DETERMINANTS OF FINANCIAL INNOVATION AND ITS EFFECTS ON BANKS PERFORMANCE IN KENYA

BY

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DECLARATION

This is my original work and has not been presented for a degree in any other university

Catherine W Kihumba

Signature ..... Date 22nd/11/2008

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

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Signature ..... Date 22/11/2008

DEDICATION

I dedicate this project to my beloved husband Kihumba and my children Nyambura, Waithera, Wairimu and Kamotho for being so understanding and supportive during my study period

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

Due to universal trends and forces like globalisation, technology and liberalisation, banks in Kenya have continually undertaken financial innovation to improve financial performance This study investigated the determinants of financial innovation and the impact of financial innovation on bank performance in commercial banks in Kenya

An exploratory research design was used on a sample of 43 commercial banks Primary data was collected through a questionnaire and secondary data were sourced from bank financial records A conceptual model was developed to show factors influencing financial innovation and its impact on bank performance The analytical model and the f-test and t-test were used to determine the strength of the relationship between the variables

Financial innovation in Kenya has been influenced by heavy competition financial service market, technological facilities, size of financial institution, macro economic conditions legislation and financial supervisory and financial risks

These factors have led to increase in branch network and an increase in the number of customers They have also led to increased innovation in the areas of new technology, new products, new services and new processes. Among the surveyed banks majority of them have undertaken financial innovations as renewals of an existing product A smaller number have developed an entirely new technology, product or process

Financial innovation in the banks was also found to bring benefits The most important being improved customer service, market expansion and increased bank revenue There are also moderate benefits in reduction of number of customers in the banking halls reduction in operation costs and geographical expansion of banks The study therefore establishes that financial innovation has influenced bank performance in a positive way

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background to the Study

In the 21st century there is no escaping universal trends and forces like globalization, technology and liberalization. These have significant impacts on all economies of the world with major effects on efficiency productivity and competitiveness (Merton, 1992) These trends have increased the number of financial institutions leading to increased competition Competition erodes the economic "rents" associated with new products The process leads to evolution of what we term "generic" products for older established products and services At the same time, it causes firm to continually innovate in an attempt to establish new market niches This intensive competitive pressure is a primary reason for tremendous variety of products and services that characterizes a market economy, and that meet the specialized needs of millions of consumers

The traditional banking products are homogenous and intangible (Kotler, 2000) This presents a positioning constraint to banks that are desirous of differentiating themselves to the selected target markets (Aaker, 1996) Banks must therefore innovate regularly to provide an array of products and services that will deliver value to their customers hence enabling them to earn more revenue, cost saving opportunities and growth (Kotler 2000, Aaker, 1996) In order to survive in business, banks have had to design new means of retaining their market share or attracting new markets Banks have realized that to stay ahead of competitors they have to improve their existing product or come with complete innovations (Oloo, 2004)

Banking markets in Kenya were for a long term dominated by Oligopolistic foreign banks such as Barclays Bank and government owned banks such as National Bank of Kenya However since the mid 1980s, locally owned private sector banks such as Equity Bank and non bank financial institution (NBFI) such as Faulu Kenya have gained a significant share of banking and financial markets The government has also sold its shares in National Bank and Kenya Commercial bank as a way of reducing government dominance This therefore means that there has been an increase in local private ownership of commercial banks

The banks provide important benefits to Kenya such as advancing loans and encouraging savings Through financial liberalization competition in the banking market has increased It has also stimulated improvements in services to customers and expanding access to credit, especially to domestic small and medium scale business The banks are thus providing important benefits to Kenyans

The banking sector in Kenya has 43 Commercial banks According to Ogwae (East African Standard Feb 2007), in the early 1990s the top financial institutions made major strategic shifts that threw many customers out of their banking halls in pursuit of fat profits They then proceeded to shut down branches in rural areas and other localities that would not bring huge profit This left a big vacuum

New competitors in name of microfinance institutions such as Equity and K-Rep which have since converted to banks entered the scene to fill in the vacuum They cater for low income earners and the rural consumers The leading banks have also faced competition from the savings and credit co-operatives Locked in a game of numbers, leading banks

are trooping to a market they had shunned Banking has been reduced to a game of volumes as the competition heats up to reduce margins razor thin

Since the mid 1990s, Commercial banks in Kenya have been carrying out financial innovation such as mortgage products, automatic teller machines, new savings accounts, reduction interest rates, E-banking and insurance services All these financial innovations are meant to ensure that banks face the competition and stay afloat

1.1.1 The Concept of Financial Innovation

Financial innovation can be defined as positive changes in financial intermediation or financial system in financial institutions and in financial markets (Juhakani 2003). The aim of financial innovation is to make different services (loans, deposits, investment funds units, debt instruments, shares, derivatives for risk management, currency exchange, payments and etc),offered by financial system cheaper and more available for clients and to increase their quality, which is an assumption for a long run sustainable growth of economy

Financial innovations enhance sustainability of institutions and their outreach to their customers Innovation occurs because market participants are constantly searching for new ways to make greater profits The banks also introduce the innovation to respond better to changes in market demand and to improve their efficiency

The types of financial innovations include institutional innovations These innovations relate to changes in business structures or setting up a completely new service structure and internet only banks They also include process innovations which cover the

introduction of new business processes leading to increased efficiency and market expansion These include office automation and use of computers with accounting and client's data management software

In addition, Product innovations relate to the introduction of new credit, deposit, insurance, leasing, hire purchases and other financial products Product innovations are introduced to respond better to changes in market demand or to improve the efficiency of the institution

1.1.2 Financial Performance

There are various factors that influence financial performance by banks These include economic situations such as high inflation rate which reduces the performance. Political legal factors that include less government interference and liberalization improve the performance High level of employment leads to high income and hence high savings This increases the customer's deposits used by commercial banks to advance loans The interest earned from these loans can increase the banks earnings Good management style and corporate governance accompanied by financial innovations increase the efficiency of commercial banks

Financial performance indicators include:

Capital adequacy this indicates the extent to which an institution's capital base covers the risk inherent in its operations The capital cushions against losses which cannot be supported by earnings Further, capital acts as evidence of the willingness of the share holders to commit their own funds on permanent basis to the institution This can be

measured using ratios such as shareholder equity to total assets and shareholders equity to total loans ratios

Asset quality The loans and advances form the greatest proportion of banking institutions assets The same present the greatest risk in terms of potential loss exposure The asset quality can be measured by using non-performing loans to total loans ratio

Earnings They help to absorb losses arising from provision for bad debts This helps to protect the capital base from erosion in circumstances where profits are not adequate to cover the bad debts The dividends are distributed to shareholders from the earnings of the banks However excessive high return on assets can at times be an indication of excessive risk taking behaviour which is potentially dangerous to the stability of the bank An extremely low earning may indicate a problem in the bank specifically non-performing loans The performance is measured through total income to total assets ratio and net assets to total assets

Liquidity This indicates the daily ability of a bank to access cash daily by meeting maturing obligations and allowing for expansion of assets The liquid assets are convertible into cash Ratios such as quick ratio can be used to measure performance

Benchmarking This involves the banks performance being measured against the best in class banks This helps the bank managers to find out whether their practices strategies and performance are similar to the best

1.1.3 Relationship between Financial Innovation and Financial Performance

In broad sense, financial innovations affect the nature and composition of monetary aggregates through new financial instruments or changes in old instruments as well as the terms and conditions of debt or credit arrangements

Innovations can be grouped by a functional basis, "aggressive" or "defensive" Aggressive Innovation is the introduction of a new product or process, in response to perceived demand

Defensive innovation is in response to changed environment or transaction cost Financial innovations lower the transaction cost of transferring funds from lower yielding money balances to higher yielding alternatives Therefore financial innovators attempt to minimize risk and to maximize return (Flood, 2002) Other incentives for innovation include the trading profits from after market activities, enhanced bank reputation, and more persistent clientele

However financial innovation comes with risks The risks include systematic risk Markets almost always produce a variety of new products hoping to earn higher profits and they may not consider the risks involved This is something that regulators and indeed the Central Bank of Kenya must factor in as it considers the impact of any innovation While the new product may begin with only a few participants, it quickly spreads across the commercial banks and therefore there is a need for the regulators to prepare for system wide consequences resulting from new innovative products This

means that for banks to meet their objectives they have to innovate regularly otherwise they would have to close down due to stiff competition

1.1.4 Financial Innovation and Bank Performance in Kenya.

"One of the bedrocks of our financial system is financial innovation, the life blood of efficient and responsive capital markets" (Van Horne 1985) The Kenyan banking sector has indeed recognized this and for the last ten years financial innovations have continued to increase. The Central Bank of Kenya Governor Professor Njuguna Ndungu remarked that commercial banks should provide consumers with appropriate savings, and investments products to guard them from unscrupulous business people in the form of pyramid schemes

The poor in Kenya have been disadvantaged for a long time because the conventional banks and other formal financial institutions rarely cater to them The reasons cited are that they are a high-risk group, do not perceive themselves as being able to meet the requirements for obtaining financial services from formal financial institutions They also lack a credit history and are often unable to raise the minimum balance for opening a savings bank account In addition they face high transaction costs, face unfriendly and bureaucratic procedures in dealing with formal institutions and the cost implications would make the financial providers unsustainable. Therefore, the poor, who earn less than a dollar a day, are thought to be neither credit worthy nor able to save or pay for insurance against any of the risks they face These assumptions were discounted by the empirical research on informal financial markets and the risk-coping behavior of households (Paxton., Deaton, 1992)

The financial intermediation gap left by the banking institutions led to the emergence of the microfinance industry This industry made a lot of profits by providing savings and loan products affordable to the poor people Due to the benefit derived by the micro-finance institution, commercial banks have innovated by providing similar products especially for the small and medium scale businesses

The commercial banks have accelerated lending and made forays into the mass-market segment, now billed as the next profit frontier for the industry In addition, the banks have shed their high street image by going big on retail and small and micro enterprise banking backed by a direct sales force to bring in new customers The industry's heavy weights Barclays and Kenya commercial bank, for example have embarked on ambitious expansion drives into rural areas and massive automated teller machines rollouts There has been a wide untapped market and this has led to introduction of products for Muslims, women and students These are the products that can increase the profitability of the bank as well as increasing their market base The banks have opted for production innovation and technology backed banking solutions This has ensured continuity and achievement of the strategic goals set by the bank

The government of Kenya liberalized the banking sector This led to the increase in the commercial banks Due to the high competition, banks have had to change their technology and products to meet different client's needs The banks have strengthened the infrastructure and technology of the banks, developed a robust risk management capability, reinvigorated their brands, and have increased staff engagement and deepened their talent pool

The banking sector in this country has, over the last few years, witnessed significant growth in consumer lending This evidenced by the growth in real private sector credit of 17 7% in the twelve months to May 2007 The resultant credit expansion has brought significant benefits to the economy, but the information asymmetry that is prevailing in the lending environment poses a real challenge in the form of credit risk for the banking sector in Kenya Banks such as K-rep bank has been faced by default issues due to poor screening of potential borrowers and bad appraisal of investments.

In order to mitigate this risk and promote effective credit provision, consumer protection and strong institutions for these aspects, the Central Bank has been working towards the development of credit information sharing mechanisms in Kenya The Banking Act has recently been amended to make mandatory for institutions licensed under the Banking Act to share credit information on non-performing loans

The introduction of modern technology such as the use of computer processing of clients accounts and introduction of automated teller machines was indeed to reduce transaction costs When these costs are reduced the profits of the banks increase and the shareholders also benefits through higher dividends

The challenge for commercial banks in Kenya is to continue to invest at the right pace, at the same time, and to seek to increase productivity and innovation This will ensure that they get healthy returns on their investments in products capabilities and technology and network expansion

1.2 Statement of the Problem

Financial analysts have diverse opinions on some of the factors influencing financial innovation Schumpeter (1950), suggested that monopoly and giant size of banks are conducive to rapid innovation He argued the market power is necessary to permit firms to generate sufficient returns from innovation He also stated that a larger size of the enterprise implies that the sale of the product embodying the innovation is likely to be large, yielding a greater return on the investment and meet the costs of innovation In contrast Scherer (1984) suggests that smaller banks; with only modest levels of market power may be more likely to be rapid innovators, because of the competitive pressures that are absent in the "quiet life" world of monopoly This view of Scherer is supported by Sinha and Chandrashekaran(1992)

Peter and Raphael (1995) in their study on Australia banks found no evidence that the propensity to move first into new initiatives has a significant impact on financial performance. This view contrasts with Sinha and Chandrashekaran (1992) who are of the opinion that early adopters of financial innovations have improved financial performance They performed a survey on the use of automated teller machines in United States and found that early adoption is positively related to the banks performance.

These studies are in agreement that regulations can influence innovation and in turn innovations can lead to change in regulation They also agree that advancement in technology influence the financial innovation by lowering costs and therefore improving performance This study sought to find out the factors influencing in financial innovation

in commercial banks in Kenya It also sought to find out the effects on financial innovations on the performance of the commercial banks

1.3 Objectives of the study

(i) To investigate the determinants of financial innovation in commercial banks in Kenya

(ii) To investigate the relationship between financial innovations and financial performance of commercial banks in Kenya

1.4 Importance of the Study

(i) The findings of the study will be of use to the government in understanding the risks involved in undertaking financial innovations and therefore take necessary precautions It is the duty of government to ensure that the financial innovation do not lead to negative effects.

(ii) The study will help in identifying the costs, risks and benefits arising from financial innovation This will help the commercial banks to take the necessary precautions to reduce the costs and risks This will ensure that shareholders get high returns from their investment in the banks

(iii) The study will add to existing body of knowledge of financial innovations in banks This will assist future researchers and scholars in using the study as a source of reference and stimulating interest for further research

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 INTRODUCTION

Innovation is clearly an important phenomenon in any sector of a modern economy Although standard microeconomic theory (rightly) focuses much of its attention on the issues of static resource allocation and economic efficiency, there is nevertheless general appreciation that performance over time is driven by a variety of dynamic factors, including innovation

The financial arena has many imperfections such as, regulations, moral hazards, transaction costs and information asymmetry These factors motivate financial innovation There is diverse literature on what motivates financial innovation and the benefits of innovation Cohen and Levine(1989), focused on five structural conditions market power, size of enterprises, technological opportunity and product market conditions A study on Dutch banks found that in order to benefit from innovation, a bank needs a good network and distribution channels

With the widespread availability of information and increases in both processing capability and regulatory infrastructure, many more transactions can be handled directly in the market or by specialized institutions. This has forced banks to give up products that have become commodity-like and to refocus on products where the bank's value-added is still substantial Typically, we see a cycle of innovation Banks develop a complex new product, extract some rents for a while, and eventually, the product becomes well understood and is offered by the market Banks then move to new products (Ross 1989)

The possibility of new financial products, services and instruments that can better satisfy financial system participants' demands and reduce the risks is always present

2.2 TYPES OF FINANCIAL INNOVATIONS

Financial innovation represents something new that reduces costs, reduces risks or provides an improved product, service and instruments that satisfy the market demand (White 2000). Financial innovation is the catalyst behind the evolving financial services industry and the restructuring of financial markets It represents the systematic process of change in instruments, institutions and operating policies that determine the structure of our financial system

Jacque (1995), stated that financial innovation refers to any new development in a national financial system or the international financial system that enhances the *allocation efficiency* of the financial intermediation process. Financial innovation improves the *operational efficiency* of the financial system by reducing the costs and/or risk of transactions in the primary and secondary markets in which financial instruments are traded

The last 25 years have witnessed acceleration in the process of financial innovation This has been spurred largely by increases volatility of exchange rates, interest rates and commodity prices and an increase in the pace of tax and regulatory change The resulting financial innovations may be classified as new financial intermediaries (e g venture capital funds), new financial instruments (e g collaterized mortgage obligations or credit derivatives), new financial markets (e g insurance derivatives), new financial services (e g e-trading or e-banking) and new financial techniques (e g LBOs)

Schrieder and Heidhues (1995), proposed a useful dis special payment types of financial innovation 's more

Financial system innovations: these are innovations in the fir. such as changes in the structure of the financial sector or in t. framework. A striking example of these innovations is the liberaliz. which occurred in Indonesia 1983.It became a stimulus for the state ank, Bank Rakyat Indonesia, to reinvent itself through a series of process and product innovations These innovations lead to increased bank profitability and its ability to provide financial services to the poor

Financial institution innovations: these are changes in the structure, organization and legal form of an institution. An important example is the establishment of regulated banks by specialist Micro Finance Institute in the Philippines. One of the largest Micro Finance Institute, the center for Agriculture and Rural Development, established the CARD Rural Bank in 1997.This institutional innovation enables the Micro Finance Institute to offer a wide range of financial product to clients, especially on the savings side, and offers greater protection to depositors. In the United States the physical location of offices is diminishing due to the internet that enables institutions to offer services to clients allover the country (De Cecco 1987)

Process innovations: The introduction of new business processes leads to increased efficiency or market expansion. Process innovations are often associated with technological progress. Data-mining techniques used by financial institutions to identify credit worthy customers are an example. Financial innovation involves the profit

generating application of new payment, communication or computing special payment and bank clearing methods This reduce the financial transaction costs, more sophisticated forms of cash and portfolio management are examples type this of information

Product innovations. This refers to the introduction of new or modified financial services, such as new credit, savings, insurance, leasing, hire purchase or other financial products.

(McConnel and shwarch 1992), state that innovations take the form of new securities and financial markets, new products and services, new organizational forms, and new delivery systems They also state that financial institution change the characteristic of financial instruments traded by the public and create new financial markets

2.3 THEORY OF FINANCIAL INNOVATION

Silber (1975, 1983) presented the theory of constraint which is one of the most influential theories of financial innovation This theory considers product innovation as the response of an organization to the constraints placed upon it

Innovations have many causes Firms may need to stop the loss of deposits, enter new geographic or product markets and deliver services with cheaper and better technology In addition they may want to increase their capital base, alter their tax position, reduce their risk profile or cut operating costs ((McConnell and Shwarch 1992)

White and Frame (2002), stated that profit-seeking enterprises and individuals are constantly seeking new and improved products ,processes, and organizational structures

that will reduce their costs of production , better customer demands and yield greater profits

Drucker (1998), stated that most innovations result from a concise, purposeful research for innovation opportunities, which are only found in only a few situations Four areas of such opportunities exist within a company include unexpected occurrences, incongruities, process needs and industry and market changes Two sources of opportunities outside a company in its social and intellectual environment include demographic and perception changes

2.3.1 Financial Innovation and Cost Reduction

Juhakam (2003) asserted that cost reduction is a driver for financial innovation There are many examples of this, such as reductions from improvements in payments processing, or reductions resulting from new ways to deliver financial services electronically to customers However, regulatory restrictions and requirements are also a cost, and some innovations are aimed at avoiding or reducing that cost Miller and Merton (1986) described equity swaps as an efficient delivery method for multinational investors McConnell and Schwartz (1992) showed that Merrill Lynchs LYONS(liquid yield option notes) allow investors to buy low –risk securities together with call options while avoiding the high commission costs of marinating their options positions.

2.3.2 Financial Innovation and Changes in Perceived Market Conditions

Financial innovation is fundamentally market driven Firms offer new products because it is profitable or because the customer demand them or at least will pay for them The

existing structure of the financial industry, size of firm, degree of concentration and competition in the banking sector affect financial innovation The other market conditions are the ease of entry, profitability, extent of development and of specialization among different types of financial instruments, available choice of portfolio assets, and interaction of market forces with regulations effects financial innovations Changes in the international financial environment and the increasing integration of domestic and international financial markets also lead to financial innovation

Some financial innovations arise when existing markets fail to provide needed products These innovations include exchange -traded funds observed by Allen(1994) and zero-coupon bonds seen by Horvitz and Paul(1996).Aaker (1996), noted that when markets turn hostile, it's no surprise that managers are tempted to extend their brands vertically-that is to take their brands into seemingly attractive markets above or below their current position These vertical extensions are sometimes a strategic imperative, but they can be dangerous

2.3.3 Financial Innovation and Economic Environment

Financial innovations occur because agents in the market are searching for new ways to make higher profits A change in the economic environment will stimulate a search for innovations that are likely to be profitable Starting in the 1960s individuals and financial institutions operating in financial markets were confronted with drastic changes in economic environment, inflation and interest rates climbed sharply The interest-risks led to financial innovation The development of variable-rate debt instruments such as certificates of deposits, Mortgages, the creation of the futures market for financial

instruments and creation of an options market for debt instruments appeared in these periods

Some innovations decrease risk volatility associated with globalizing markets The American Development Bank created a currency convertibility and transferability guarantee to address increased exchange rate and political risk Other examples according to Tufano (1989), includes foreign exchange futures, swaps, and options, interest rate futures, swaps options and forwards, and commodity swaps, futures and options

Merton (1992), argued that the macroeconomic impact of innovation was determined ultimately by the causes of the innovation itself, an improved understanding of innovation at the microeconomic level was necessary for greater comprehension of its macroeconomic implications If innovation was attributable largely to falling transactions costs resulting from the use of more sophisticated technology, it could be regarded as bringing about a more complete set of markets By reducing uncertainty and spreading risk more widely, this would lead to an increase in economic welfare, though Black and Scholes (1974) suggested that difficulties might be encountered as risk taking shifted from bankers to speculators Unstable market conditions such as fluctuating prices, interests, exchange rates –create uncertainties and risks and thus are likely to spur more innovation(to alleviate those risks)than would be true in a stable macroeconomic environment Greater instability is likely to be associated with a faster pace of innovation

Cohen and Levin (2000), sought to uncover the environmental conditions that may encourage greater (lesser) search efforts and a larger (smaller) stream of innovations

They focused on five structural conditions market power of enterprises, the size of enterprise, technological opportunity, product market demand conditions Product market demand conditions include as market size and growth can influence innovation Specifically, a larger market will provide a greater return to a successful innovative effort, while a growing market is likely to provide the rents (profits) that can both entice and finance innovation

Williamson, Mahar (1995), stated that financial innovations are mainly the result of four interrelated factors high, variable and unpredictable inflation, interest rates and exchange rates, increase in government deficits and their effects on interest rates and financial markets, floating exchange rates Many financial innovations offer protection against changes in the financial environment, especially changes in exchange and interest rates

2.3.4 Financial Innovation and Development of New Technology

The development of new technology can stimulate financial innovation by lowering the cost of providing new financial services and instruments by using computers and telecommunication The rapid development of technology in the financial sector, the introduction of new communication and transmission systems also speeds up information flow.

The basic underlying physical technologies of finance are those of telecommunications and data processing, which permit the gathering of information, its transmission, and its analysis Increasingly, these technologies allow financial market participants to measure and manage their risk exposures more efficiently and effectively For example, with

respect to lending, asymmetric information problems imply that lenders have difficulties determining who is a credit borrower (adverse selection) and also have difficulties monitoring borrowers after a loan has been made (moral hazard) Accordingly, better (more advanced, faster, lower cost) physical technologies have permitted more innovations (e g credit scoring and behavioral scoring) that allow lenders better to overcome those asymmetric information problems Similarly, in terms of market risk, the use of value-at—risk and portfolio stress testing provide useful risk measures that can be used internally to set risk tolerance levels or allocate capital and externally to provide investors with a sense of overall exposure Better physical technologies may also permit organizational innovations (e g. electronic securities exchanges) that would not be possible with less advanced technologies.

Patrick and Christian (1988), argue that technological advances also fuel innovation Online banking is earning high profits for banks that have managed both to get an appreciable percentage of their customers active online and to integrate their internet offerings with other channels The U K institution First Direct, which began as a telephone bank in the late 1980s, has achieved success with a telephone and internet based business model

2.3.5 Financial Innovation and Regulatory Environment

The relationship between regulation and innovation is the most debated in the literature. It is clear that each can cause the other, but it is not clear how significant such effects have actually been Less restrictive and protectionist laws and regulations have paved

way for greater competition and allowed outside innovators to enter the financial services market

Regulation is two edged sword On the one hand, some form of regulation must inhibit innovation I or example, if regulation prevents commercial banks from owning insurance companies (and vice-versa), then whatever innovations might arise from joint ownership and operation will not occur But, on the other hand, it is also clear that innovation can arise from efforts to circumvent regulation To continue with the bank/insurance example, if cross –ownership is prevented, then banks will have an incentive to create insurance like products and services (but of course, will avoid labeling them insurance), while insurance companies will have an incentive to create bank -like products Accordingly it is impossible *apriori* to assign a positive or a negative sign to the connection between the stringency of regulation (however measured) and the pace of innovation (Frame and White, 2001)

All the factors that influence financial innovation are not mutually exclusive There may well be interactions among them For example, regulations that are non- abiding under one set of environmental conditions may be binding under another and may inspire circumventing innovation in the latter state, provided that the technological capabilities are present For example, it is clear that the greater macroeconomic fluctuations of the late 1960s and 1970s caused a tighter binding of the Federal Reserves Regulation Q (which limited the payment of interest on bank deposits) This, in turn, inspired innovations such as money market mutual funds, and Merrill Lynchs cash management account, but these innovations would not have been possible without the improved computer and telecommunications capabilities of the 1970s.

Levine (1997), argued that if innovation was instead a market response to inappropriate government policies, however, it may only serve to offset the adverse effects of these policies If regulatory regimes or fiscal incentives created by governments were the major causes of innovation, the benefits from innovation might prove illusory He suggested that the Glass Steagall act in the United States, designed to separate commercial and investment banking, had stimulated innovative activity in London

He explored the interaction between innovation and regulation and concludes that regulation has both negative and positive effects on innovation, this determination particularly depending on the critic's perspective on the regulations

2.4 Empirical evidence on financial innovation and performance

The significance of financial innovation is widely recognized Many leading scholars, including Miller (1986) and Merton (1992), have highlighted the importance of new products and services in the financial arena Empirically, Tufano (1989) showed that all of public offerings in 1987, 18% (on a dollar-weighted basis) consisted of securities that had not been in existence in 1974 These innovations are not just critical for firms in the financial services industry, but also affect other companies, for instance, enabling them to raise capital in larger amounts and at a lower cost than they could otherwise

2.4.1 Financial Innovation and Costs

Financial innovation is often blamed for what is perceived as an increase in systematic risk- the Asian and Latin American crises being the latest cases in point Yet financial innovation in the form of different types of derivative products or financial engineering

technologies generally provide low-cost and highly efficient methods of mitigating rather than exacerbating risk by completing emerging capital markets

Cooper and Ian (2005), argued that the financial futures market, for example, did not create contracts with new risk-sharing functions but simply lowered transactions costs Innovation has been motivated largely by the changed technological capability for conducting particular transactions whose economic functions are not fundamentally new Such innovations create transactional efficient vehicles for trading risks that are already traded in other ways, though the new instruments produce more liquidity and lower prices

2.4.2 *Financial Innovation and Market Conditions*

Lerner (2002), did an analysis focusing on the question on which institutions are associated with financial innovations, seeking to test a number of hypotheses suggested by the innovation literature He found that, contrary to representations in the earlier literature, financial innovation has been characterized by a disproportionate role of smaller firms More specifically, a doubling in firm size is associated with less than a doubling in innovations generated Moreover, firms that are less profitable in their respective sectors are disproportionately innovative These results are consistent with depictions by Silber (1975, 1983), which suggested that more marginal firms will contribute the bulk of financial innovations In addition, older, less leveraged firms located in regions with more financial innovations appear to be more innovative

Lerner (2002) examined the extent to which the depressed profitability among financial innovators persists He found that these firms in the years after the innovations

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Lerner (2002) examined the extent to which the depressed profitability among financial innovators persists He found that these firms in the years after the innovations

experience a significant increase in profitability. This finding is consistent with the suggestion in the work of Silber that investment in innovation is a rational response to an unfavorable competitive position. He also analyzed the sources of financial innovations between 1990 and 2002. He found evidence that suggests that small firms are more innovative than their larger peers. Less profitable firms innovate more, but firms that innovate enjoy enhanced profitability in subsequent years. Older, less leveraged firms located in regions with more financial innovations also innovate more. He also identified the following factors as the determinants of differences in the innovation rate across firms.

The relationship between firm size and innovation has been a topic of enduring interest to economists at least since Schumpeter's (1950) argument that large firms were better suited to pursue innovation than were smaller firms. Whatever the advantages of small firms in insuring intense static price competition, he asserted, they were unlikely to have the incentives to engage in long-term R&D since many of the rents were likely to be subsequently competed away. He also suggested that there would be substantial economies of scale in the innovation process.

A number of theorists have suggested that younger firms may be more effective at introducing new products. Aron and Lazear (1990) presented a model in which new firms pursue less risk-averse strategies and are hence more likely to undertake radical new research programs and to introduce new products.

Financial innovation is much slower in small Estonian commercial banks than bigger banks. Smaller commercial banks are due to their size and financial constraints are much

less able to invest to innovation Due to a smaller number of clients, many new products or improvements simply do not pay off or do not serve as an additional value Their service structure is therefore more stable and classical and changes are minimal In bigger commercial banks development of new products is regarded as a bigger priority, which will guarantee competitive advantage and make business process more efficient, which makes offering services cheaper and increases their quality.

2.4.3 Financial Innovation and Economic Environment

There are a series of clinical studies of individual innovations that look at the wealth impacts of innovations Nanda and Yul (1996), studied poison puts in convertible bonds, and conclude that shareholders benefited form this innovation, perhaps at the expense of bondholders Their study on foreign exchange currency warrants found that their issuers apparently benefited from this innovation, although they find that investors substantially over paid for this innovation Arrow and Kenneth (1989) found that purchasers apparently overpaid for these products relative to the price of the stocks from which they were constructed They however noted that these products can serve valuable hedging demands for investors, and in the presence of transaction costs may have benefited all parties

De Cecco(1987) , argued that competition leads to increases in risks as firms innovate to remain afloat This could lead to bank failures although the banks innovate to earn higher profits through increasing the market share

Financial innovations of the past 20 years certainly have contributed to the vibrant financial system that underlies the U S economy today However, as noted earlier, risk

management of new products and activities is essential Financial innovations may lead to new risks, requiring bank management to become more sophisticated in how they view and control these risks- because risk management must keep pace with risk taking Banks management must ensure that capital is adequate for the risks of new products The banks must take risks but they are expected to manage those risks prudently New products and services should not jeopardize the health of the bank

2.4.4 Financial Innovation and Technology

An extensive theoretical literature has argued that spillovers of technological knowledge are an important spur to future innovation As Krugman (1991) and others have hypothesized, these spillovers particularly of tacit knowledge are likely to be geographically concentrated

White and Frame (2001), examined a number of variables that they believed may affect the conditional probability of adopting small business credit scoring models which are a recent innovation Most importantly, they found that the rate of diffusion should be related to the expected benefits (profitability) of adopting the new technology However in the spirit of agency theory, they also believe that variations in the quality (e g , effectiveness, openness to innovation) of firm managers could also influence adoption decisions.

2.4.5 Financial Innovation and Regulations

Ben-Horim and Silber (1977), tested the proposition that regulatory constraints induce innovation. They constructed a linear programming model to estimate the opportunity

costs (shadow prices) of deposits, debentures, and capital (net worth) for large banks from 1952-1972 They found that the rising shadow prices of these items, as they approached regulatory constraints (such as Regulation Q), were associated with some of the major innovations of the 1960s De Cecco(1987) stated that the regulations in Italy were directed at protecting the emergence of financial market through reduction of risk by a regulation specifying common standard to guarantee minimum levels of trustworthiness and regulation reduce undesirably excessive competition

2.5 Empirical evidence on financial innovation and bank performance in Kenya

In Kenya the area of financial innovation has not been adequately researched therefore, there is little empirical evidence A study by Gitonga (2003), on innovation processes and the role of the chief executive officer found that 65 of them facilitate the innovative process He also found that 39 of them considered innovation as the most important factor in achieving competitive advantage

Musyoki(2000), tried to establish whether there is a relationship between quality improvement and financial performance of banks He found that there is a fairly weak evidence that quality improvement variables such as labour turnover ,customer complaints and staff absenteeism and customer service enhance financial performance of commercial banks

A study by Ohaga(2004) on strategic responses of commercial banks in Kenya to changes in their environment ,found that strategies involving developing of new products were used These were adopted on a trial and error basis which can be risky and costly

Surveys done on K-Rep and Equity banks show that they have provide services to the Small, Medium and Micro enterprises In addition Equity Bank has a unique portfolio of savings and credit directed to the poor This innovative bank approaches have proven to be successful ,with a growth rate of between 50%-70% per year Many micro credit providers nevertheless seek to reduce the borrower's transaction costs by opening branches in convenient locations and requiring simple standard procedures that fit the characteristics of their borrowers Costs also tend to decrease as physical and human infrastructure is built- the two most costly factors in a micro credit operation In fact, reduced transaction costs are among the most important factors enhancing customer demand for micro credit (Mutua and Oyugi, 2006)

2.5 Summary

The benefits financial innovation can provide are (Frame, W Scott, White, Lawrence J, 2001), avoiding regulations, optimizing taxes, reducing transaction costs and increasing liquidity of market-based products In addition the benefits include reducing agency costs between executive management and shareholders and between shareholders and creditors, for example, usage of convertible bonds and warrants They also include reducing informational asymmetry between corporate insiders (majority shareholder/executive management) and outsiders (creditors, shareholders) and increasing risk sharing opportunities (derivatives, investment funds)

The studies identify drivers of financial innovation to include environmental conditions technological development, macroeconomic conditions (economic growth, interest rates and exchange rates),tax legislation (if different revenues are taxed differently, it induces

finding possibilities to optimize tax burden) and changes in legislation This study focused on analyzing what drives financial innovation and its effect on bank performance in Kenya

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Introduction

This chapter's objective was to show the research methodology that was used in this study It is divided into five sections, 3.2 the research design, 3 3 population of the study, 3 4 sample, 3 5 instruments used in data collection, 3.6 research model and 3 7the diagnostic tests

3.2 Research Design

The study was conducted through exploratory approach by using a descriptive study design to investigate the impact of financial innovation on bank performance This was a design in which information on characteristics of members of the entire population was obtained and studied This design is appropriate when the number of members in a sample is of manageable size (small). Through this design, the study was able to capture unique characteristics of specific companies Gichana (2004) successfully adopted this design in a similar study.

3.3 Population of the study

This comprised of all commercial banks operating in the country for the period 2000 to 2007 According to records at the Nairobi stock exchange, there were 43 banks licensed to operate in Kenya during the period of the study The banks are scattered throughout the country and most of them have their headquarters in Nairobi, which made them easily accessible The study covered the period 2000 to 2007 Seven years period was taken to

be reasonable because average ratios shift overtime at the same time published financial statements of commercial banks were readily accessible

3.4 Sample

The sample of study used all commercial banks Currently, there are 43 licensed banks according to the list obtainable from the Nairobi Stock Exchange as at 31st December 2007 The sample comprised of major international banks with government share holding namely Commercial Bank, National and Cooperative Banks, major local privately owned banks, that is, Equity and K-Rep Banks

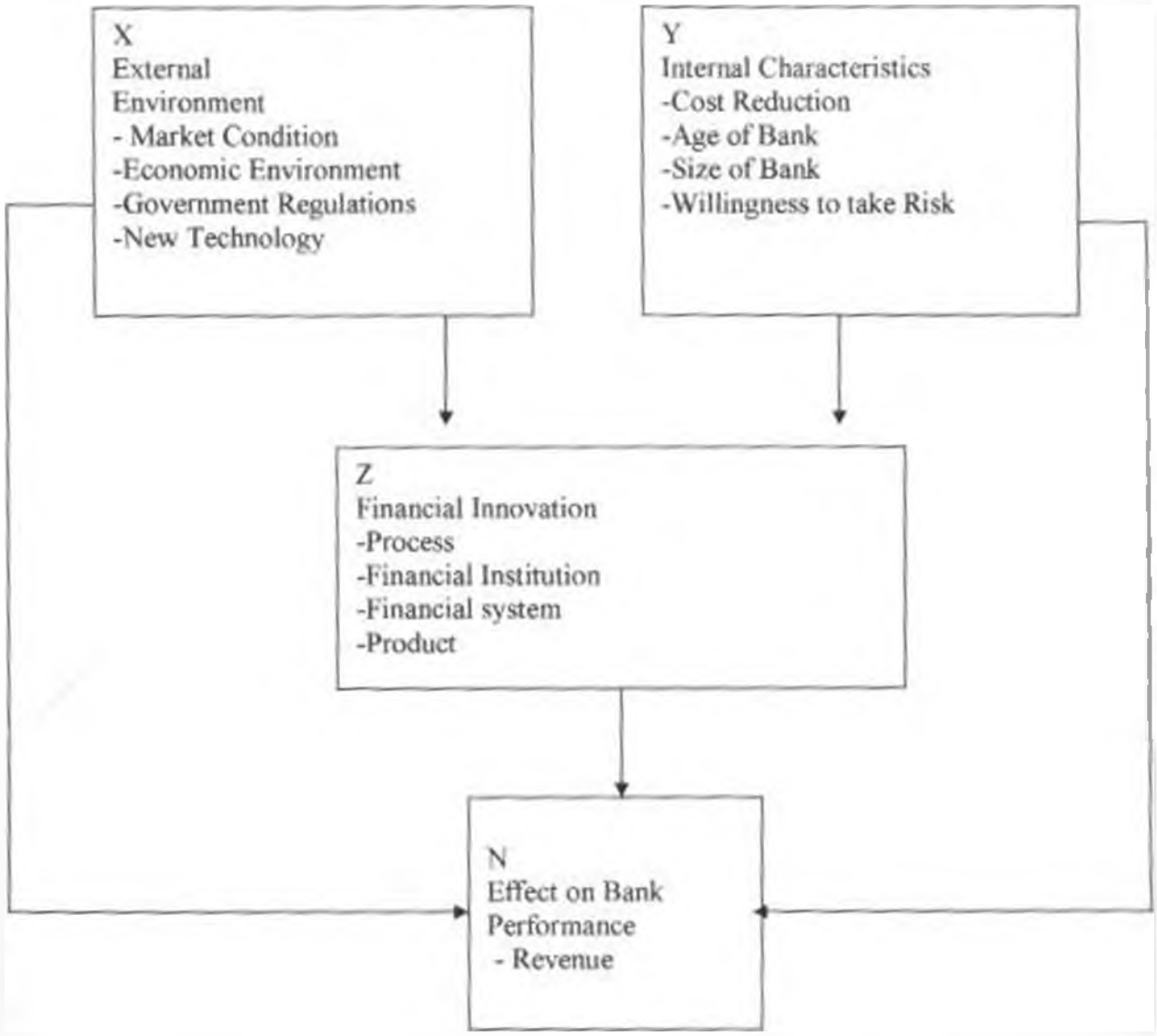
3.5 Data Collection

The study used primary data which were captured through a questionnaire The questionnaire consisted of both closed and open-ended questions divided into four sections. Secondary data were sourced from the banks annual financial records and from the Nairobi stock exchange.

3.6 Research Model

The study identified the factors influencing financial innovation and the financial innovations that arose due to the influence. This was illustrated by the conceptual model The analytical model and diagnostic tests were used to determine the relationship between financial innovation and bank performance

3.6.1 Conceptual Model



Where X – External environment, Y -Internal characteristics, Z -Financial innovation and N- Bank performance

The relationship among the variables was stated using the function $Z=f(X, Y)$.. (1)

Where X and Y are Independent Variables and Z is the dependent variable

Therefore N=f (Z)

(2)

Where Z is the Independent variable and N is the dependent variable

Thus functional relationship was shown by using the linear regression equation that is shown by N= a +Z (X, Y) +error estimate

N= effect on bank performance

Z= financial innovation

X, Y= the external environment and internal characteristics of the banks

Where a is the autonomous variable

The external environment influences financial innovation in banks This includes government regulations, competition and the economic environment, such as increase in inflation and change in exchange rate

Internal environment of individual banks are related to financial innovation This includes trying to reduce costs and increasing profits through innovation The size and the age of the banks as well as the willingness to take risks affect the extent of innovation Banks that are first movers in innovation and which innovate regularly are likely to have better performance

The external environment and the internal characteristics of individual banks affect the inefficiency This can be identified through increased operational cost and decline in profits among others which leads to financial innovation as banks endeavour to improve

efficiency Banks that decide not to innovate may have poor bank performance whose indicators could be in terms of high operating costs , fewer number of clients and returns on assets The ones that decide to innovate will improve their efficiency and hence better bank performance They will have high return on assets, lower operating costs and increase in number of clients among others

3.6.2 Analytical Model

$$Z = \alpha_0 + \alpha_1 T + \alpha_2 R + \alpha_3 E + \alpha_4 P + \alpha_5 C + \alpha_6 A + \alpha_7 S + \alpha_8 R + et \quad (3)$$

$$N = \partial_0 + \partial_1 T + \partial_2 R + \partial_3 E + \partial_4 P + \partial_5 C + \partial_6 A + \partial_7 S + \partial_8 R + et \quad (4)$$

Where,

T =Technology

R= Regulations

E=Economic Environment

P=Market Conditions

C= Cost Reduction

A= Age of Bank

S=Size of Bank

et= Error Term

α & ∂ = Discriminate coefficients

3.7 Diagnostic Tests

The F –test was conducted for joint significance of all coefficients and t-test for significance of individual coefficients. This diagnostic test was used by Peter and Raphael (1995) in a similar study on Australian banks

CHAPTER FOUR

4.0 DATA ANALYSIS, FINDINGS AND DISCUSSION

4.1: Introduction and Summary Statistics

This chapter's objective is to present the analysis and findings with regard to the research objective The data was analysed using SPSS software The results were presented in form of tables, requency, pie charts, figures, measures of central tendency (mean) and measures of dispersion (standard deviation)

The characteristics of the banks and the details of the financial innovations undertaken and their relative importance are provided Analysis on the determinants of financial innovation in Kenya and findings on the relationship between financial innovation and performance are presented in form of figures and tables

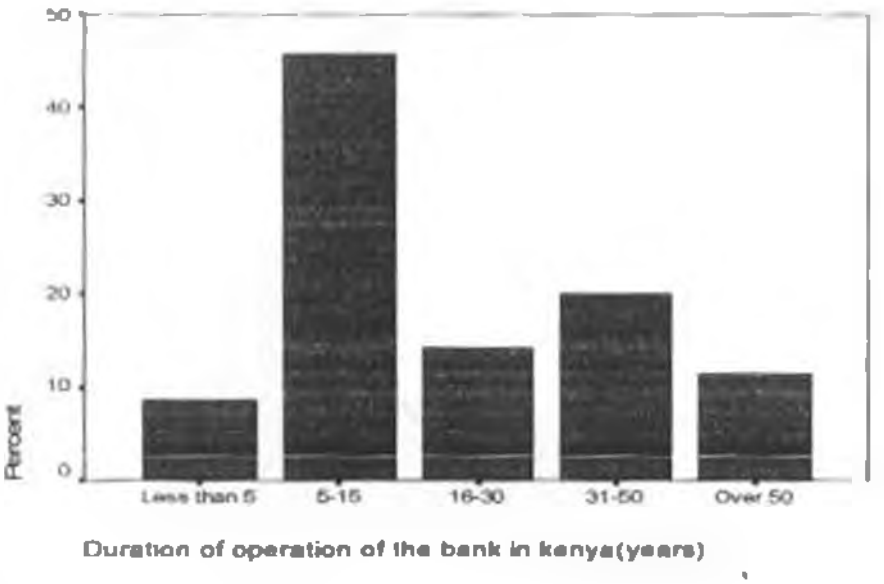
A total of 43 questionnaires were issued out The completed questionnaires were edited for completeness and consistency Of the 43 questionnaires used in the sample, only 35 were returned The remaining 8 were not returned The returned questionnaires' represented a response rate of 81%, which the study considered adequate for analysis Most of the respondents (51%) were privately owned banks, 40%were foreign owned and 9%were banks with government participation

4.1.1.: Length of operation in Kenya

The findings presented in figure 1 show that the number of years of operation in Kenya by the surveyed banks varies from a period of less than 5 years to over 50 years. 39.1% of the banks have operated for over 10 years, 17% have operated for a period of 6 to 10

years, 17 4% had operated for a period of 2 to 5 years and 6 5% had operated for less than 2 years Majority of the banks have operated in the country for over 6 years

Figure 1: Length of operation in Kenya



Source Researcher 2008

4.1.2: Financial Innovations

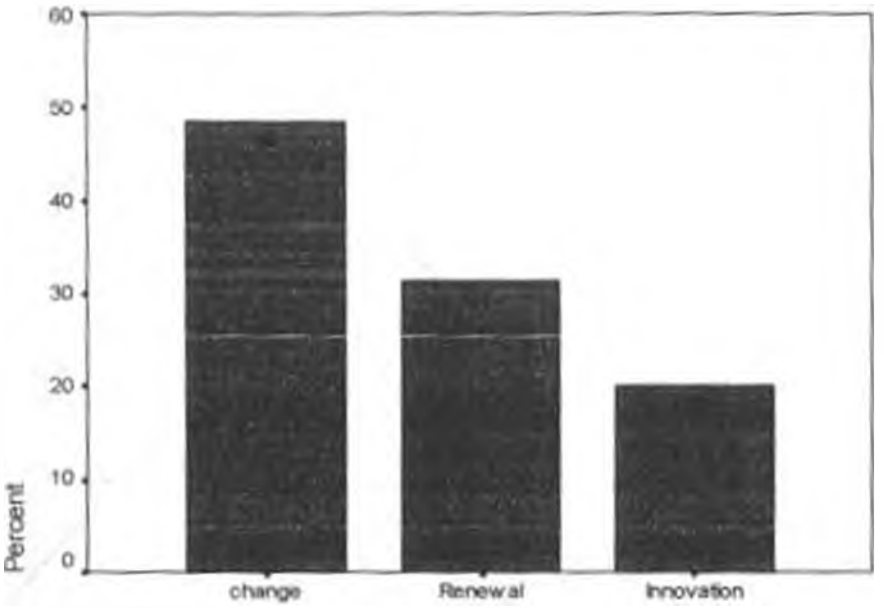
The liberalization of banking has the resulted into local and international competition The banking sector in Kenya is fragmented, and offers a widely differing range of services Innovation has resulted in a change in structure, a reshuffling of participants and a consolidation of financial centers This section presents various innovations carried out by banks in the country

4.1.2.1: Best description of financial innovation carried out by your bank

The findings presented in figure 2 show that, 49% of the banks describes financial innovation as change, that is, an improvement of existing technology, product or process,

31% describe financial innovation as renewals of an existing technology, product or process by modification and 20% describe innovation to be a concern of an entirely new technology, product or process

Figure 2: Best description of financial innovation carried out by the bank



Source: Researcher 2008

4.1.2.2: Perception of the respondents on product, process and institutional innovations

The respondents were to give their opinion on the extent to which they agree with the following statements. The range was 'strongly agree (1)' to strongly disagree (4). The scores of strongly agree have been taken to present a variable which had mean score less than 1.5. The scores of agree have been taken to represent a variable with a mean score of 1.6 to 2.5 and the score of moderate agree have been taken to represent a variable which

had a mean score of above 2 5 A standard deviation of 0.9 implies a significant difference on the impact of the variable among respondents This is shown in table 1

Table 1: Perception of the respondents on product, process and institutional innovations

	Mean	Std Deviation
Bank has increased the number of new products	1 6286	64561
Bank has reduced the number of process steps	1 9143	91944
Bank has increased the number of new institutional innovation	2 3143	93215

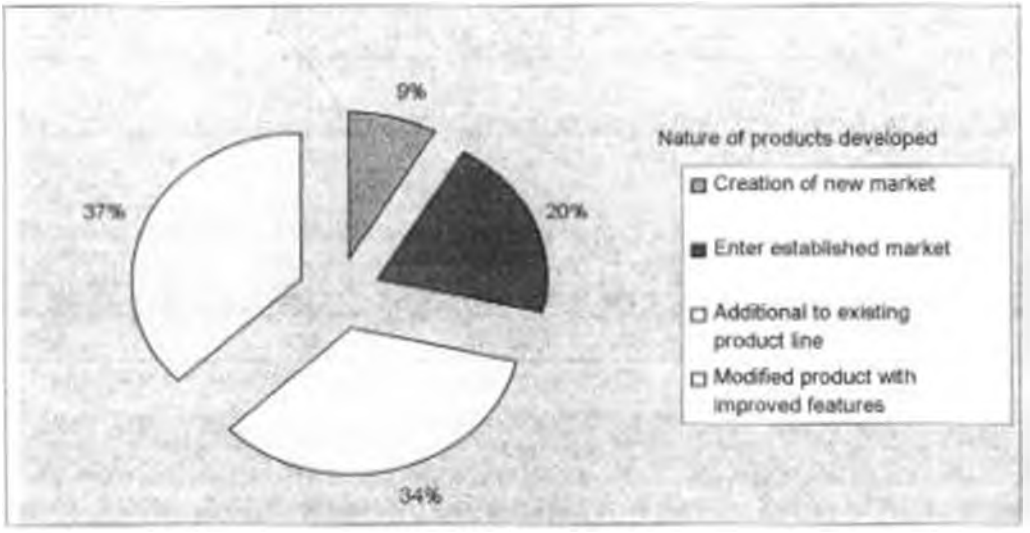
Source Researcher 2008

From the findings, the respondents agreed that banks had increased the number of new products over time and also that Banks had reduced the number of process steps to serve customers However they had reservations (moderate agreed) on the statement that, Bank had increased the number of new institutional innovation

4.1.2.3: Nature of new product development

As indicated in figure 3, 37% of the banks develop their new products through modification of the already existing product with improved features, 34% develop new products through addition to an existing product line, and 20% develop new products which allow them to enter in to an established market for the first time while 9% creates an entirely new market

Fig 3: Nature of new product development



Nature of products developed

Source Researcher 2008

4.1.2.4: Importance of new services, changes in outstanding services and business processes in commercial banks

Table 2 shows that new products (mean of 1.457) is the very important financial innovation trend while changes in outstanding services (mean of 1.83) and changes in business process (mean of 2) are important financial innovation trends. This shows that the banking industry is mainly driven by new services

Table 2: Importance of new services, changes in outstanding services and business processes in commercial banks

	Mean	Std Deviation
New services	1 4571	56061
Important changes in outstanding services	1 8286	74698
Important changes in business process	2 0000	80440

Source Researcher 2008

4.2 Determinants of Financial Innovation

This section covers findings from the specific questions posed to the respondent's to determine the extent to which some predetermined factors influence financial innovation Measure of central tendency (mean) and a measure of variation (standard deviation) was used to analyze the data The range was 'not at all (1)' to 'very great extent' (5) The scores of not at all/small extent

have been taken to present a variable which had mean score of 0 to 2 4 on the continuous Likert scale ,(0≤ S.E <2 4) The scores of 'moderate have been taken to represent a variable with a mean score of 2 5 to 3.4 pm the continuous Likert scale. 2.5≤M E <3 4) and the score of mildly disagree/strongly disagree have been taken to represent a variable which had a mean score of 3 5 to 5 0 on a continuous Likert scale, 3.5< L E <5.0). A standard deviation of >1 0 implies a significant difference on the impact of the variable among respondents This is depicted in table 3

Table 3: Factors influencing financial innovation

Factor	Mean	Std Dev
Heavy competition in financial service market	4 2286	.97274
Technological facilities	3 9714	1 04278
Financial services and clients ability to use innovations	3 1429	1 14128
Size of financial institution	2 8857	1 05081
Macroeconomic conditions	3 0000	1 05719
Legislation and financial supervisory	2 5714	1 21959
Increase in financial risks	2 6286	1 26225

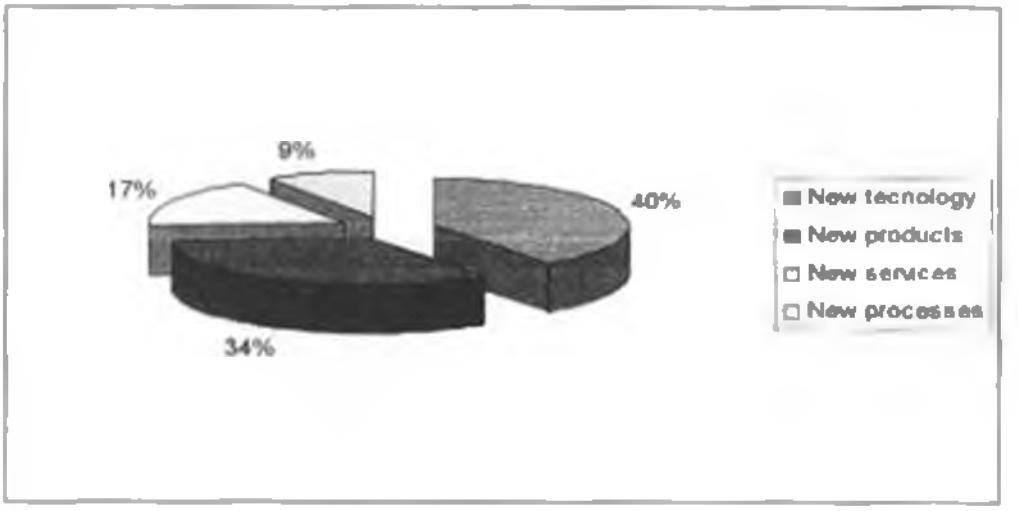
Source Researcher 2008

The findings in table 3 above show that size of financial institution (mean of 2.89), legislation and financial supervisory (mean of 2.57) and Increase in financial risks (mean of 2.63), clients ability to use innovations (mean of 3 14) and macroeconomic conditions (mean 3.00), has moderate influence on financial innovation On the other hand, the results indicate that heavy competition in financial service market (mean of 4 23) and technological facilities (mean of 3.97), had great extent of influence on financial innovation

4.2.1: Areas in which banks have undertaken innovation in the last 7 years

As can be observed, in Figure 4, 40% of the banks have embraced new technology, 34% have developed new products, 17% have come up with new services and 9% have changed their processes Technology stood out to the major driver of change in the banking industry, that is, automation of service delivery and processes

Fig 4: Areas in which banks have undertaken innovation in the last 7 years

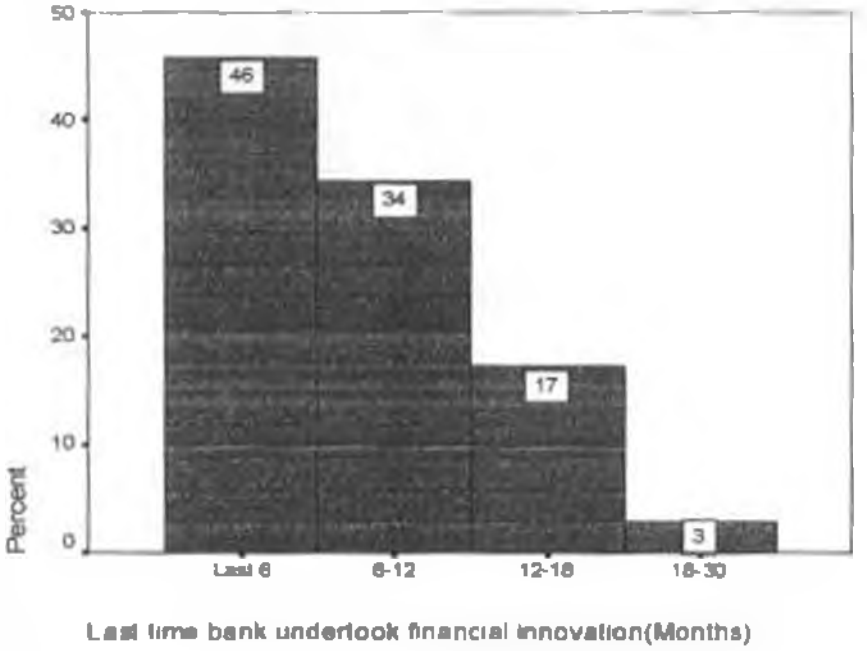


Source: Researcher 2008

4.2.2: Last time the bank undertook financial innovation

Financial innovation is a continuous process aimed at beating competition. The analysis in figure 5 shows that 46% of the banks have carried out innovation in the last 6 months, 34% in the last 6 to 12 months, 17% had carried out innovation in the last 12 to 18 months and 3% in the last 18-30 months. This shows that all the banks at one point or another has been involved in the innovation process during the last 30 months which aims at fighting competition.

Fig 5: Last time the bank undertook financial innovation



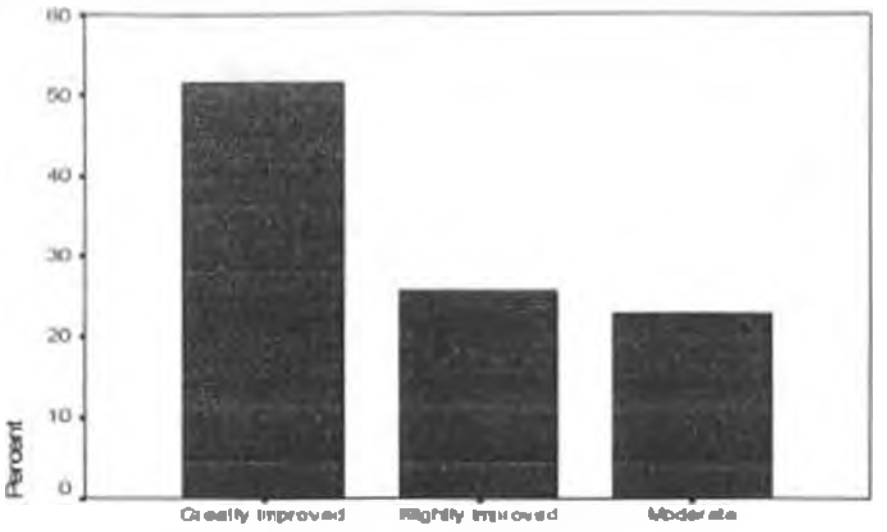
Source Researcher 2008

4.3 The Relationship between Financial Innovation and Bank Performance

4.3.1: Turnover trends per annum for the last seven years

As shown in figure 6, most of the respondents (52%) were of the opinion that over the last seven years their respective banks had experienced great improvement on the turnovers, 25% were of the opinion of slight improvement while 23% felt that their banks had experienced moderate improvement In general all the banks had experienced improvement on their turnovers over the last seven years which they associated to financial innovation

Figure 6: Turnover trends per annum for the last seven years



Source Researcher 2008

4.3.2: Extent of usage of product and process innovations and their effects on business volume

The respondent's were asked to determine the extent to which the following statements on the usage of various innovations and their effects Measure of central tendency (mean) and a measure of variation (standard deviation) was used to analyze the data as shown in table 4

Table 4: Extent of usage of product and process innovations and their effects on business volume

	Mean	Std Deviation
Introduction and use of ATMs has increased	1.9429	1.34914
Electronic Fund Transfer transactions has increased	2.3429	.93755
Customers using debit/credit cards has increased	2.6571	1.05560
Gender accounts has increased	2.5714	1.03713
Business volume has improved	1.8000	.79705

Source Researcher 2008

The findings in table 4 above show that all statements had means ranking below 3 (neutral). There was a high degree of variation among respondents, as indicated by standard deviation of 1 03,1 05 and 1 1 35 for gender accounts has increased, customers using debit/credit cards has increased and introduction and use of ATMs has increased

The results indicate that business volume has improved, Introduction and use of ATMs has increased, Electronic Fund Transfer transactions has increased, Gender accounts has increased and Customers using debit/credit cards has increased in order of preference by the respondents

However there is a disconnect between the respondents opinion on introduction and use of ATMs has increased and customers using debit/credit cards has increased

4.3.3: Effects of financial innovation on number of customers, costs and turnover of the banks

The respondent's were asked to determine the extent to which various innovations affected performance The range was 'strongly agree (1)' to 'strongly disagree' (5) The scores of strongly agree/mildly agree have been taken to present a variable which had mean score of 0 to 2 4 on the continuous Likert scale ;(0< S E <2.4) The scores of 'neutral' have been taken to represent a variable with a mean score of 2.5 to 3 4 pm the continuous Likert scale 2 5<M E. <3.4) and the score of mildly disagree/strongly disagree have been taken to represent a variable which had a mean score of 3 5 to 5 0 on a continuous Likert scale; 3.5< L E <5 0) A standard deviation of >1 0 implies a significant difference on the impact of the variable among respondents This is depicted in table 5.

Table 5: : Effects of financial innovation on number of customers, costs and turnover of the banks

	Mean	Std Dev
ICT installation and maintenance cost have increased	2 0000	1 05719
Staff restructuring cost has increased	2 8857	1 05081
Financial institution has opened more branches	1 8571	87927
Bank has extended the banking hours	2 9714	1 09774
Financial institution plans to operate late into the night	4 0000	97014

Organization turnover has increased	1 7714	97274
Operating customers account among the highest in the industry	3 2857	78857

Source Researcher 2008

The respondents strongly agree that, Organization turnover has increased, Financial institution has opened more branches and ICT installation and maintenance cost have increased has major influence on financial innovation Staff restructuring cost has increased, Bank has extended the banking hours and Operating customers account among the highest in the industry were rated by respondents to have neutral influence on financial innovation while respondents strongly disagree that financial institution plans to operate late into the night will influence financial innovation, this is due to the security levels and the risks associated with operations at such time of the day

4.3.4: The benefits derived from financial innovation.

On scale of (1) least beneficial to (4) most beneficial, the respondent's were asked to indicate the extents to which the following predetermined factors best explain the benefit derived from financial innovation The findings ii table 6 show that improvement on customer service, market expansion and increased in banks revenue were the most benefits derived from financial innovation While reduction of number of customers in the banking hall, reduction in operational cost and geographical expansion of banks were viewed as moderate benefits derived from financial innovation.

Table 6: The benefits derived from financial innovation

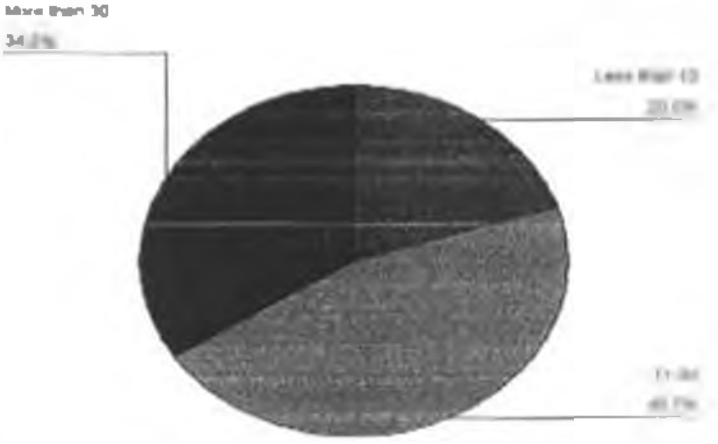
	Mean	Std Deviation
Improved customer service	3.5714	73907
Reduced no of customers in the banking hall	3 0000	93934
Reduced operational cost	3 2571	74134
Expanded banks geographical coverage	3 2571	78000
Expanded market	3 6000	55307
Increased bank revenue	3 7429	61083

Source Researcher 2008

4.3.5.: Branch network

Branch network is a key performance indicator in the banking industry, in the recent times branch network comprises of physical building branches, ATM machines, agents, shopping outlets and mobile banking facilities. The results in figure 7 show that, of the surveyed banks, 20 0% had less than 10 branches, 47 5% had between 11 to 30 branches and 34 3% had more than 30 branches

Fig: 7: Branch network

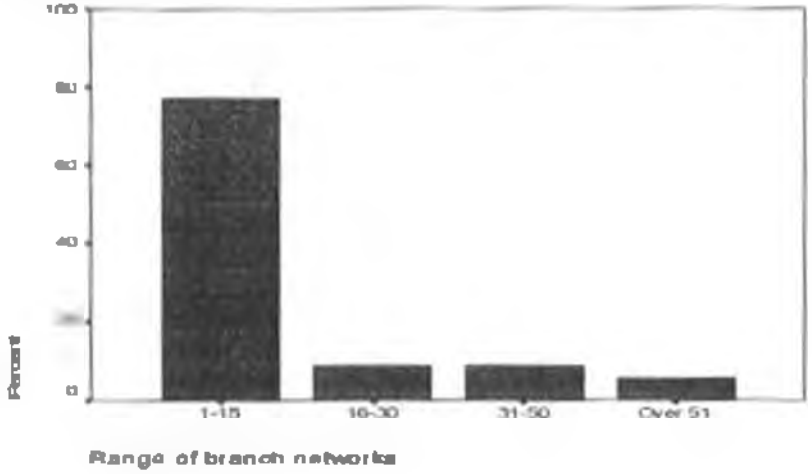


Source: Researcher 2008

4.3.6.: Branch distribution by years

There has been less significant growth of physical branches amongst majority of the banks as shown in figure 8. That is, majority(79%) of the banks still have branches ranging from 1 to 15 for the period of 200 through 2007, 10% of the banks have between 16 to 30 branches, 10% have between 31 to 50 branches while only 9% have over 51 branches

Figure 8: Branch distribution by years



Source Researcher 2008

4.3.7: Changes with respect to number of employees, customers, back office transactions per employee and maintenance of client data bases.

The findings from the specific questions posed to the respondent to determine the extent to which the number of employees, customers, back office transactions per employee and maintenance of client data bases have changed Measure of central tendency (mean) and a measure of variation (standard deviation) was used to analyze the data The range was 'very strongly extent (1)' to no change (5) The scores of very strongly extent/great extent have been taken to present a variable which had mean score less than 2.5 The scores of moderate extent have been taken to represent a variable with a mean score of 2.6 to 4.0 and the no change have been taken to represent a variable which had a mean score of above 4.1 A standard deviation of >0.9 implies a significant difference on the impact of the variable among respondents

Table 7 Extent to which number of employees, customers, back office transactions per employee and maintenance of client data bases have changed overtime.

Parameters	Mean	Std Deviation
Number of employees	2.1429	0.84515
Number of customers	1.7429	0.78000
No of back office transactions per employee	3.0857	0.95090
Maintenance of client data bases	2.7714	0.97274

Source Researcher 2008

The findings in table 7 above show that only two parameters have greatly change over the years, that is, number of customers (mean of 1 7429) and number of employees (mean of 2.1429) the change in number of customer base indicate that banks are more aggressive on customers recruitments, this translate to the demand for more or less employees depending on the level of technology employed by the banks Maintenance of clients' data base (mean of 2.7714) and number of back office transitions per employee have all changed moderately

4.3.8: Financial Performance of Banks Last Six Years (Return on Assets Ratio-ROA).

As evidenced in table 8, there has been a general increase in the returns to asset of the banks analysed over the six year period This is attributed to the increase in the earning power of the banks over the period The increase in profits is due to various innovations undertaken by banks over the period both in equipments and product range development

Though the banks investment in capital asset increased over the period, the earnings on the assets equally matched and even surpassed the increase and thus leading to the growth in ROAs This marked change shows that organisations should endeavour to modernise because the returns from the exercise would generate positive earnings and generally increase in the shareholder wealth

Table 8: Financial performance of banks last six years (return on assets ratio-ROA)

	2002	2003	2004	2005	2006	2007
Barclays Bank of Kenya Ltd	2.06	3 47	3 60	3 58	3 82	3.11
CFC Bank Ltd	1.89	2 33	2 35	2 32	2 33	2 14
Commercial Bank of Africa Ltd	1.53	2 17	2 51	2 63	2 72	21.53
Diamond Trust Bank of Kenya	1.2	1 6	1 61	1 8	2 26	2 44
Equity Bank	2 88	2 48	2.03	3 01	3 77	3 56
Housing Finance Ltd	0.54	0 48	0 632	0 59	1 11	0.67
Kenya Commercial Bank Ltd	0 86	3 4	0 96	1 81	2 63	2.47
National Bank of Kenya	0.789	1 56	1 25	1 84	1 73	2 70
National Industrial Credit Bank	2.77	2 32	1 74	1 39	1 76	
Standard Chartered Bank (K) Ltd	3 57	4 35	2 73	3 37	3 25	3 81

Source Financial statements 2002-2007

4.3.5: Analytical Model

Analytical model was established through regression analysis The response variable was taken to be performance of banks and independent variables were technological facilities, financial services and client's ability to use innovations, size of financial institutions, macro economic conditions, and legislation and financial supervisory and increase in financial risks

The regression equation of performance (dependent variable) against other factors affecting performance of the banks was established as shown in table 9 below

Table 9 Anaytical model

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std Error	Beta	t	Sig
1	(Constant)	2 740	.744		3 685	001
	Technological facilities	270	199	290	1 359	185
	Financial services and clients ability to use innovations	021	201	025	105	.917
	Size of financial institution	288	238	.311	1 208	237
	Macroeconomic conditions	074	210	081	353	727
	Legislation and financial supervisory	- 200	188	- 251	-1 067	295
	Increase in financial risks	- 072	167	- 093	- 429	671

Source: Researcher 2008

The established model is shows as below

The constant value show that all other factors held constant, bank performance stood at 2 740 Independent variables technological facilities, financial services and client's ability to use innovations, size of financial institutions, macro economic conditions

While the independent variables legislation and financial supervisory and increase in financial risks are inversely related

Using the t-test shown on table 10, the calculated value of 1 421 at significant level of 0 005 is less than the table value 0f 2.447 This shows that there is enough evidence to support the hypothesis that there is exists a linear relationship between the response and predictor variable The established model overall significant was testing through F-test The P- value (sig of 0 003) shows that the model is significant at 0 05 level of significant. that is, the listed predictor

variables do influence the changes of the response variable. Hence there is a linear regression relationship between the response and the predetermined predictor variables

Table 10 Analysis of variance

Model		Sum of Squares	df	Mean Square	F	Sig
1	Regressio n	7 508	6	1 251	1 421	003(a)
	Residual	24 664	28	881		
	Total	32 171	34			

Source Researcher 2008

4.4 Summary

The study identified the various types of financial innovation in terms of new technology, new products, services and processes The most important financial innovations were in offering new products and changes in business processes Heavy competition and technology are the major drivers of financial innovation in Kenya Other factors including size of the financial institutions, legislation, macroeconomic conditions and increase in financial risks were found not to have a major impact on financial innovation

The study indicates that the turnover in returns has increased This increase is greater than the cost incurred in innovation hence improved bank performance The regression analysis identified there is a linear relationship between financial innovation and bank performance

CHAPTER FIVE

5.0 SUMMARY AND CONCLUSIONS

5.1: Introduction

This chapter's objective is to provide the summary of the study from the objectives, methodology and results of the study The conclusions were derived from the research findings The limitations of the study and recommendations for further research are also included

5.2 Summary of the Study

The objectives of the study were to investigate on the determinants of financial innovation in Kenya and to establish the relationship of financial innovation and bank performance to achieve these objectives a descriptive study was undertake using an exploratory approach The sample comprised of 43 banks, however only 81%of them responded a conceptual model was developed to depict the relationship between the variables an analytical model and diagnostic tests were used to measure the strength of the relationship of the variables

It was apparent that in all banks, have undertaken financial innovation in the last 30 months At the same time majority have embraced new technology and developed new products as key innovation strategies Through technology innovation, business volume has improved, use of ATMs has increased and Electronic Fund Transfer transactions have also increased However gender accounts and Customers using debit credit cards are still in the process of picking up

Product development in the banking industry varies from bank to bank with majority of the banks developing new products through modification of the already existing product with improved features, this is followed by development of new products through addition to an existing product line, development of new products which allow them to enter in to an established market for the first time and creating an entirely new market in the order of preference

Important financial innovation trends have been in new products (very important financial innovation trend) There have also been outstanding changes in business processes (important financial innovation trends) and provision of new services Majority of the banks were found to be innovating regularly

As for the drivers of financial innovation, the major one was found to be stiff competition among the banks which innovate to attract more customers in order to attain high returns Advancement in technology and clients ability to use the innovations was found to have moderate influence The size of financial institution, legislation and financial risks has a negligible impact on financial innovation

The various financial innovations were found to have led to a marked improvement in the customer service, market expansion and increase in banks revenue The number of customer base greatly increased among the banks where as the number of employees changed depending on the level of technology employed by the banks Reduction in operation costs and geographical expansion of banks was by a moderate extent The return on assets was found to have increased with increased financial innovation during

the study period The f –test proved that there is a significant relationship between the determinants of financial innovation and bank performance

5.3 CONCLUSIONS

From this study it can be concluded that that heavy competition and technology are the major drivers of financial innovation These two factors have led to a great improvement in financial performance The size of the financial institution, regulations, macro economic conditions and increase in financial risks were found not to have a major impact on financial innovation These factors therefore do not have a significant impact on financial performance

It was noted that specific benefits resulting from financial innovation which have a great influence on financial performance were improvement on customer service, market expansion and increased in banks revenue While reduction of number of customers in the banking hall, reduction in operational cost and geographical expansion of banks was viewed as moderate benefits. It can be conclude that banks in Kenya have derived more benefits as compared to the costs invested in financial innovation

5.2 LIMITATIONS OF THE STUDY

This study was based on a sample limited to head offices of all the banks in the survey, that is, it did not covet the views of the branches of the sampled banks The scope and depth of study was also limited by the time factor and financial resource constraints This put the researcher under immense time pressure

There was high level of the respondents' unwillingness to complete the questionnaires promptly as some respondents perceived the questionnaire to be seeking classified information from their banks

5.3: RECOMMENDATIONS FURTHER RESEARCH

This study focused on determinants of financial innovation and its effects on bank performance in Kenya Further studies can be focused on savings and credit cooperative societies and micro finance institutions Such a study would seek to determine whether the same determinants influence financial innovation It would seek to determine the effect of financial innovation on their performance

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APPENDIX I

LETTER OF INTRODUCTION

SEPTEMBER, 2008

Dear Respondent,

MBA RESEARCH PROJECT

This questionnaire is designed to gather information on the determinants of financial innovation and its effects on bank performance in Kenya.

This study is being carried out for a management project paper as a requirement in partial fulfillment of the Degree of Master in Business Administration, University of Nairobi.

Your response will be treated strictly confidential and in no instance will your name be mentioned in the report.

Your cooperation will be highly appreciated.

Yours sincerely,

C.KIHUMBA

MBA STUDENT

APPENDIX II

RESEARCH QUESTIONNAIRE

PART A: DEMOGRAPHIC DATA

PERSONAL DETAILS OF RESPONDENT

1. Name (optional).....
2. Position in the organization.....

COMPANY INFORMATION

3. Name of the bank.....

4. Please tick the category that best describes your bank

   (i) Foreign owned private bank [ ]

   (ii) Privately owned domestic bank [ ]

   (iii) With government participation [ ]

5. For how long has your bank operated in Kenya?

   Less than five-years [ ]
   5-15 [ ]
   16-30 [ ]
   31-50 [ ]
   Over 50 years [ ]

6. How many branches does your bank have?

   Less than 5 [ ]

   5-10 [ ]

   More than 10 [ ]

7. Please indicate the range of branch network for the years given.

Years	1-15	16-30	31-50	Over 51
2000-2002				
2003-2005				
2006-2007				

8. Indicate the turnover trend per annum of the overall branch network for the last seven years.
   (i) Greatly improved [ ]
   (ii) Slightly improved [ ]
   (iii) Moderate improvement [ ]
   (iv) No change at all [ ]
   (v) Decreased [ ]

9. Please indicate to what extent the parameters below changed over the period 2000 to 2007.

Year	Very great extent	Great extent	Moderate extent	Small extent	No change
Number of employees					
Number of customers					
Number of back office transactions per employee					
Maintenance of Client data bases					

PART B : FINANCIAL INNOVATION

10. In what field has your bank undertaken innovation in the last 7 years?

    New technology [ ]

    New products [ ]

    New services [ ]

    New processes [ ]

11 Which of the following best describes financial innovation for your bank?

Change: an improvement of existing technology, product or process [ ]

Renewal: of an existing technology, product or process; is by modification or Use in a new way [ ]

Innovation: concern an entirely new technology, product or process [ ]

12. When is the last time your bank undertook financial innovation?

Last six months [ ]

6-12 months [ ]

12-18 months [ ]

18-30 months [ ]

Not recently [ ]

13. Indicate the extent to which you agree with the following statements:-

EAR	Strongly agree	Mildly agree	indifferent	Mildly disagree	Strongly disagree
he bank has increased the f new products overtime					
he bank has reduced the umber of process steps to rve a customer					
he bank has increased e number of new stitutional innovation th time					

14. The following table shows different Innovation categories. Tick the category of years in which you introduced them.

	YEAR OF INTRODUCTION		
	2000-2003	2004-2005	2006-2007
CATEGORY			
Automatic Teller Machines			
Mobile Banking			
Private Banking			
Telephone Banking			
Information Technology			
Centralization			
Others specify			
Youth oriented accounts			
Children oriented accounts			
Women oriented accounts			
Small businesses			
Credit cards			
House mortgages			
Personal loans			

15. To what extent do you agree or disagree with the following statements on various innovations and its effects, using a scale of (1-stronglyagree, 2-agree, 3-neutral, 4-disagree, 5-strongly disagree).

Statement	1	2	3	4	5
The introduction and use of ATMs in the branches has increased					
The number of electronic fund transfer transactions has increased					
The number of customers using debit/credit cards has increased					
Gender oriented accounts has increased overtime					
The business volume has improved both in customer base as well as savings					

16. What is the nature of the new products that your organization has developed? (tick all that apply)

a) An investment that created an entirely new market [ ]

b) A product that allowed the company to enter an established market for the first time [ ]

c) An addition to an existing product line [ ]

d) A modified product with improved features [ ]

17. Estimate the importance of different financial innovation trends in commercial banks on the scale 1 to 5 (1–very important, 2-important, 3-modaretly important, 4-slightly important, 5-not important).

Financial innovation	1	2	3	4	5
New services					
Important changes in outstanding services					
Important changes in business process					

PART C: FACTORS INFLUENCING FINANCIAL INNOVATION

18. In a scale from 1 to 5 (1 – not at all, 2-small extent, 3-moderate extent, 4- great extent 5- very great extent), indicate by using a tick the extent to which the different factors influence financial innovation.

Effect	1	2	3	4	5
Heavy competition in financial service market					
Technological facilities					
Demand for financial services and clients' ability to use innovations					
Size of financial institution					
Macroeconomic conditions (economic growth)					
Legislation and financial supervisory					
Increase in financial risks					

19. State the government regulations that have influenced financial innovation in yourbank.....
.....
.....
.....

PART D: EFFECTS OF FINANCIAL INNOVATION

20. To what extent do you agree or disagree with the following statements. Responses are on a scale of 1 to 5 defined as (1 - Strongly agree, 2- Mildly agree, 3- Neutral, 4- Mildly disagree, 5 -Strongly disagree)

YEAR	1	2	3	4	5
The ICT installation and maintenance cost have increased overtime					
Staff restructuring cost has increased					
The financial institution has opened up more branches across the country to reach more customers					
The bank has extended the banking hours in order to serve more customers					
The financial institution plans to operate late into the night or on a 24hour basis 7 years from now					
The organization turnover has increased and its services become competitive overtime as a result of the innovations					
The cost of operating customers account is among the highest in the industry					

23. Please indicate the extent to which each of the following factors best explains the benefits derived from the financial innovation .Responses on a scale of 1 to 4. (1-least beneficial, 2-slightly beneficial, 3-moderately beneficial, 4- most beneficial)

	1	2	3	4
Improved customer service	[ ]	[ ]	[ ]	[ ]
Reduced no. of customers in the banking hall	[ ]	[ ]	[ ]	[ ]
Reduced operational cost	[ ]	[ ]	[ ]	[ ]
Expanded banks geographical coverage	[ ]	[ ]	[ ]	[ ]
Expanded market share	[ ]	[ ]	[ ]	[ ]
Increased bank revenue	[ ]	[ ]	[ ]	[ ]
All the above	[ ]	[ ]	[ ]	[ ]

THANK YOU FOR YOUR TIME AND SUPPORT

APPENDIX III

LIST OF COMMERCIAL BANKS

1.	African Banking Corporation	
2.	Bank of Baroda Kenya Ltd	
3.	Bank of India Kenya Ltd	
4.	Barclays Bank of Kenya Ltd	
5.	Bank of Africa	
6.	CFC Bank Ltd	
7.	Charterhouse Bank Ltd	
8.	Chase Bank (K) Ltd	
9.	City Finance Bank Ltd	
10.	Commercial Bank of Africa Ltd	
11.	Consolidated Bank of Kenya Ltd	
12.	Co-operative Bank of Kenya Ltd	
13.	Credit Bank Ltd	
14.	Development Bank of Kenya Ltd	
15.	Diamond Trust Bank of Kenya	
16.	Equatorial Commercial Bank Ltd	
17.	Equity Bank	
18.	East Africa Building Society (EABS) Bank Ltd	
19.	Family Bank Ltd	
20.	Fidelity Commercial Bank Ltd	
21.	Fina Bank Ltd	
22.	Giro Commercial Bank	
23.	Guardian Bank	
24.	Housing Finance Ltd	
25.	Habib Bank A.G. Zurich	
26.	Habib Bank Ltd	
27.	Imperial Bank Ltd	
28.	Investments and Mortgages (I&M) Bank	
29.	Kenya Commercial Bank Ltd	
30.	K-Rep Bank	
31.	Middle East Bank Kenya Ltd	
32.	National Bank of Kenya	
33.	National Industrial Credit Bank	
34.	Oriental Commercial Bank	
35.	Paramount-Universal Bank Ltd	
36.	Prime Bank Ltd	
37.	Prime Capital and Credit Finance Ltd	
38.	Savings and Loan (K) Ltd	
39.	Southern Credit Banking Corporation	
40.	Stanbic Bank Kenya Ltd	

41	Standard Chartered Bank (K) Ltd	
42.	Trans-National Bank Ltd	
43.	Victoria Commercial Bank Ltd	

Source: Central Bank of Kenya (March, 2008)