

**THE EFFECT OF FINANCIAL INNOVATION ON THE FINANCIAL
PERFORMANCE OF COMMERCIAL BANKS IN KENYA**

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DECLARATION

I declare that this is my own original work and to the best of my knowledge it has not been submitted for a degree award in any other university or institution of higher learning

Signed..... Date.....

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This project has been submitted for examination with my approval as university supervisor,

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DEDICATION

I dedicate this study to my father, Alloys Tinega for the provision of requisite resources for my education and especially for his guidance on the importance of pursuing a masters of science in Finance course.

ACKNOWLEDGEMENTS

I thank the Almighty God for guiding me throughout my education pursuit, especially for granting me courage and wisdom.

Secondly I would like to register special thanks to my supervisor DR. J.O Aduda of the department of Finance and accounting for accepting to supervise me, for his constant guidance and advise during the entire project period.

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My family and close friends played a great role of motivating and supporting me; I hereby acknowledge their contributions and those of everyone connected with this study and whose names I have not mentioned. To the readers of this study always remember that education is the key to success.

ABSTRACT

Kenya has evolved in financial innovations over the years, her being home to an early entrant form of mobile money banking, with world class standards: M-PESA. This innovation and evolution of other new technologies in financial innovations in Kenya, lead to motivation of this study. The study established the effect of financial innovation in the performance of commercial banks in Kenya. To achieve this objective the researcher collected data of four variables: mobile banking, agency banking, automated teller machines and plastic card usage. Data was collected by secondary method from central bank. Data was then analyzed by SPSS using linear regression. The study found out that mobile banking, automated teller machines and card usage had positive effect on performance of commercial banks in Kenya. The most important attribute that managers must consider immensely before making decisions is agency banking according to the study; it showed a negative effect on performance of banks. Although the study established that financial innovations affected commercial banks performance, it is notable that none of the tested variables was significantly related to performance of commercial banks in Kenya. However there was need for more research and innovation to create up to date innovations and improved customer services in commercial banks. Since agency banking, mobile banking, ATMs and card usage innovations still faced security challenges as cases of fraud and loss of resources could cause setbacks, authorities need to set appropriate environment and motivate innovators to better performance of commercial banks hence improving Kenya's economy.

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ABBREVIATIONS

AFI –Alliance for financial inclusion

AMPHI – African mobile phone financial services policy initiative

ATM-Automated teller machine

BIS - Bank for International Settlements

CBA-Commercial bank of Africa

CBK- Central bank of Kenya

CCK-Communication commission of Kenya

EMV- euro-pay master card visa

EPS –Earnings per share

IT – Information technology

MFIS-Microfinance institutions

PC-personal computer

POS- Point of sale

ROCE-Return on capital employed

SIM – Subscriber identity module

SMS- Short message service

USSD- Unstructured supplementary service data

USD – United states of America dollar

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CHAPTER ONE

INTRODUCTION

1.1 Background of the study.

This study explores the recent innovations in the banking industry and how these innovations affect the performance of commercial banks in general. In Kenya recent innovations include mshwari banking product, visa pay money services, beba pay, agency banking, mpesa ATM withdrawals and other mobile money services like yu cash. The distinct roles of financial instruments or innovations are to segregate, disperse, and transfer financial risks so that individual units can cope well with uncertainty and attain better asset or liability management (Stulz , 1999).

Allan and Gale (1994) contend that financial innovation can be viewed as: introduction of new financial instruments or service or practice, introduction of new uses for funds, finding out new sources of funds, introduction of new processes or techniques to handle day-to-day operations, or establishing a new organization, all these changes being part of existing financial institutions, and emergence of spectacular growth of new financial institutions and markets.

1.1.1 Financial Innovation

Banking sector holds assets worth 63% of GDP. There are 43 banks with varying market niches – segmented market. Has potential to increase formal sector employment beyond the current share of 1%. Developing and deepening faster than the overall economy. Financial Infrastructure has enabled financial inclusion and new financial products like Infrastructure Bonds find a place in the market. Retail banking services utilizing the mobile phone technological platform with success (Central bank of kenya, 2013).

According to Lawrence and Scott (2001) financial innovation is a broad concept covering the following areas: usage of new financial intermediation methods, foundation of new financial institutions, changes in legislation or financial supervision, changes in services (new deposits and loan products, derivative instruments, insurance and investment products), and changes in business processes.

1.1.2 Financial Performance.

Roach (1993) points out that the consolidation of back-office operations is due in large part to scale economies due to IT investments, but that these investments are becoming increasingly difficult to find. However, new productivity opportunities are now spreading rapidly across the sales function of the service sector. It is precisely in these front-office functions that major investments will occur.

Kotler (Pine, 1993, p. 43-44) states that Instead of viewing the bank as an assembly line provider of standardized services, the bank can be viewed as a job shop with flexible production capabilities. At the heart of the bank would be a comprehensive customer database and a product profit database. The bank would be able to identify all the services used by any customer, the profit (or loss) on these services and the potentially profitable services which may be proposed to that customer. This movement away from mass marketing, mass production, and mass distribution is widespread throughout the financial services industry. Technological innovation in the retail banking industry has been spurred on by the forces, particularly in terms of new distribution channel systems, such as PC banking.

As the industry has provided more ways for consumers to access their accounts, they have added significant costs to each institution. A need to combat these costs resulted in a major cost savings period, where many banks successfully got much of the cost out of the back office. These cost savings came largely through back office automation, which is a technological innovation that has been completed. Now, after adding significant costs through added distribution channels and cutting as much as possible in the back office, banks have realized that the key to profitability is through revenue enhancement (Kotler, 1993).

M-PESA is a branchless banking service, meaning that it is designed to enable users to complete basic banking transactions without the need to visit a bank branch. The continuing success of M-PESA in Kenya has been due to the creation of a highly popular, affordable payment service with only limited involvement of a bank. M-PESA customers can deposit and withdraw money from a network of agents that includes airtime resellers and retail outlets acting as banking agents. M-PESA is operated by Safaricom, a mobile network operator, which is not classed as a deposit-

taking institution (such as a bank).The service enables its users to: Deposit, withdraw money, Transfer money to other users and non-users, Pay bills, Purchase airtime ,Transfer money between the service and a bank account (in some markets) The user interface technology of M-pesa differs between Safaricom of Kenya and Vodacom of Tanzania, although the underlying platform is the same. While Safaricom uses SIM application toolkit to provide handset menus for accessing the service, Vodacom relies mostly on USSD to provide users with menus (Central bank of Kenya, 2013).

1.1.3 The Relationship between Financial Innovation and Financial Performance of Commercial banks.

The theoretical expected relationship between financial innovations and financial performance of commercial banks is well explained by the financial intermediation theories for instance the agency theory. A financial intermediary is interpreted as information sharing coalitions (Leland and Pyle, 1977).

Scholtens and wensveen (2003, P.18) Argues that according to the modern theory of financial intermediation, financial intermediaries are active because market imperfections; prevent savers and investors from trading directly with each other in an optimal way. The most important market imperfections are the informational asymmetries between savers and investors. Financial intermediaries, banks specifically, fill – as agents and as delegated monitor’s information gaps between ultimate savers and investors. This is because they have a comparative informational advantage over ultimate savers and investors. They screen and monitor investors on behalf of savers. This is their basic function, which justifies the transaction costs they charge to parties. They also bridge the maturity mismatch between savers and investors and facilitate payments between economic parties by providing a payment, settlement and clearing system. Consequently, they engage in qualitative asset transformation activities. To ensure the sustainability of financial intermediation, safety and soundness regulation has to be put in place. Regulation also provides the basis for the intermediaries to enact in the production of their monetary services. Thus the intermediation theories explain better the relationship between financial innovations and performance of commercial banks.

1.1.4 Financial Innovation and Financial Performance of Commercial banks in Kenya.

Equity bank continues to invest in rolling out brick and mortar branches that are complimented by various delivery channels; the challenge of access to formal financial services remains a big impediment to financial inclusion. Kenyans especially in remote areas are forced to travel long distances and spend huge amounts on transport in order to access a branch. In addition to the cost of transport is the time spent commuting to and fro that could have been spent more productively (Equity bank group, 2013).

Ndungu (2013) states that in order To curb these challenges, the Central Bank of Kenya released legislation that allows commercial banks to contract third party retail networks as agents. Upon successful application, vetting and approval, these Agents are authorized to offer selected products and services on behalf of the bank. This relationship creates an Agency Banking business model. An Equity Agent therefore, is a commercial entity that has been contracted by Equity Bank and approved by the Central Bank of Kenya to provide specific services on behalf of the bank. This entity shall be equipped with the skills necessary to provide basic banking services according to standards set by the bank. The objective is to offer the full range of banking services to customers without their having to visit a branch. This will provide the opportunity to access financial products and services at a location nearest to the customer, thus breaking down certain barriers to financial inclusion such as cost and accessibility.

Plastic card usage in Kenya has brought new products in Kenya; Visa Personal Payments is a convenient, cost-effective and secure way for consumers to send funds directly to recipients with Visa cards, both domestically and internationally. Equity Bank is the first bank in Africa to offer the Visa Personal Payments sending capability. Senders can use Visa Personal Payments to make person-to-person payments, send funds to friends or family members, or make account transfers. Equity Bank customers will be able to send money domestically, and within Africa, to any eligible Visa card via Equity Bank's ATMs. The service is also available at Equity Bank's Mobile and Internet banking channels in the near future. To make a transfer;

consumers need only the recipient's 16-digit Visa card number. Transfers are securely processed over the Visa network to the eligible Visa card (Henderson, 2013).

CCK (2012) states mobile banking services commenced in 2007 with the introduction of M-PESA money transfer service by Safaricom. Mobile financial services are offered through a network of agents spread across the country.

CBA just need to come up with a strategy that will work to yield results as seen in the Kenyan market, But the M-shwari product's strong showing at start is not without challenges, the biggest being an ongoing ownership dispute in court. Faulu Kenya, a local micro-finance institution, claims Safaricom used its concept without permission to develop the product (Safaricom, 2013).

CBK (2013) states that Kenya has witnessed increased competition and diversity in the mobile phone financial services space with more mobile phone operators launching mobile money products. Financial institutions have also increasingly partnered and integrated their operating platforms with those of mobile phone financial services platform to leverage on the convenience and efficiencies they present. As a result, the unit costs for some of the financial products have been lowered significantly. The potential of mobile phone technology to bridge the financial access barriers of distance and cost seems un-rivaled in Africa. In recognition of this, AFI brought together policymakers and regulators from 18 African countries that are AFI members to launch AMPI in February 2013. The aim of AMPI is to share experiences and develop policy solutions for extending financial inclusion to the Continent's large unbanked populace through the use of Mobile phone financial services.

CBK's role in propelling financial inclusion through mobile phone financial services even before the enactment of the National Payment Systems Act, the Central Bank of Kenya took a proactive role in facilitating consultations on proposals by the telecommunication companies to introduce mobile phone money transfer services. The Central Bank of Kenya continuously supported the rollout of innovative products driven by mobile phone technological platform using a "test and learn" approach that allows innovations to take place while ensuring that the necessary safeguards are in place to mitigate the potential risks. This approach has allowed CBK to partner with

both financial service providers and telecommunication providers as they seek to introduce innovative solutions into the market that are reliant on technology. This approach has seen an increase in mobile phone participants. Close to 20 million people are served by over 60,000 telecommunication companies agents handling over USD 54.4 million worth of Mobile phone financial service transactions per day in Kenya hence the financial system remaining intact(www.cbk.go.ke).

Ndemo (2013) argues that the information capital built within mobile phones is an area of great interest to credit reference bureaus and the credit market in general. It is worth noting that the potential to expand financial inclusion is still huge and mobile phone technologies are proving very useful in this front. Unrivalled Africa's pace of adoption of mobile phone financial services to be upheld. Mobile-phone based financial services are having a transformative impact on low-income economies. In Kenya, the mobile phone financial service plays a dominant role in rural areas, with important vertical integration consequences for existing financial service providers, including micro-finance institutions and Sacco's. There has been vertical integration with mobile phone financial services and commercial banks. Though M-PESA does not pay interest on deposits, and does not make loans, it can usefully be thought of as a bank that provides transaction services and that has operated, until recently, in parallel with the formal banking system. Safaricom accepts deposits of cash from customers with a Safaricom cell phone SIM card and who have registered as M-PESA users. Registration is simple, requiring an official form of identification (typically the national ID card held by all Kenyans, or a passport). Formally, in exchange for cash deposits, Safaricom issues a commodity known as "e-float," measured in the same units as money, which is held in an account under the user's name.

1.1 Research Problem

Financial performance is dependent on financial innovations of commercial banks in Kenya. As the developed world begins to rebuild the recently collapsed global financial system, the financial architecture in parts of the developing world is being rapidly transformed. As the cost of mobile phone technology have fallen, and as the technology has been adapted to support financial services, mobile banking

innovations have begun to spread across and within poor countries. The low cost, and the widespread unmet demand for financial services, as captured by low rates of bank access, means that mobile banking has the potential to reach remote corners of the socio-economic, as well as geographic spectrum (Jack and suri, 2010).

Kamotho and Njenga (2009) Admits that the uptake of mobile phones in Kenya has been unprecedented, of vital significance is the rapid absorption of mobile based banking services. This trend of continued reliance on mobile devices to execute monetary transactions is steadily gaining momentum. In an effort to gauge the implications of this mobile phone phenomena, this study set out to bring to light the critical issues arising from the emergent mobile technology innovations. The study is structured to offer strategic insights into the current state of mobile phone banking service as well as a review of emerging service provider, customer traits as well as tactical and policy implications. There is heavy reliance on mobile banking services for funds storage Contrary to the popular wisdom that mobile phone money services are meant for funds transfer and remittance, 96% of the respondents use the service as a savings store. Consequently the visits to the bank only involve those amounts that cannot be effectively undertaken within the deposit and withdrawal limits provided by the service operators. Users use the facility as a savings account despite the fact that no interest is earned. The reprieve is that no ledger fees are levied on the accounts hence striking a rational symbiotic equilibrium between the user and the service provider.

Mwangi (2007) demonstrates in a study of Firms' listed at the Nairobi stock exchange shows that study is similar to impacts of financial innovations in performance of Kenyan banks in that it analyses factors of innovation in a financial sector, it differs because it analyzes a stock exchange market and in this study we concentrate on the banking sector .The study establishes a number of factors influencing financial innovation. From the study, regulatory factors influence financial innovation. These are: NSE rules and requirements relating to the listing of quoted companies, Kenya laws protecting investors' interest at the stock market, restrictive rules and regulations of the CMA concerning licensing and control of markets, and high corporate taxes. Under market volatility, unstable foreign exchange rates and fluctuations of interest rates in Kenya all had an influence on financial innovation. All factors which fell

under technology and global financial competition and integration has an influence on financial innovation. Absence of derivatives at Nairobi stock market was also an influencing factor.

Korir (2012) argues that he sought to establish factors influencing mobile banking in Kenya: a case of Kenya commercial bank in Garissa, it was guided by four objectives that focused on the influence of education, age of the respondents, cost of service and security concerns on mobile banking in Kenya Commercial bank. The study focused on eliciting information from the customers of the KCB bank.

According to Korir (2012), he focuses on mobile banking in a specific branch of Garissa where as this study generalizes current financial innovations impacts in Kenya bank performance. With the fast pace of development of financial services, a range of mobile money services technologies related within the world economies. The banking institutions in conjunction with information technology chartists have found need to exploit related opportunities to improve money services to bring significant benefits in households meeting daily wants and needs.

Although there have been numerous studies in financial innovations in Kenya, there exists a knowledge gap which needs further research .Variables like Mshwari product which is new in the market have not been fully analyzed and researched .Also plastic card usage like visa pay and beba pay products of equity bank is a new financial innovation affecting the transport system in Kenya. Furthermore visa pay is a card product which is new and valuable to card usage industry hence need for this research.

The purpose of this study is to analyze to what extent financial innovation transforms performance of commercial banks in Kenya?

1.3 Research Objective.

The main objective of this study is to determine the effect of financial innovation on financial performance of commercial banks in Kenya.

1.4 Value of the Study.

The study will enable researchers understand the relationship between financial innovation and bank performance. It helps researchers learn the effectiveness and how the household and Kenyan economy has benefited. The study will help researchers and other interested parties to understand the features and usage of mobile banking services in Kenya. The study will explain benefits of agency banking and how it has transformed banks performances.

The study will explain new current financial products in Kenya like mshwari and visa pay services analyzing their benefits in banking the unbanked population. It will explain how reliable the various methods of money transfer services within Kenyan economy are, establish and conclude what the systems have been able to accomplish and look for away to improve money transfer services. This study will benefit government especially central bank in making policy decision whose overall objective is to determine impacts of financial innovations in commercial banks financial performance in Kenya. The study will be of great importance to other interested researchers as the challenges encountered in the study may lead to creation of a knowledge gap that needs to be researched on, adding to the improvement of financial innovations in banking industry.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter will cover general aspects of literature review based on the impact of financial innovations on financial performance of commercial banks in Kenya, starting with brief introduction, the theoretical review, major determinants of financial performance from previous studies, some financial performance measures and chapter summary.

2.2 Theoretical Review.

This section presents a theoretical review of the study. The theories reviewed here are theories of financial intermediation and balanced portfolio theory, a critique of theories and model is then made.

2.2.1 Agency Theory

Jensen and Meckling (1976) focus on principal-agent relation asymmetries. It is a theory explaining the relationship between principals such as shareholders, and agents, such as a company's executives in this relationship the principal delegates or hires an agent to perform work. The theory attempts to deal with two specific problems: first the goals of the principal and agents are not in conflict agency problem and second the principal and agent reconcile different tolerance for risk.

Diamond and Dybvig (1983) consider banks as coalitions of depositors that provide households with insurance against idiosyncratic shocks that adversely affect their liquidity position.

Diamond (1984) shows that these intermediary coalitions can achieve economies of scale. Financial intermediary acts as delegated monitors on behalf of ultimate savers. Monitoring will involve increasing returns to scale, which implies that specializing may be attractive. Individual households will delegate the monitoring activity to such a specialist, i.e. to the financial intermediary. The households will put their deposits

with the intermediary. They may withdraw the deposits in order to discipline the intermediary in his monitoring function. Furthermore, they will positively value the intermediary's involvement in the ultimate investment (Hart, 1995). Also, there can be assigned a positive incentive effect of short-term debt, and in particular deposits, on bankers.

Hart and Moore (1995), Qi (1998) and Diamond and Rajan (2001) show that deposit finance can create the right incentives for a bank's management. Illiquid assets of the bank result in a fragile financial structure that is essential for disciplining the bank manager. Note that in the case households that do not turn to intermediated finance but prefer direct finance, there is still a "brokerage" role for financial intermediaries, such as investment banks (see Baron, 1979 and 1982). Here, the reputation effect is also at stake. In financing, both the reputation of the borrower and that of the financier are relevant (Hart and Moore, 1998).

Dinç (2001) studies the effects of financial market competition on a bank reputation mechanism, and argues that the incentive for the bank to keep its commitment is derived from its reputation, the number of competing banks and their reputation, and the competition from bond markets. These four aspects clearly interact.

2.2.2 Theory of imperfect/asymmetric information.

Markets are imperfect, according to this paradigm, because the ultimate parties who operate in the markets have insufficient information to conclude a transaction by themselves.

Thus, to summarize, according to the modern theory of financial intermediation, financial intermediaries are active because market imperfections prevent savers and investors from trading directly with each other in an optimal way. The most important market imperfections are the informational asymmetries between savers and investors. Financial intermediaries, banks specifically, fill – as agents and as delegated monitors

Information gaps between ultimate savers and investors. This is because they have a comparative informational advantage over ultimate savers and investors. They screen and monitor investors on behalf of savers. This is their basic function, which justifies the transaction costs they charge to parties. They also bridge the maturity mismatch

between savers and investors and facilitate payments between economic parties by providing a payment, settlement and clearing system. Consequently, they engage in qualitative asset transformation activities. To ensure the sustainability of financial

Intermediation, safety and soundness regulation has to be put in place. Regulation also provides the basis for the intermediaries to enact in the production of their monetary services.

2.2.3 Modern Portfolio Theory.

Markowitz (1952) created a way to mathematically match an investor's risk tolerance and reward expectations to create an ideal investment portfolio. Modern portfolio theory is a theory on how risk averse-investors can construct portfolios to optimize or maximize expected return based on a given level of market risk, emphasizing that risk is an inherent part of higher reward. Portfolio theory sometimes called modern portfolio theory seeks to maximize returns while minimizing risk through the creation of portfolios that include investments that are not positively correlated with one another. In effect it seeks to assure that investments held in an account do not all move in a similar pattern. The overall effect of this diversification is to minimize volatility in return.

2.2.4 Critique of theories

The agency theory is capable of investigating nearly every contingency in the interaction of economic agents deviating from what they would have done in a market with perfect foresight and equal incentives for all agents. However, the applications from agency theory have mainly anecdotal value; they are tested in a multitude of specific cases. But the theory fails to evolve into a general and coherent explanation of what is the basic function of financial intermediaries in the markets and the economy as a whole. Various researchers interested in real world financial phenomena have pointed out that banks in particular do make a difference. They come up with empirical evidence that banks are special.

Fama (1985) and James (1987) analyze the incidence of the implicit tax due to reserve requirements. Both conclude that bank loans are special, as bank CDs have not been eliminated by non-bank alternatives that bear no reserve requirements.

The basic reason for the insufficient explanatory power of the present intermediation theory has, in our opinion, to be sought in the paradigm of asymmetrical information. Markets are imperfect, according to this paradigm, because the ultimate parties who operate in the markets have insufficient information to conclude a transaction by themselves. Financial intermediaries position themselves as agents (“middlemen”) between savers and investors, alleviating information asymmetries against transaction costs to a level where total savings are absorbed by real investments at equilibrium real interest rates. But in the real world, financial intermediaries do not consider themselves agents who intermediate between savers and investors by procuring information on investors to savers and by selecting and monitoring investors on behalf of savers. That is not their job. They deal in money and in risk, not in information pursuant. Information production predominantly is a means to the end of risk management. In the real world, borrowers, lenders, savers, investors and financial supervisors look at them in the same way, i.e. risk Managers instead of information producers

The balanced portfolio theory uses two key traits in determining the merits of an investment: returns and volatility. While these are obviously important factors in assessing an investment, they are not the only factors that should be assessed. For example the theory does not consider financial strength of the company, the potential of growth in one industry type versus another or the competency of management in place at the companies.

2.3 Financial Performance Measures.

Performance measurement aims to establish how well a business is doing in relation to a plan. Financial performance indicators analyze profitability, liquidity and risk.

2.3.1 Earnings per share.

EPS is a convenient performance measure as it shows how well the shareholder is doing. EPS is widely used as a measure of a company’s performance, especially in comparing results over a period of several years. A company must be able to sustain its earnings in order to pay dividends and reinvest in the business so as to achieve future growth. Investors also compare EPS from one year to the next.

EPS on its own is not useful, it must be used in context. EPS is used for comparing a result of company over time. EPS Should not be used blindly to compare earnings of one company with another; when earnings are used to compare one company share with another, this is done using the P/E or perhaps the earnings yield. If EPS is to be the reliable basis for comparing results it must be calculated consistently. The EPS of one company must be directly comparable with the EPS of others and the EPS of a company in one year must be directly comparable with its published EPS figures for previous years. Changes in the share capital of a company during the course of a year cause problems of comparability.

EPS = earnings

Number of ordinary shares

EPS is a figure based on past data, it is easily manipulated by changes in accounting policies and the mergers or acquisitions. The use of the measure in calculating management bonuses make it liable for manipulation. Investors should be more concerned with future earnings but estimates of these are more difficult to reach than the readily available figure.

2.3.2 Sales margin.

Sales margin = turnover – cost of sales.

Cost of sales comprises direct material cost such as paper and direct labor.

Sales margin is influenced by the level of fixed cost. Trends in sales margin are of interest. A falling sales margin suggested an organization has not been able to pass on input price rises to customers. Comparisons with similar companies are of interest if the company has a lower sales margin than a similar business, this suggests problems in controlling input prices.

2.3.3 Return on capital employed.

It is impossible to assess profits or profit growth properly without relating them to the amount of funds (the capital) employed in making the profits. An important profitability ratio is therefore return on capital employed (ROCE) which states the

profit as the percentage of the amount of the capital employed. The ROCE tells us the profitability change from one year to another, the ROCE should be compared with that of similar companies, comparison of ROCE with current borrowing rates for example what will be the cost of extra borrowing if it needed more loans and it is the earning on ROCE that suggests it could make high enough profit to make such borrowing worthwhile.

Return on capital employed = PBIT

Capital employed.

Profit margin and asset turnover together explain the ROCE and if the ROCE is the primary profitability ratio these other two are the secondary ratios the relationship between the three ratios is as follows:

Profit margin * asset turnover = ROCE

PBIT * Sales = PBIT

Sales capital employed capital employed.

2.3.4 Return on Equity

The formula for return on equity, sometimes abbreviated as ROE is a company's net income divided by its average stockholders' equity. The numerator of the return of equity formula, net income, can be found on a company's income statement. The denominator of return of equity formula, average stockholders equity, can be found on a company's balance sheets. Stockholders equity is the company's assets minus its liabilities.

Return on equity= Net income/shareholders equity.

Another alternative ROE formula is by multiplying profit margin * asset turnover *equity multiplier.

The return on equity can be used internally, can be used by an investor or a researcher to evaluate how well a company is turning its profit relative to its stockholders equity.

2.4 Review of Empirical Studies

Financial innovation in banking industry keeps being invented and adopted at a fastest rate this is due to improvement of communication industry in Kenya. The adoption of mobile phones has occurred at perhaps the fastest rate and to the deepest level of any consumer-level technology in history. While cumulative forces are of course important, making it difficult to compare directly across innovations (CCK, 2012).

Prasad and Harker (1997) consider the overall impact on IT on productivity in the retail banking Industry in the United States. Using a Cobb-Douglas production function, Prasad and Harker (1997) estimate the following equation using a combination of publicly available and proprietary data: output of the firm is equal to

IT Capital Investment, Non-IT Capital Investment (C), IT Labor Expenses (S) and Non-IT Labor Expenses (L).

$Q = e^{\beta_0} C^{\beta_1} K^{\beta_2} S^{\beta_3} L^{\beta_4}$. And β_1 , β_2 , β_3 , and β_4 are the associated output elasticity.

The variables that determine the output of the firm are not correlated in that is like comparing different items that are not related to measure financial performance. IT labor presents a very different picture than does IT capital. IT labor contributes significantly to output; its marginal product is higher than that of Non-IT labor. Rather than make the simplistic conclusion from this that a single IT person is equivalent to 10 non-IT persons, it is better perhaps to speculate that this may simply reflect the fact that there is significant difference between the types of personnel involved in IT and non-IT functions. It is more interesting to compare the marginal product of IT Capital versus IT Labor. It is striking that while IT labor contributes significantly to productivity increases, IT capital does not.

Benston, et al (1982) insists that output should be measured in terms of what banks do that cause operating expenses to be incurred Prasad and Harker (1997) look at a wide variety of output measures, both financial and customer satisfaction This study is significantly different from previous studies in the commercial sector (Lichtenberg,

1995; Brynjolfsson and Hitt, 1996), and seems to be more in conformity with those Obtained in Parsons *et al.* (1993) one of the major formal study on IT in banking to date. While Parsons *et al.* report slightly positive contribution to IT investment. Other researchers have observed this dependence and under-investment in human capital in technologically-intensive environments. Gunn's (1987) work in manufacturing; Time and again, the major impediment to [technological] argues that implementation is people: their lack of knowledge, their resistance to change, or simply their lack of ability to quickly absorb the vast multitude of new technologies, philosophies, ideas, and practices, that have come about in manufacturing over the last five to ten years. Another observation about the transitions firms need to make to gain from technology, again in the manufacturing context is the transition also requires a massive change in the skills of American labor, requiring investments in human capital beyond the capital of any individual firm (Reich, 1984).

According to Frei et al. (1998,pp.22) as Information technology Capital prices fall, production becomes increasingly information-worker intensive. Results seem to confirm this: banks have over-invested in IT capital, and investment in IT labor has become necessary. Further, IT labor is the most profitable of all four types of investment--IT and non-IT capital and labor available to the bank. That is, the biggest challenge facing banks with respect to efficient and effective innovation lies in the management of the "New Age Industrial Engineers" that must combine technological knowledge with process design in order to create the delivery systems of the future.

Marquis (1969), while the basic steps of the innovation process remain the same, the change arises in the combination of factors that perform these steps. The standard view is that R&D, operations, and marketing combine in a complex web of interactions, to generate innovation .Frei, et al. (1998) further argues that vendors supply outsourced services and technology play a vital role in this innovation process. More important is the role of the "systems integrator" in the development of innovations; the person or organization that pulls together not only the operations, IT, and marketing functions for a single innovation, but also manages the portfolio of innovations in the organization.

Onyoro (2011) studied competitive strategies and performance of multinational commercial banks in Kenya. The focus of performance explained both commercial

and non commercial measures. A cross sectional survey of existing multinational commercial banks was done; nine locally incorporated commercial banks and four branches of foreign banks as December 2010.

According to Onyoro (2011.pp.39) both internal and external factors were considered important in identifying the competitive strategies to be adopted. This implied that SWOT analysis to be important in choice of competitive strategy. The researcher concludes that the multinationals banks in Kenya have moderate usage of low cost leadership strategy with significant variations in its adoption. The use of cost cutting measures improved business efficiencies and maximization of economies were most popular amongst the banks studied. However there was low extent in avoidance of loss making areas due to the competitive nature of the industry. Most banks were aiming at being the low cost leaders in to gain a competitive edge.

Adano (2012) studied the relationship between mobile money transfers and economic growth in Kenya. The study explored mobile banking specifically as it related to poverty reduction strategies in developing countries. It discussed rise of mobile phones, how mobile money works. Use of mobile money as poverty reduction strategy, various uses of mobile money and overcoming challenges of mobile money. The study adapted a quantitative design.

Adano (2012) further focuses on mobile money companies' population which included six mobile phone services providers. The amount of companies providing services increased from one in the year 2007 to six by the end of year 2012. The amount of mobile money transfers increased from 0.06 billion(2007) to 118.08(2012). Based on the potential benefits of mobile money the study further recommended that government subsidize the formation of local mobile infrastructure and adopt policies that encourages the formation of mobile networks and use of these networks.

2.5 Summary of Literature Review.

This chapter reviewed literature review on financial innovation on the performance of commercial banks in Kenya. It begun by looking at the theoretical review whereby the following theories were discussed: Agency theory, theory of imperfect

market/asymmetric information, balanced portfolio theory. The agency theory demonstrates cash flows from commercial banks to different agents like agency banking branches and different Mpesa withdrawal points for the convenience of bank customers. Balanced portfolio theory illustrates different forms of financial innovations and how they help in performance of commercial banks in minimizing risk and maximizing output.

This chapter further shows financial measures of performance which include: Earnings per share, sales margin, return on capital employed, current ratio and profit margin. The chapter furthermore explores the empirical study focusing on the following previous studies: Prasad and Harker (1997) consider the overall impact of information and technology on productivity. Frei et al (1998) compares information technology prices and production costs of banks, hence concluding that information technology labor is most profitable. Onyoro (2011) studied competitive strategies and performance of multinational commercial banks in Kenya creating a knowledge gap of strategies used by other commercial banks especially in financial innovations. Adano (2012) explores the relationship between mobile money transfers and economic growth in Kenya as this study emphasizes on the current financial innovations both mobile and non-mobile phone innovations on performance of commercial banks in Kenya.

Frank and White (2004) observe that new innovations are based on the older ones. Swaps, options, forward rate agreements, assets sales, and the like represent a new wave of financial innovations. These instruments followed earlier ones that have become more traditional such as futures, letters of credit, floating rate notes, and so on. Some element of the new wave would not have been active market makers if previous innovations had not been established (Tufano, 1989).

Hence the financial performance of commercial banks can be analyzed by developing a model factoring in new technological products and their inputs

Finally, Regardless of existing theories financial innovations keep changing frequently hence a once off study may not be sufficient hence it may need reviews. There is need for a current research based on available market innovations products to

show general performance of commercial banks is necessary, thus this study investigates and intends to fill the study gap.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction.

This chapter discussed the methodology that the research used to carry out the study and collect data. It discussed the research design, the target population, sample and sampling procedures, data collection instrument and data procedure, analysis and preservation of data.

3.2 Research Design.

This research is a descriptive design because it aims to generate information that may be used to inform users how financial innovation affects banks performance in Kenya. It accessed the strength of the relationship between the variables exhibited as a result of the financial innovation phenomenon. The variables which are the financial innovations (dependent variable), performance of Kenyan banks (independent variable).

3.3 Population.

The target population is defined as the collection of elements or objects that possess the information sought by researchers. The population of this study consisted of 43 commercial banks in Kenya. As shown in appendix A, during the quarter ended June 30th, 2013, the banking sector comprised 43 commercial banks, 1 mortgage finance company, 9 deposit taking microfinance institutions, 7 representative offices of foreign banks, 107 foreign exchange bureaus and 2 credit reference bureaus (CBK,2013). Only secondary data will be required.

3.4 Sample.

This explains the sampling techniques that were used and the procedures to be followed in understanding how financial innovations like mobile money or services and their impact in bank performance in Kenya.

3.3.1 Sampling Technique.

This research used non-probabilistic sampling technique. The non-probabilistic technique the researcher used is the convenience sampling in conjunction with the judgment sampling.

3.3.2 Sample Size.

The selection of an actual sample size was done by convenience sampling, five commercial banks' financial innovation products were sampled in Kenya. In each of these categories the researcher used his judgments to choose current and financial innovations that were current and convenient for analysis.

3.5 Data Collection.

This research study used secondary data collection to evaluate the topic of study and the information was collected from the Central bank of Kenya 2012, first and second quarter 2013 banking sector report and central bank presentations for the years 2007 to 2013.

3.6 Data Analysis.

After collection of all the relevant data, regression analysis was used to draw the relationship between financial innovations in Kenya and performance of commercial banks. Regression analysis describes the relationship between a quantitative dependent variable and one or more independent variables. A statistical package for social sciences (S.P.S.S) version 17 was used to analyze the data collected.

Model,

$$Y = a + b_1 + b_2mb + b_3ab + b_4atm + b_5cu.$$

$$ROE = a + b_1 + b_2mb + b_3ab + b_4atm + b_5cu + e.$$

Whereby,

ROE is return on equity.

a is a constant.

b is a coefficient of each variable.

MB is mobile banking.

AB is agency banking.

ATM is automated teller machines

CU is card usage

e is error term.

Table 3.1 Independent Variables.

NUMBER	FACTOR	ABBREVIATION	NATURE OF DATA REQUIRED
1	Mobile banking (Mshwari)	MB	Types of other mobile banking services used by commercial banks. Amount of transactions
2	Agency banking	AB	Total number of commercial banks involved, Number of contracted agents country wide. Total amount of transactions
3	Automated Teller Machines	ATM	Total number of ATM machines, number of

			transactions, value of transactions
4	Card Usage	C.U	Number of gross loans and growth

Source: researcher.

Statistical test

In order to determine whether financial innovations are statistically significant on performance of commercial banks in Kenya statistical tests were tested. The researcher conducted an analysis of variance (ANOVA).The researcher used F-statistical to test on the overall model and for each independent variable t–statistical test was used.

The researcher looked on significance value on extracting the ANOVA statistics the study was tested at 95% confidence level and 5% significance level.

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION OF FINDINGS

4.1 Introduction

This chapter covered the general aspects of data collection on the effects of financial innovation on performance of commercial banks in Kenya, starting with a brief introduction, financial innovation variables, commercial banks performance and correlation analysis by use of SPSS and interpretation of findings.

4.2 Data Presentation.

The researcher collected the following secondary data of the variables of the model: mobile banking including mshwari, agency banking, automated teller machines and cards usage as illustrated below.

4.2.1 Mobile Banking.

Mobile phone money transfer service usage continued to increase among the Kenyan public as indicated by the growth in the number of transactions which increased 364.06 million transactions in the year to June 30, 2011 to 507.90 million transactions in the year to June 30, 2012. The Central Bank of Kenya continues to monitor the developments in this sector in line with the Government's policy of enhancing financial inclusion and deepening especially for rural/urban poor and the un-banked. The customer base Mobile phone money transfer service increased from 17.99 million customers to 19.8 million customers, while the number of agents increased by 31.61 percent from 46,588 to 61,313 in the same period with M-PESA accounting for 76.42 percent, Zap 19.0 percent and Yu 2.8Percent.

Table 4.1 Mobile Banking in Kenya

Year to ,	2007	2008	2009	2010	2011	2012
Amount transferred(Ksh billion)	1.49,	61.07	318.44	597.31	919.22 1	375.83
Number of agents	527	3011	10735	31902	46588	61313
Number of transactions (million)	0.48	21.77	125.12	251.25	364.06	507.90
Number of 'registered' customers/accounts (million),	0.18	3.04	7.39	10.44	17.99	19.80

Source: CBK (2013).

Another new mobile banking entrant is mshwari. Transactions on Kenya's latest mobile banking innovation, M-Shwari, crossed the Sh1 billion (\$11.6 million) mark at the close of year 2012 in an overwhelming uptake that could force the country's banks back to the drawing board. By December 27, 2012 barely a month after its launch, M-Shwari customers had borrowed over Sh123 million (\$1.43 million) and deposited in excess of Sh976 million (\$11.35 million) in savings, with the biggest activity recorded among the youth aged between 25 and 30. The product allows users to save and borrow money through their cell-phones while also earning interest. Eligible customers can also qualify for emergency loans.

4.2.2 Agency Banking

The use of the agency banking model by banks has continued to improve access to banking services since its launch in 2010. As at 30th June 2013, CBK had authorized 13 commercial banks to offer banking services through third parties (agents). Since 2010, a total of 19,649 agents had been contracted facilitating over 58.6 million transactions valued at Ksh. 310.5 billion. This was an increase from 11 banks that had contracted 18,082 active agents facilitating over 48.4 million transactions valued at Ksh. 250.1 billion in March 2013. The number of banking transactions undertaken through agents increased from 9.7 million registered in the quarter ending March 2013 to 10.2 million transactions registered in the quarter ending June 2013. Similarly, the value of banking transactions undertaken through agents increased from Ksh. 54.3 billion to Ksh. 60.4 billion over the same period.

4.2.3 Automated Teller Machines.

As per appendix B, the number of Automated Teller Machines (ATMs) in the payment card service increased by 5.0 percent from 2,183 ATMs in June 2011 to 2,291 ATMs in June 2012. This growth may be attributed to commercial banks' business expansion strategies. The value of transactions effected through cards in the year to June 2012 increased by 7.95 percent and 37.3 percent from Ksh623.74 billion to Ksh673.34 billion and Ksh555.17 billion to Ksh762.23 billion for acquirers and issuers, respectively. Correspondingly, withdrawals increased by 34.59 percent and 90.13 percent from 110.56 million withdrawals to 148.80 million withdrawals and 115.70 million withdrawals to 219.98 million withdrawals for acquirers and issuers, respectively. The growing usage of cards signifies a growing shift from cash based payments to non-cash payments by the public.

4.2.4 Plastic Card Usage.

Table 4.3, Plastic Card Usage

years	2007	2008	2009	2010	2011	2012
ATM CARDS	943,359	900,148	985,141	1,252,893	1,439,729	1,640,004
DEBIT CARDS	971,449	1,528,866	3,700,646	4,156,187	7,002,091	8,121,460
CREDIT CARDS	107,106	107,653	106,842	111,383	117,835	131,397
CHARGE CARDS	5,775	5,160	1,682	791	1,418	2,877
TOTAL	2,027,689	2,543,835	4,794,311	5,521,254	8,561,073	9,895,738

Source: CBK (2013)

As per table 4.3 above, the total number of cards in use rose by from 8.6 million cards in June 2011 to 9.9 million cards in June 2012, with debit cards recording a growth of from 7.0 million cards in June 2011 to 8.1 million cards in June 2012.

4.3 Regression Analysis Results.

Table 4.4 shows the regression model summary results, where R, R squared, adjusted R Squared and standard error of estimate are presented.

Table 4.4 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.977 ^a	.955	.775	2.288

Source: research findings.

Table 4.4 shows R square which is known as the coefficient of determination. It explains the variations of dependent variable that is due to change in independent variables. As per the table above the value of R squared was found to be 0.955, shows that variation of 95.5%, thus independent variable accounted for 95.5% of variance in commercial banks performance. Independent variables being: mobile banking, agency banking, automated teller machines and plastic card usage.

R is the correlation coefficient and it explains the strength of relationship between the independent and dependent variable, an estimate of 0.997 shows a strong linear relationship between the dependent and independent variable.

Table 4.5 below shows the Anova results which explain the model fit through the F-statistic and probability of F-Statistic.

Table 4.5 Anova

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	111.080	4	27.770	5.303	.314 ^a
Residual	5.237	1	5.237		
Total	116.317	5			

Source: research findings

The results in table 4.5 show that F statistic was 5.303 at 5% level of confidence, the statistic was not significant.

Table 4.6 below shows the coefficient results for the model variables, the t-values as well as the significance (p-value).

Table 4.6 Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	23.749	7.705		3.082	.200
MOBILE BANKING	.003	.005	.194	.515	.697
ATM	.005	.017	.383	.302	.813
CARD USAGE	.019	.000	.125	.085	.946
AGENCY BANKING	-.002	.002	-.395	-1.167	.451

Source: research findings

The researcher conducted a multiple linear regression analysis so as to determine the effect of financial innovations on performance of commercial banks in Kenya. Using the return on equity of Kenyan banks as the dependent variable, the linear model was estimated as model $Y = a + b_1 + b_2mb + b_3ab + b_4atm + b_5cu + e$

According to the regression equation the model summary will be summary of all factors (mobile banking, automated teller machines, card usage and agency banking) constant the commercial bank performance will be 23.749.that is; $Y=23.749$

The data analysis also shows that taking all other factors at zero, a unit increase in mobile banking will lead to 0.003 increases in performance of commercial banks, a unit increase in ATM will lead to 0.005 increase in banks performance, a unit increase in cards usage will have 0.019 increase on banks performance and a unit increase in agency banking will lead to negative 0.002 on performance of commercial banks. This shows that mobile banking, card usage and ATMs have a positive influence on performance of commercial banks. Agency banking has a negative effect on banks performance but not significant.

4.4 Summary and Interpretations of Findings

The study set out to determine the effects of financial innovations on performance of commercial banks in Kenya this section discusses results based on this objective.

The results in table 4.6 shows that mobile banking had a positive effect on performance of commercial banks the t-value was 0.515 and the P-value was 0.697 meaning that the effect of mobile bank performance was neither significant at 5% nor at 10% significance level.

Although the study showed that mobile banking had a positive effect to performance of commercial banks in Kenya of (0.003), the effect was not recorded as being significant and the result therefore meant that lower significance of mobile banking affected commercial banks in Kenya. Given that most of the banking innovations in Kenya by different telecommunication companies do not act as subsidiaries instead they pose greater profits for the parent companies annually. For example M-PESA, yu cash, orange money and mshwari.

The results were consistent with those of Korir (2012) the researcher established that financial innovations affect banks performance positively, Mobile banking innovations could be further be explained by 64% of mobile users who disagreed that cost of mobile banking was to high in his study to establish factors influencing mobile banking in Kenya.

This study found that ATMs usage had a positive effect on commercial banks performance (0.005). The t-value was 0.302 and the p-value was 0.813. although the ATMs had a positive effect on performance it meant that the effect of ATMs was not significant either at 5% or at 10 % level of confidence.

The study further shows that plastic cards usage had a positive effect on performance of commercial banks in Kenya of 0.019. the t-value was 0.085 and the p-value 0.946 meaning that the effect of card usage was neither significant at 5% nor at 10% level of confidence.

Finally the study shows that agency banking had a negative effect on performance of commercial banks in Kenya of -0.002 . The t-value was -1.167 and p-value was 0.451 showing that the negative effect of agency banking was neither significant at 5% nor significant at 10% level of confidence. The fact that this effect is insignificant means that agency banking does not negatively affect performance of commercial bank at different levels. The negative effect contradicts the theory of intermediaries' role towards the parent company.

According to Ndungu (2013), agency banking is carried by both banks and deposit taking microfinance institutions. The aim was to increase the level of formal financial inclusion. Which had led to over 17000 approved bank agents facilitating over USD 2.76 billion mainly leveraging on mobile phone technology.

Therefore, the study found out that mobile banking, automated teller machines and card usage had positive effects on performance of commercial banks in Kenya. All this factors were insignificant at 5% degrees of confidence, where as agency banking had a negative effect on performance of commercial banks in Kenya. It was also not significant to performance of commercial banks in Kenya.

Jack and Suri (2010) says that M-PESA innovation a form of mobile banking that clearly dominates its money transfer predecessors on virtually all dimensions, users say its faster, cheaper, more reliable and very large majority report that they will suffer significant negative losses if it were to be shut down. These are some of the findings from other researchers that explain the positive relationship of financial innovations in relation to performance and use.

There is need to note that the study coincides with that of Njenga and Kamotho (2009) which asserts that the demands of vibrant M banking implementation revolved around improved network coverage, quality connections besides reduced costs to ensure affordability to all prospective partakers, service providers might be better availing service at low costs to net more users rather than insisting on high levies which frighten off some possible participants by so doing they will be able to boost the revenue stream by promoting volume of transactions leading to improved performance.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATION

5.1 Summary.

The following summary, conclusions and recommendations were made from the analysis and data collected. The data collected was as a result of the objective of the study, the researcher had intended to establish the effect of financial innovations on the performance of commercial banks in Kenya.

The study adopted a descriptive study design; the population was all commercial banks in Kenya. Secondary data was collected. To achieve this objective the researcher collected data of four factors: mobile banking, agency banking, automated teller machines and plastic card usage. Data was analyzed using descriptive and regression analysis.

To test for validity of the overall model an F test was conducted and the researcher noted significance to be at 0.314 which validated the overall model. The researcher also tested for individual variables by performing a t- test in order to determine the hypothesis. The null hypothesis was rejected hence financial innovation concluded as impacting the financial performance of commercial banks. However none of the tested variables was significantly related to performance.

The researcher further used descriptive study in which aimed to collect data of financial innovations in relation to banks performance, this helped the researcher get percentages of financial innovations researched.

5.2 Conclusion

The findings of this study indicate that quite a number of financial innovations Factors influenced financial performance of banks; some had more Impact than others which was insignificant to banks performance. The researcher therefore rejects the null hypothesis, that financial innovations have no impact on performance of commercial banks in Kenya and accepts the alternative hypothesis that these factors have impacts

on commercial banks performance. Among the entire factors only one factor which is agency banking that showed a negative impact on banks performance. It is notable that none of the tested variables was significantly related to performance of commercial banks in Kenya.

Mobile phone money transfer service usage continued to increase among the Kenyan public as indicated by the growth in the number of transactions which increased by 39.51 percent. The customer base Mobile phone money transfer service increased by 10.06 percent. While the number of agents increased by 31.61 percent. The value transferred through mobile money transfer services increased by 50.29 percent from Ksh919.22 billion for the year to June 30, 2011 to Ksh 1,375.83 billion for the year to June 30, 2012. The increased number and value of transactions demonstrate the increased role of agent banking in promoting financial initiatives being championed by the Central Bank.

The implication of this study is that Government and relevant authorities should set aside incentives for research and development of more financial innovations for improved commercial banks performance financial innovations and greater profits in the banking sector.

The phenomenal growth of M-Shwari is likely to cause jitters in the banking industry since it offers similar products as commercial banks, but with extra convenience because users do not have to queue in a banking hall. CBA has said it has experienced a massive expansion on its balance sheet since the launch of M-Shwari in addition to many accounts being opened everyday. Its effect is expected to impact significantly on the bank's turnover (CBA, 2013).

The study found out that mobile banking, automated teller machines and card usage had positive effects on performance of commercial banks in Kenya. All these factors were not significant at 5% degrees of confidence, whereas agency banking had a negative effect on performance of commercial banks in Kenya; it was also not significant to performance of commercial banks in Kenya.

The study concluded that the most important attribute that managers must consider before making decisions was agency banking among the factors of innovation under study.

5.3 Policy recommendations

Commercial banks should have an effective market research department that should conduct surveys in order to establish the new financial products by competitors, the advantages and disadvantages of the financial innovations. This will enable the banks to innovate and help in staying ahead of competition.

The study recommends that banks should put incentives and innovate on other departments for example marketing, human resource and customer service. All the financial innovations under this study tend to improve office operational sector in a bank. In most banks customers still queue to receive services in bank alleys instead of banks using latest technology like card system to save time and be efficient.

The study has important implications on prevailing policies. The government should consider favorable macro economic policies and a legal framework that encourages new financial innovations.

The government should exempt or reduce tax charges on mobile money and airtime prices to allow free flow and circulation of mobile money.

Different commercial banks have different financial innovations making the competition very stiff. Each bank should market its financial innovation fully for maximum efficiency and productivity thus retaining and attracting new clients.

5.4 Limitations of the study

Time constraint was experienced as the amount of time available to collect data was limited. This was experienced at central bank data base due to security reasons and having to rely on what CBK had posted on its website.

The study used secondary data collection; the data used may have been kept for other purpose as opposed to this research objective.

The study only covered commercial banks in Kenya. Only a sample of financial products was studied. Conclusions could have been different if the whole population was studied.

The researcher opted to use return on equity as a measure of performance, there are many different measures of performances that can be used that could give different conclusions.

5.5 Suggestions for further studies

The study was focused on commercial banks of Kenya; further research can be done in effects of financial innovations on commercial banks in other countries, For example in Tanzania, Uganda, Ethiopia, Ghana etc.

A similar study on effects of financial innovations can be done on other financial sectors of a country such as in the securities exchange market, insurance industry to find out how their performances are affected by financial innovations.

Due to numerous new innovations in this digital era, a similar study like this can be done after a period of one year to take into considerations new financial innovations in banking sector and how they affect its performance

A cross sectional survey covering the whole banking industry can be undertaken. This will allow industry generalization to be done.

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APPENDICES

APPENDIX A

LIST OF COMMERCIAL BANKS IN KENYA as at 31st September 2013.

1. African Banking corporation.
4. Bank of India.
5. Barclays Bank of Kenya.
6. CFC Stanbic Bank.
7. Charter House Bank (under statutory management).
8. Chase Bank.
9. Citibank.
10. Commercial bank of Africa.
11. Consolidated bank of Kenya.
12. Cooperative bank of Kenya ltd.
13. Credit bank.
14. Development Bank of Kenya.
15. Diamond Trust Bank.
16. Dubai Bank.
17. Ecobank.
18. Equatorial commercial bank.
19. Equity Bank.
20. Family Bank.
21. Fidelity Commercial bank.
22. Fina Bank.
23. First Community Bank.
24. Giiro commercial bank.
25. Guardian bank.
26. Gulf African bank limited.

27. Habib Bank A.G Zurich.
28. Habib bank ltd.
29. Imperial bank ltd.
30. I &M Bank.
31. Jamii Bora Bank.
32. Kenya Commercial Bank.
33. K-Rep Bank limited.
34. Middle East Bank.
35. National Bank of Kenya.
36. NIC Bank limited.
37. Oriental Commercial Bank Limited.
38. Paramount Universal Bank.
39. Prime Bank limited.
40. Standard Chartered Bank of Kenya.
41. Trans-national Bank limited.
42. UBA Kenya Bank Limited.
43. Victoria Commercial Bank LIMITED.

MORTGAGE FINANCE COMPANIES.

1. Housing Finance Limited.

Source: Central bank of Kenya,

Kenya National Bureau of statistics.

Appendix B

Table 4.2 Automated teller machines in Kenya.

Years	2005	2006	2007	2008	2009	2010	2011	2012
Number of ATMs	555	737	1,078	1,510	1,827	1,943	2,183	2,291
Number of transactions (millions)								
Acquirers	-	-	58.63	77.92	86.72	93.43	110.56	148.80
Issuers	-	-	42.08	54.70	77.42	83.80	115.70	219.98
Other	-	-	-	3.44	3.56	-	-	0.01
Value of transactions (billions)								
Acquirers	-	-	312.87	396.93	431.79	507.99	623.74	673.34
Issuers	-	-	136.44	258.33	417.04	439.22	555.17	762.23
Other	-	-	-	18.51	18.93	-	-	62.52

Source: CBK (2013).