operative Bank of Kenya Ltd	8.5%
4	Barclays Bank of Kenya Ltd	8.4%
5	Standard Chartered Bank Kenya Ltd	7.9%
6	CFC Stanbic Bank Kenya Ltd	6.7%
	14 MEDIUM BANKS (1-5)%	
7	Commercial Bank of Africa Ltd	4.1%
8	I & M Bank Ltd	3.8%
9	Diamond Trust Bank Kenya Ltd	3.7%
10	NIC Bank Ltd	3.6%
11	Citibank.N.A. Kenya	3.5%
12	National Bank of Kenya Ltd	3.5%
13	Chase Bank Ltd	1.9%
14	Bank of Africa Kenya Ltd	1.8%
15	Bank of Baroda Kenya Ltd	1.8%
16	Prime Bank Ltd	1.7%

17	**Ecobank Kenya Ltd**	**1.4%**
18	**Family Bank Ltd**	**1.3%**
19	**Imperial Bank Ltd**	**1.3%**
20	**Bank of India Ltd**	**1.1%**
	23 SMALL BANKS <1%	
21	**Consolidated Bank of Kenya**	**0.8%**
22	**Fina Bank Ltd**	**0.7%**
23	**Gulf African Bank Ltd**	**0.6%**
24	**African Banking Corporation Ltd**	**0.6%**
25	**Equatorial Commercial Bank Ltd**	**0.6%**
26	**Giro Commercial Bank Ltd**	**0.6%**
27	**Development Bank of Kenya Ltd**	**0.6%**
28	**Fidelity Commercial Bank Ltd**	**0.5%**
29	**K-Rep Bank Ltd**	**0.5%**
30	**Guardian Bank Ltd**	**0.5%**
31	**First Community Bank Ltd**	**0.4%**
32	**Habib Bank A.G. Zurich**	**0.4%**
33	**Transnational Bank Ltd**	**0.4%**
34	**Victoria Commercial Bank Ltd**	**0.4%**
35	**Charterhouse Bank Ltd**	**0.3%**
36	**Habib Bank Ltd**	**0.3%**

37	**Credit Bank Ltd**	**0.3%**
38	**Paramount Universal Bank**	**0.3%**
39	**Oriental Commercial Bank**	**0.2%**
40	**Middle East Bank Kenya Ltd**	**0.2%**
41	**UBA Kenya Ltd**	**0.1%**
42	**Dubai Bank Ltd**	**0.1%**
43	**Jamii Bora Bank Ltd**	**0.1%**

Source: Central Bank of Kenya (2012)