

**EFFECTS OF FINANCIAL INNOVATION ON PERFORMANCE OF
COMMERCIAL BANKS IN KENYA
CASE STUDY OF LEADING COMMERCIAL BANKS IN KENYA**

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DECLARATION

This research projects is my original work and has not or never been submitted for examination to any other university.

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This research project has been submitted for examination with the approval of my university supervisors

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DEDICATION

To my family, for your love, support, and encouragement. To my supervisors for their continued support and dedication. As once a great man said “If you believe in yourself and have dedication, pride and never quit, you’ll be winner. The price of victory is high but so are the rewards- **Bear Bryant**

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LIST OF ABBREVIATIONS

CBK	Central Bank of Kenya
ETF	Electronic Fund Transfer
ROA	Return on Assets
ROE	Return on Equity
SPSS	Statistical Package for the Social Sciences
SRS	Simple Random Sampling
UK	United Kingdom

ABSTRACT

The core of this study was to assess the effects of financial innovation on performance of commercial banks in Kenya with reference to listed banks in Kenya from 2012-2017. The study is guided by three specific objectives; to determine the financial systems on the performance of commercial banks in Kenya; establish the process innovation on the performance of commercial banks in Kenya; and to realize the effects of product innovation on the performance of commercial banks in Kenya. The study is based on three theories; Merton's Market Efficiency Theory of Innovation, Pecking Order Theory, and Diffusion of Innovation Theory. This study adapts a quantitative research approach with focus on panel data. The target population were commercial banks in Kenya and was limited to the leading listed commercial banks in NSE but the 6 public and private leading banks with the in terms of customer and assets base. The study through purposive sampling selected six leading commercial banks and included Kenya Commercial Bank, Cooperative Bank of Kenya, Equity Bank, Family Bank and Barclays Bank and The Standard Bank. Both primary and secondary data were used in this study. Primary data was drawn from the questionnaires that were collected from the respondents. On the other hand, secondary data was used in this study was obtained from the financial statements of the 6 sampled commercial banks. Secondary data were extracted to develop a panel data that included financial reports and calculated ratios collected for the 5 years, since 2012-2017. Descriptive analysis was used to analyze primary data collected from the questionnaires and was used to show the extent to which the three type of financial innovation (Financial systems innovations, Process Innovation, Product innovation) influence the performance of commercial banks in Kenya. Quantitative data analysis methods were done through SPSS software for the secondary data collected from the financial reports. After all data is collected, data was coded and keyed into the computer for analysis using the statistical packages for social sciences (SPSS). Partial correlation and linear regression analysis was used through regression analysis to determine whether financial innovation (financial systems innovations, process innovation, and product innovation) has an influence on the performance (ROE and ROA) of selected commercial banks in Kenya. The findings from primary data indicated that $Y=1.777+.290X1+.148X2+.106X4+\epsilon$. This indicates that a .290 increase in Financial Systems, a .148 increase in Process Innovation while 086 in Product Innovation will have unit change in the performance of commercial banks. Product Innovation is the only financial innovation component that does not have a significance influence on the performance of commercial banks. The analysis on secondary data indicated that if all other factors remained constant at 0.487 there would have a 0.048519 change in financial innovation (financial systems, process innovation and product innovation) then there would be a unit change on the performance of commercial banks in terms of ROA. On the other hand if every other factors remained constant 0.487 and there 0.330825 change in financial innovation (financial systems, process innovation and product innovation) then there would be a unit change on the performance of commercial banks in terms of ROE.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Banks globally in relation to other firms operate as open systems in tumultuous surroundings; their continued viability is based on their capability to seal compatibility with the surrounding (Jenkinson & Penalver, 2012). Noticeably, conventional products in banking are non-physical and comparable making them challenging for banks that desire to be different from the market that they are targeting. Therefore banks need to regularly embrace innovation to be able to offer a set off services and products that are value driven to its clients consequently allowing them to draw added revenue, undertake opportunities that save on cost and help them grow (Raza & Akram, 2011).

US financial institutions recognize that financial innovation presents a firms reaction to financial cost developed by technological alterations, shift in political standings in relation to regulations and laws. Institutions critically consider important the interactional procedure which is followed by the process of reasoning and avoidance within the organization (Llewellyn, 2013). The financial innovation in the both developed and developing would have been driven more by improvements in computer and telecommunication technology.

As financial sector grows in Africa, Bagorogoza (2015) asserted that leading banks in South have recognized that to remain the leader in the competitive sphere in the region, then got to better the current products or develop the latest innovations. As they seek to reduce risk, commercial banks have adopted innovation, developing services and products that clients are attracted to and those whose risk are reduced consequently making the portfolio of bad loans have less debt.

Since the mid-1990s, various players in the financial sector in Ghana have conducted innovation in finances through utility bills payment, offering services of insurance, brokerage in stock, E-banking, interest rate reduction, having savings accounts, automatic teller machines, mortgages among others hence transforming the institution into a single shop that houses all (Chen, 2013). There are lists of benefits that have been accrued by financial innovations which have also resulted in cost, risk reduction and higher efficiency with the players in the industry.

The more the banking institutions carry out financial innovation the more they are able to improve their financial performance. Mandiwa (2014) on mobile banking penetration in Malawi, established that although the improvements being made were significant in relation to the profits being made and profits registered, in Malawi, the commercial institutions were unable to get to and draw broad population groups, specifically the disadvantaged segments within the society with basic services of banking. The discoveries of the survey outlined that with the increased mobile use, many of the rural population will be able to access financial services.

On the other hand in Uganda, the guidelines of mobile money targeting banks, which were activated on 1st October, 2013 had also experienced great improvement in financial innovation; the objective of financial innovation was to permit providers of financial resources to capitalize on latest technology to enhance access to financial products, and also offer clients protection (BoU, 2014). The pillar on financial innovation has currently provided priority on agent banking and mobile money, even though financial innovation will be evaluated as times goes.

In Kenya, banks that are commercial in nature are currently operating by offering a number of wide financial products compared to the past when restrictions were imposed on

them to just take deposits, providing business loans and issuing money out (Karanja, 2011). A lot has changed in relation to banking techniques and practices in the recent past. Several organizations have implemented banking services and products that are very complex, structured for risk taking so as to increase income. Telecommunication advances, revolution in information technology and expansion of financial practices and theories have changed the manner in which business is conducted in the banking industry (Lumpkin, 2014).

Makini (2015) also states that banks that are commercial in nature are making effort in developing new ways of reducing eminent risk such as risk caused by foreign exchange, interest rate, capita and credit and so on. At the same time they are trying to maximize on the wealth of the shareholder resulting in the initiation of the latest processes of production, services, products and forms of organization.

1.1.1 The concept of Financial Innovation

Financial innovation refers to the action of developing and afterwards making popular latest financial techniques including latest markets, institutions and technologies in finance. Financial innovations as referred to as by Ho (2012), as surfacing of financial service and products, latest forms of organization, or latest procedure enabling more growth and financial markets that are complete that minimize risk and cost or offering of services within certain requirement of client financial structures.

Certain gains that are attributed to financial innovation is the reduction of costs, reduction of risks, and also offering better services/tools/products that meet the demands of clients within financial structures. While financial innovations can be categorized in different ways, Malhotra and Singh (2013) pointed out that the most common one are new products being initiated to allow banks to better respond with the demand in the market, also

enhance the organization's efficiency, another is the new production process which has led to increased efficiency and market expansion. The third is new organizational forms that include dynamics in structure of business or structuring a whole new structure of service that may include web only banking (Pantalone & Welch, 2013)

Turfano (2012) observes that financial innovation is considered as constant product development, services and technological delivery of products or service to their clients. Financial innovation is considered a catalyst that enables financial industry, services and reorganization of financial markets. On the other hand Francesca and Claeys (2012) state that financial innovations stand for the structured procedure of change in instruments, organizations, and functioning guidelines that establish the system of financial structures.

As banks and other financial institutions continue to put in place measures in improving performance many are focusing on the three areas that include categories institutional, product, and process innovations. Pearson (2014) pointed out that organizational innovations relates to the development of the latest forms financial organizations for instance credit specialists and direct banks. On the other hand innovation of products is concern with the latest products for instance mortgages for foreign currencies, securities and derivatives. Innovation in processes involves the latest procedures in conducting financial business, like banking through the phone and web.

In the last 6 years or so, considerable decline has been observed in relation to challenges experienced in entering financial sector, considerable reduction in maintenance costs in relation to micro accounts, initialization of the latest tools focused on underprivileged population groups and more countrywide branches (Njuguna, 2011). The Kenyan central bank has offered leeway for innovative fixes. The platform for managing mobile finances is the initial innovation. Many banks have implemented an ever increasing service of ATM

remittance, business to person, person to business, person to person using mobile phones. Also, the banking sector has experienced the innovation of agent banking. Outlets that are not banks are converted to providers of financial services (Central Bank of Kenya [CBK] 2017).

1.1.2 Performance of Commercial Banks

A number of the gains that are connected with financial innovation is the reduction of costs, reduction of risks and also offers an enhanced tool/service and products that increasingly please financial structure participant's needs financial innovation can be categorized as new products (Michalopoulos & Levine, 2011). In a bid to improve their performance banks have shied away from conventional banking practices, where they were required to issue money in the form of loans, accept deposits and engage in new dealings such as loans, savings and mortgages which previously remained to critically manage the firm.

The state has also initiated latest guidelines to address the banks financial innovations such as it was suggested in the accord in Basel I and ii implemented by central bank (Central Bank, 2011). In order to improve their performances, banks have stretched their wings to provide services to a larger geographical segment both globally and within the region. Changes in technology connected to processing of data and technology have catalyzed financial innovations bringing changes to services and products of banks and its process of production (Koech, 2013).

Due to competition, commercial banks have been pushed towards embracing innovation in order to increase their performance. Oloo (2014) argues that banks have come to the realization that in order to remain on top of the five competitors, they need to enhance their current products or otherwise develop innovations that are completely new. As a way to

keep risk to the minimum, Peng and Kango (2016) notices that innovation has been embraced by banks leading to development of new services and products that are appealing to clients and also that have minimal risk hence lowering the portfolio of bad debt loan.

Some of the measures of performance apart from financial performance include non-financial performance measurement that include satisfaction of clients and performance of services or products; flexibility of supply chain, production and innovation levels, time to market as a form of organizational effectiveness; satisfaction of employees as a form of performance for human resources; per share earnings, cycle time for cash to cash, position of market, profits, revenue and other market and financial performance (Anderloni, 2013). For the sake of this study, the focus will be on financial performance.

As financial institution choose to improve their performance through innovation as possible, the motive for financial innovation should as clear as possible. While there are argument if there exists an automatic connection linking financial performance with financial innovation. The favorable innovation hence develops a competitive position which is proprietary that grants the organization a competitive superiority and performance advantage (Lyons et al., 2007).

1.1.3 Commercial Banks in Kenya

In Kenya, the banks are either owned by foreigners or locals. Out of the 44 banks currently existing, the ones that are foreign owned are 13 while locally owned are 31. They all perform key roles such as providing a safe place for money deposits, transfer of money, offer customers investment services, assist traders in international business and lending services which will be our main focus in this study. The dominant theme in the lending

sector in the year 2017 was the decrease in momentum in the growth of credit and the effects caused by the capping of interest rate (AIB Capital, 2017).

In 2017, growth in credit registered record low. Players in the industry attributed it to the law capping interest rates, the famine of 2016/2017, and the rise in political temperatures occasioned by the coming general election. The decrease in interest income was perhaps the biggest single impact that was caused by the capping of interest rate within the industry. A ksh 175 billion decline which was equivalent to 13% of the interest income was observed by the sector. A 9.7% decline on interest income was seen by bank in tier 1, 18% decline in tier 2 and 18% in tier 3. The whole sector experienced a decline of 15% of its earnings occasioned by a reduction of interest income.

According to AIB Capital (2017), there were considerable attempts to minimize the cost base that included operations and funds. Despite an 8.3% growth in industry deposit, cost of funds declined by 14% in response to the capping of rates. Term deposit account and savings accounts were to attract a 7% minimal pay as banks were required by the banking act. Transactional accounts that paid no interest were used by banks to deliberately move client's accounts. Attempts by banks to silence expenditure led to a 2.4% growth of cost of operations (without considering provisioning). In a bid to safeguard the impact, an exploration of other avenues of income was considered. According to CBK (2017), the sector registered 11% growth in non-interest income

This portion was grown by a majority of the banks by raising the cost of services charged, including areas of getting new revenue through mobile banking. Additionally, the segment received contributions from investment banking, bank assurance, business leasing, trade finance and merchant banking (Cytonn Investment, 2017). Interest rate on asset financing varies from one commercial bank to another. According to CBK (2017), housing finance and family bank has the lowest loan rates of 22.45% while Guaranty Trust Bank and K-rep

banks were the most expensive banks with interest rates of about 25.7%. The study seeks to determine the influence of financial systems on the financial performance of commercial banks in Kenya; establish the influence of process innovation on the financial performance of commercial banks in Kenya; and assess the effects of product innovation on the financial performance of commercial banks in Kenya.

1.2 Statement of the Problem

The increase in competition and changing business environment in banking sector is making banks to turn into financial innovation and technological improvement to improve their competitiveness. The conventional products offered by banks are intangible and similar making them challenging to banks that desire to be different as they target the available market. Innovation is therefore a means by which banks must adopt to be able to provide an assortment of services and products that have value to clients that they serve so that they can earn extra revenue.

While there are several studies that have been conducted to evaluate the achievement of commercial banks, this research is intended to look at specific financial innovations that affect the performance of commercial banks in Kenya. Mansury and Love (2013) while measuring the effects of automation on the performance of internal banking in Malaysia pointed development in technologies as being among the vital shifts in the operations of banks that should also exert productive impact on the profitability and performance of banking. Another study by Ahmad et al. (2011) assessed the financial achievement of Finance Companies in Pakistan where the study disclosed that in temporarily, organizations that are innovative can register early gains including cementing relations with essential suppliers. As much as there are studies on financial innovation very few studies have examined the performance of commercial banks in Kenya.

1.3 Objectives of the Study

1.3.1 Main Objective

The general objective of the study was to undertake an analysis of the effects of financial innovation on performance of commercial banks in Kenya with reference to listed banks in Kenya.

1.3.2 Specific Objectives

The study was guided by the following research objectives;

- i. To determine the influence of financial systems on the financial performance of commercial banks in Kenya.
- ii. To establish the influence of process innovation on the financial performance of commercial banks in Kenya.
- iii. To assess the effects of product innovation on the financial performance of commercial banks in Kenya.

1.4 Significance of the Study

1.4.1 To Bank Management

As competition increase in the financial sector from both financial and non-financial organization that provide financial services, the study will help the management of commercial banks on how financial innovation can alter the achievement of commercial banks within Kenya even as competition continues to grow in the banking sector.

1.4.2 To Customers

The study will help the financial organizations that are looking at ways that they can use financial innovation to develop products that will not only expand the range of products available to the customers but also to the quality of services and products that offered by commercial banks.

1.4.3 To the Regulator

The study will help the central bank and other agencies that regulate the operation of the commercial banks on how various commercial bank can implement financial innovation and improve performance without oppressing the customers.

1.4.4 To the government

The study will help the government in regulating the operation of the commercial banks on how various commercial bank can implement financial innovation and improve performance without oppressing the customers. The studies will also how it can spur financial innovation within the financial organization to improve business sector performance.

1.4.5 To the public

Given that the public are the consumers of these financial products, the study will help the financial organizations consider how financial innovation to develop products that can address the public's ever changing commercial needs.

1.5 Scope of the Study

The study concentrated on 6 leading commercial banking in Kenya and included Kenya Commercial Bank, Cooperative Bank of Kenya, Equity Bank, Family Bank and Barclays Bank and The Standard Bank. The study limited its investigation to how the achievement of commercial banks was being influenced by financial innovation in the context of Kenya. The investigation targeted 6 Head of Banking Managers, 6 Head of Credit Managers and 6, Head of Operations officers of commercial banks as the source of primary data information for this study. On the other hand secondary data that included financial innovation factors and financial reports on ROA and ROE the study was conducted among the 6 leading commercial banking in Kenya.

1.6 Limitation of the Study

This study was limited to measuring the influence of financial innovation on commercial banks achievements in Kenya and included other variables not listed above in this study. The study concentrated on 6 leading commercial banks in Kenya and will not include any other banks not mentioned in the scope of this study.

1.7 Delimitation of the Study

The study has incorporated data from both secondary and primary sources. The secondary data sources have been adopted to confirm the primary data collected from the respondents. On the other hand, while primary data was utilized to measure degree to which commercial banks achievements are being influenced by financial innovation in Kenya. Secondary data helped in establishing the relationship between financial innovations influence the performance of commercial banks.

1.8 Assumptions of the Study

The researcher presupposed that the participants targeted by the study would be willing to provide the required information and were accurate and factual. The researcher also assumed that the secondary data adopted by this investigation were readily available from various sources.

1.9 Operational Definitions of Terms

Financial Innovation – The latest financial announcement processes that facilitate the transmission and tracking advances in processing of data and scoring of credit that enhances the banks capability to assess borrowers and the adoption and improving of private credit firms globally in the past decades (Laeven et al., 2015).

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter gives the empirical review on studies associated with identified variables. Section 2.2 reviews the theories supporting the study while section 2.3 reviews the empirical literature of the study. Then section 2.4. provides the conceptual framework of the study while section 2.5. provides the operational framework.

2.2 Theoretical review

2.2.1 Merton's Market Efficiency Theory of Innovation

A worthy reasoning is provided by Merton (1990) in relation to financial innovation. His hypothesis is grounded on the idea that financial innovation is influenced by feelings crafted to expand the efficiency of markets and enhance the welfare of the society. According to Merton, there is no perfect market, which means therefore that financial institutions must adopt innovation to enhance the efficiency of markets. Feld (2004) argues that generally, financial economist surveys the movement of finances to capitalize on opportunities of investments and innovations productive mechanisms that shape market efficiency, enable sharing of risk and enhance growth.

It has been argued by many that financial innovation and flow of capital resulted to crashes, instability among other mishaps. This is specific to the crash in 1987 and the 1990's derivative calamity even though Merton was not persuaded that the crashes should be blamed on financial innovation. According to Merton (1990), there are 3 things that inspire innovation: development of the latest financial systems that enable sharing of risk, hedging and pooling of risk including new financial systems for shifting resources, the furtherance of efficiency in the economy agency cost reduction and liquidity.

This theory has been used in past studies (Kinuthia, 2010; Mwinzi, 2014) that furthered the establishment of an association between achievement of the banking sector and financial innovation. This theory is thus significant to this study as it discusses the role and importance of financial innovations for banking sector as it creates business efficiency for financial institutions to use financial advancements for instance web banking, mobile banking (m-banking), and use of agency banking.

2.2.2 Pecking Order Theory

Donaldson (1961) divulged that management opts for generating funds internally instead of through external means. Following this outcome, the pecking order theory was proposed by Myers and Majluf (1984). It is the suggestion of the pecking order theory that organizations prefer or opt for internal means financing instead of debt capital. It elucidates that organizations take advantage of internally available funds then turn to debt issuing before finally resorting to capital equity issuing.

A confirmation is provided by Al-Tally (2014) that organizations favor funding new investments using funds that are internally produced initially then resort to debt capital then resorting lastly to equity issuing. Additionally, the theory elucidates that organizations end up borrowing more funds when finances that are generated internally are adequate to realizing the needs of the investment (Shyam-Sunder & Myers, 1999).

It was found by Myers (2001) that the organizations' debt ratio manifests the total figure that should be used for sourcing funds externally. An organization with higher opportunities for growth and profits should minimize on the utilization of debt capital.

If the organization does not have any opportunities of investment, profits are maintained so as not to seek external financing in the future. This theory has been used by several studies Kirui and Gor, (2018) and Ruri, (2017) to discuss the influence of capital structure on the performance and growth of financial institutions. The theory on Pecking Order is of

paramount importance as is intended for the assessment of financing growth of commercial banks along the life cycle.

According to Pecking Order assumption, older commercial banks have a superior ability to retain and accumulate earnings, and so the demand to go for external financing to solve their financing needs will be less than in the situation of younger commercial banks. The possibility of old commercial banks reserving profits over time is significant, so the older commercial banks lessen the alternative to borrowing.

2.2.3 Diffusion of Innovation Theory

Adoption according to Rogers (2003) is the resolution to wholly utilize innovation as the best available action while rejection is a resolution to shy away from innovation. Diffusion is stipulated by Rogers as steps that innovation goes through as it is being passed through specific avenues in a given time within a segment in a society. As defined by Rogers, social system, time, channels of communication and innovation are the 4 vital constituents of diffusion of innovation. According to Rogers, these four constituents are the ones that control the dispersion of a new idea: the social system, time, channel of communication and the innovation.

The process heavily depends on the personnel. To sustain itself, the innovation must be adopted widely. While being adopted, there is a point where that particular innovation reaches a point known as critical mass. At that point, the information uses the available network to pass through. The innovation will be adopted depending on the role played by opinion leaders and the kind of network. The opinion leaders apply their dominance on the conduct of their audience through their individual networks. Further, gate keepers or agents of change also known as intermediaries have a responsibility in the diffusion process. This is a hypothesis advanced by Rogers as it sought to elucidate on why, how

and the degree at which new technology or idea spreads. Diffusion is argued by Rogers to be the process that innovation goes through within a given time to participants of a society. The banking system has employed very many methods of providing services to its clients over the past year. This includes mobile banking, real time gross settlements (RTGS) and easy methods of saving and borrowing which has been adopted in all participating banks to create a uniform platform of easy banking

2.3 Empirical Review

2.3.1 Financial systems innovations

Wasiak (2020) evaluated the impact of the financial system on economic growth in the context of the global crisis. The study evaluated the empirical evidence from the EU and OECD countries. The findings of the study also established that the financial system can and often does positively influence the growth of the banking and the financial sector at large but it can also be the barrier to growth of the banking sector if it is not handled properly. The findings of the study also established that an efficient and effective banking system and financial markets create a positive impact on the overall wealth of society, by enabling the advantageous flow of financial means accessibility in any given time.

AlSayyed (2021) carried out a study on financial product engineering in Islamic banking in the Middle East. The study while carrying out a desk review of the financial product that the bank provides established that improved financial service system was significantly critical in achieving commercial banks performance. The study advised that the commercial banks should enhance their financial service system so as to foster bank performance and achieve the banks goals and objectives.

Khan and Mirakhor (2021) the study while investigating the performance of financial institutions evaluated the experiences of the commercial banks in Senegal the study used survey research design that targeted 10 out of 15 commercial banks in Senegal. The study also used item by item analysis of the questions was used to identify the reliability of digital financial services. The findings of the study indicated that 48% of variations of profitability of commercial banks are caused by joint variations in the use of digital transfer services that include Digital Savings services, Digital Withdrawal services and Digital Payment services and many other automated financial services in Senegal.

Haron (2020) assessed the determinants of Banks profitability in South Africa. The study used multiple regression analysis to investigate the nature of the relationship between the dependent and independent variables. The findings of the study established that there was a significant relationship between investment in financial system and technology and the overall performance of banks in Malawi and that the banks that had invested more in financial technology had performed better.

2.3.2 Process Innovation

Alam (2021) carried out a study on the innovation strategy, process and performance in the commercial banking industry employed. The study conducted a survey of 138 product managers of the major commercial banks and proposing that a bank's choice of new product strategy and product development process are interrelated as are the impacts of those choices on new product performance globally. The findings revealed that the moderately innovative products are likely to be more successful than highly innovative and low innovative products. Idea generation and screening efforts, forming a cross-functional

team and proficiency in commercialization activities are essential to the success of a banking product.

Ngwengeh, et al. (2021) carried out a study on the influence of digital financial services on the financial performance of commercial banks in Cameroon. The study while using a Taylor linearise variance estimation technique was used to determine their influence on commercial bank profitability established that digital saving services, digital withdrawal services and digital transfer services have a positive and significant influence on the profitability of commercial banks in Cameroon.

Mwawasaa and Ali (2020) carried out a study on the effect of financial innovation on financial performance in commercial banks in Kenya. The study targeted 126 randomly selected commercial bank senior management staff where through Descriptive statistics, Pearson correlation and multiple regression analysis established that financial process innovation and financial market innovation also had significant effect on financial performance of commercial banks in Mombasa County. Through the findings of this study, the Government of Kenya would be able to assess which areas of innovation will support the banking sector by either waiving taxes or other non-monetary incentives.

Chipeta and Muthinja (2018) evaluated the financial innovations and bank performance in Kenya through evidence from branchless banking models. The study used the Koyck dynamic distributed lag model to estimate the relationship between financial innovations and bank financial performance. The results indicated that financial innovations significantly contribute to bank financial performance, and that firm-specific factors are

more important in determining the firm's current financial performance than industry factors.

2.3.3 Product innovation

Product innovation in the financial sector encompasses the initialization of hire purchase, leasing, insurance, deposit, new credit among other financial products to the clients triggered by dynamics in the market. Chiemেকে (2020) carried out a study on the adoption of Internet Banking in Nigeria. The study through an empirical investigation of commercial banks in Nigeria, capital Lagos evaluated the adoption of Internet Banking in Nigeria. The study established that the banks are increasing their investments in their financial product innovation in order to increase their profitability. The findings of the study also established that financial product innovation had a significant positive effect on financial performance of commercial banks in in Nigeria.

Halili (2020) carried out a study on the impact of online banking on bank performance in Uganda. The findings through structured questionnaires that targeted banking operators drawn from various commercial banks in Uganda and established that financial institutions to embrace agency, internet banking and ATM banking products innovations in order to include the excluded people in financial services and the unbanked in Uganda . The findings of the study also established that product innovation and high performing financial products have been established to have a significant in influencing financial performance.

Kiptanui (2020) carried out a study on the effects of technological technology and the financial performance of commercial banks in Kenya. The study collected data from different commercial banks in Kenya. The study employed a descriptive research design

and used structured questionnaire to collect data from senior management staff of the commercial banks in Kenya. The findings of the study established that the telecommunication company, Safaricom, offers financial services and products to customers' base bigger than any bank, Equity bank provide telecommunication services as a platform to extend the reach of their financial services to millions of customers.

Kimani (2021) carried out a study on the effect of Islamic banking products on financial performance of commercial banks in Kenya. The study through a correlation analysis investigated the strength of the relationship between the dependent variable and independent variables. Multiple regression analysis was carried out to investigate the nature of the relationship between the dependent and independent variables. The findings of the study indicated that all the available Islamic products available in Kenyan Commercial Banks had a positive significant relation with the exclusion of Ijara which had positive insignificant relationship. This implies that an increase in provision of Islamic banking services in Kenyan commercial banks will lead to increase in Banks performance.

2.4 Research Gap

The increase in competition and changing business environment in banking sector is making banks turn to financial innovation and technological improvement to improve their competitiveness and overall performance. The conventional products of banks are intangible and similar products are a challenge to banks that desire to be different in regards to the markets they are targeting. Banks therefore must adopt innovative ways to be able to offer an assortment of services and products that have value addition to the clients for them to get additional revenue.

While there are several studies including the above studies that have been conducted on how commercial banks performance is being affected by financial innovation, few investigations exist on the effects of financial innovation on performance of commercial

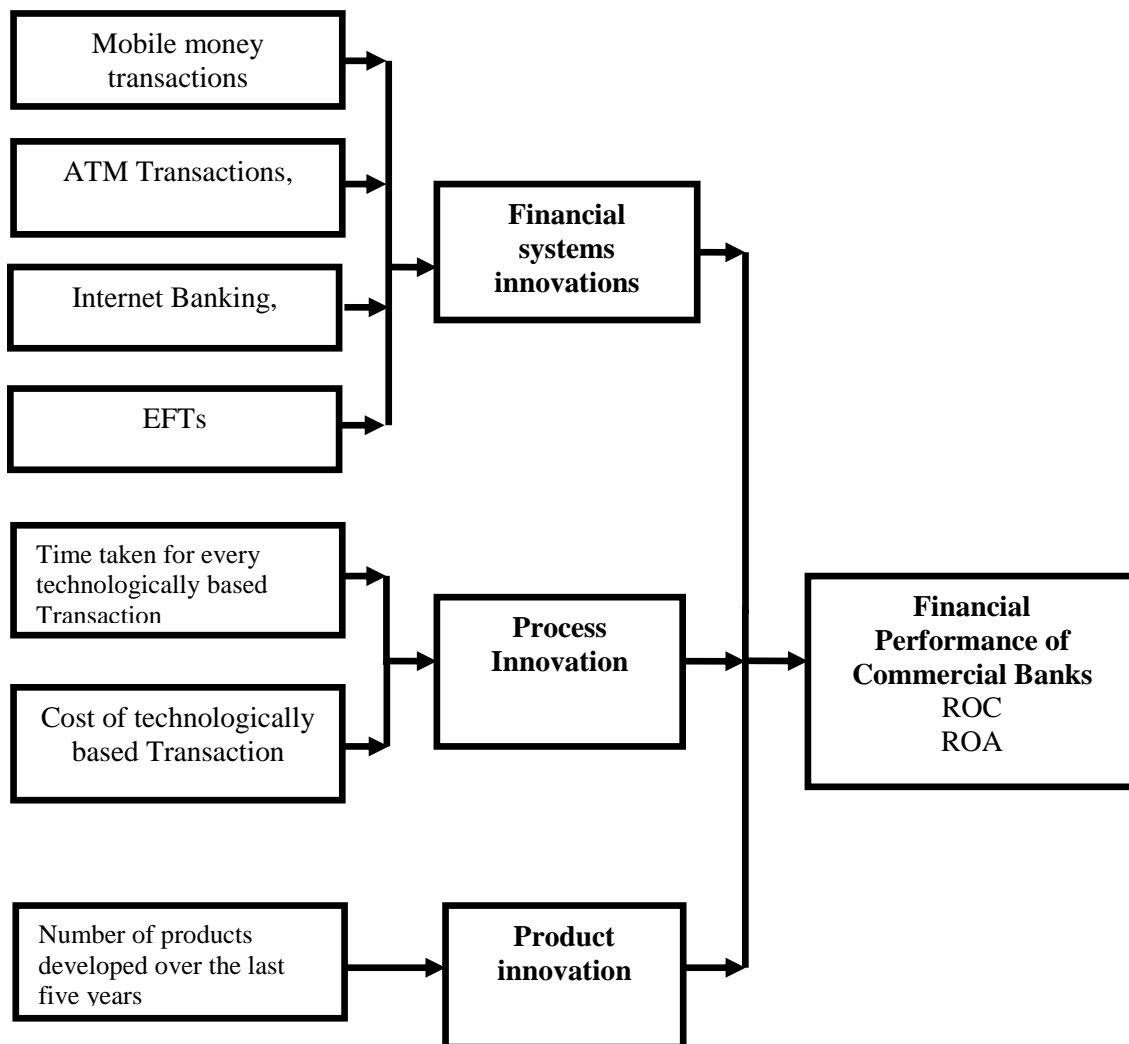
banks. With the increased competition from non-financial players operating financial services, commercial banks must therefore innovate to continue to be as competitive as possible in the financial services sector. Anchored on the adopted methodology and design it is therefore incumbent on this study to induce renewed inquiry in the knowledge base and advance investigations in this area in Kenya.

2.5 Conceptual Framework

Conceptual framework is a schematic illustration of the variables under investigation. It shows how independent variables have cause effect on the dependent variable. This section offers a schematic representation of the links between the inquired variables.

Figure 2. 1:

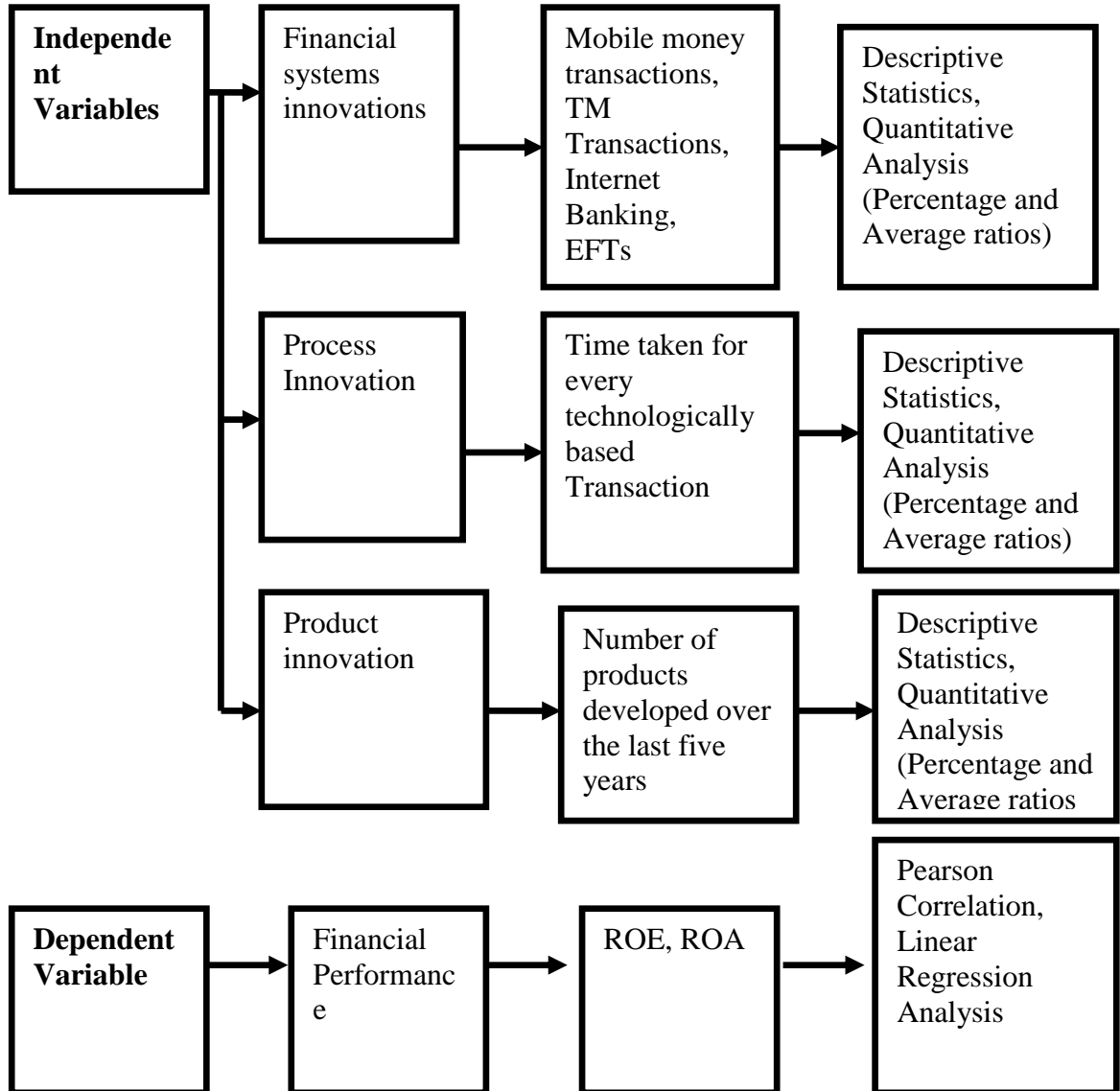
Conceptual framework



2.6 Operationalization

Figure 2.2:

Operational Framework



2.7 Summary

The Financial systems innovations adapted by the commercial banks determine the level of financial performance that they can achieve. They include the number of mobile money transactions, TM Transactions, Internet Banking and EFTs that the banks carry out. Effective processes that reduce on the overall time taken and the cost of the services is crucial in improving the overall performance of commercial banks in Kenya. The number of products developed over the last five years by the commercial banks has a great influence on the overall performance of the commercial banks in Kenya. The more the commercial banks develop new products through innovation the more, they are able to improve on their overall performance.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the methodology explored suitable for this study which answers its questions of research. This section identifies and describes methodology adopted, sample population, and sampling type, research instrument, how data will be analyzed, represented and interpreted.

3.2 Research Design

Adopted in this investigation is a quantitative research approach with focus on panel data that will help divulge the theme for this study. This method involved acquiring and evaluating data in a numerical format capable of deriving conclusion. The secondary data used in this study included financial reports gathered for a period 5 years for each of the selected commercial banks in Kenya. The study purposively focused on the six leading commercial banks and includes Kenya Commercial Bank, Cooperative Bank of Kenya, Equity Bank, Family Bank and Barclays Bank and The Standard Bank. The study selected 3 respondents from each of the six banks and therefore the study considered a total of 18 respondents.

3.3 Target Population

Population is defined as the total of all cases that comply with some assigned condition. It is the sum total of items or objects within a specific condition. The target population was centered on commercial banks in Kenya that have leading portfolios as listed in commercial banks in NSE in terms of customer and assets base.

3.4 Sampling Method

A sample is a set of items that represent the targets population. The sampling technique to be enacted at sampled respondents is representative sampling that is commonly used to

make surmises from the targeted sample for purposes of providing pertinent answers required by the study objective (Mugenda, 2008). The study sampled 6 banks from the commercial banks totaling 43. The study through purposive sampling selected six leading commercial banks and included Kenya Commercial Bank, Cooperative Bank of Kenya, Equity Bank, Family Bank and Barclays Bank and The Standard Bank.

3.5 Data Collection Method

Secondary and also primary data was incorporated in this investigation. Primary data were drawn from the questionnaires that were acquired from participants that included. On the other hand, the utilized secondary data was drawn from financial statements of 6 sampled commercial banks that included Kenya Commercial Bank, Cooperative Bank of Kenya, Equity Bank, Family Bank and Barclays Bank and The Standard Bank. Data extraction method was used to develop a panel data that included financial reports and calculated ratios collected for the 5 years, since 2012-2017. The information acquired statements of key ratios, profit and loss statements and balance sheets of the six sampled commercial banks in Kenya. From the financial statements of each sampled each commercial bank, ratios was calculated individually needed for the analysis.

3.6 Data Analysis

Secondary sources provided the study's secondary data which was thematically analyzed as guided by this study's objectives. The data was first checked for completeness, sorted, cleaned through checking for errors. For this study descriptive analysis used analyzed primary data and will also be used to show the degree at which the 3 type of financial innovation (Financial systems innovations, Process Innovation, Product innovation) influence the commercial banks performance within Kenya.

Quantitative data analysis methods were done through SPSS software and Advanced Excel for both Primary data acquired from participants and the Secondary data collected from the financial reports. After all data was collected, data was coded and keyed into the computer for analysis using the statistical packages for social sciences (SPSS). Partial correlation and linear regression analysis was used through regression analysis to determine whether financial innovation (financial systems innovations, process innovation, and product innovation) has an influence on the performance (ROE and ROA) of selected commercial banks in Kenya.

Tables, charts and percentages graphs were used for data presentation through the help of Microsoft Excel package. Pearson correlation analysis and linear regression model used, which took the form of:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon$$

Where: Y = the performance of commercial banks in Kenya

X1, X2 and X3 = Independent Variables

X1= Financial Systems Innovations

X2= Process Innovation

X3= Product Innovation

ϵ . = Error Term

B1 ... B3= Regression co-efficient of three variables

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND DISCUSSIONS

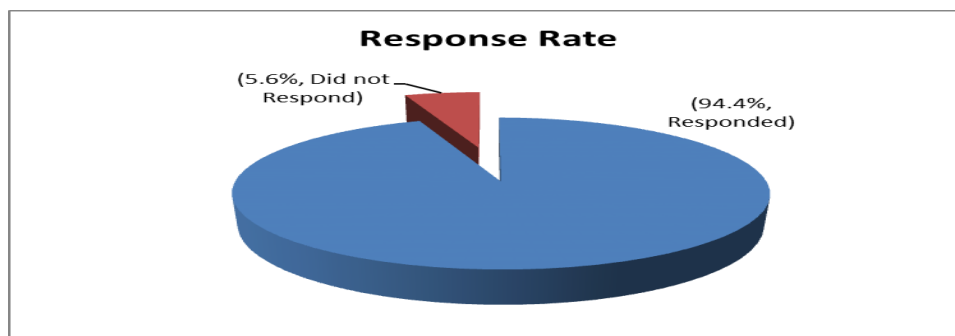
4.1 Introduction

The purpose of this investigation was to find out the effects of financial innovation on performance of commercial banks in Kenya with reference to listed banks in Kenya. This section contains outcomes ensuring discussions on the effects of financial innovation on performance of commercial banks in Kenya with reference to listed banks in Kenya.

The chapter was divided in three sections that include the demographic of the respondents; sections two were descriptive statistics analysis of the variables under investigation. The study in the third section covered the inferential analysis of the variables under investigation. In this part the study evaluate financial performance results from the six leading banks in terms of customers and asset base and included Equity Bank, Cooperative Bank of Kenya, Kenya Commercial Bank, Family Bank, Barclays Bank and The standard Banks in Kenya.

4.2 Response rate

Figure 4.1:
Responses Rate



The outcome of this investigation indicated that 94.4% of the study participants while only, 5.6% did not respond to the study. This indicated that the response was high as a

result of frequent following up by the researcher. Additionally, the respondents were a small number and therefore the study sought to cover as many respondents as possible.

4.3 Demographic Reponses

The study sought to establish the gender of the respondents, age and highest education levels of the respondents that were selected from the commercial banks that were covered by the study. The study also sought to establish the years worked by the respondents in their current banks.

4.3.1 Gender, years worked, age and highest education levels and the years worked in current commercial bank.

The response on gender, years worked, age and highest education levels and the years worked in current commercial bank covered by the study was as follows.

Table 4.1

Demographic Reponses

Category	Total N (%)
Gender of the Respondents	
Male	11(64.7)
Female	6(35.3)
Total	N=17 (100.0)
Education Level of the Respondents	
O Level	1(5.9)
Diploma	1(5.9)
Higher Diploma	2 (11.8)
Degree	8 (47.1)
Masters	4(23.5)
PHD	1(5.9)
Total	N=17 (100.0)
Age of the respondents	
18-28 years	0(0.0)
29-39 years	4 (23.5)
40-50 years	10 (58.8)
51 years and above	3 (17.6)
Total	N=17 (100.0)
Years worked in Current Bank	
0-3 years	8(47.1)
4-7 years	6(35.3)
8-11 years	0(17.6)
Above 12 Years	0(0.0)
Total	N=17 (100.0)

Source: Study Findings (2019)

The study targeted the selected respondents from the six commercial banks in Kenya. The findings of the study indicated that out of the 18 respondents who were sampled for the study, 94.4 % respondents participated in the study, where 64.7% of them were male while 35.3% were female. This indicates that the study was gender representative although from the findings the study it can be conclude that more male respondents that participated in the study than female from the commercial banks.

The findings of the study also indicated that none of the respondents had O Level certificates, 5.9% had A level certificate, 5.9% had a Diploma certificate in different areas, 11.8% had a Higher Diploma in different areas while 47.1% of the respondents had attained a University Graduate degree, while another 23.5% of the respondents had Masters Degrees though they were not specified. The study also indicated that 5.9% of the respondents had PHD qualifications. The education levels of the respondents covered by the study indicated that most of the respondents had the required knowledge on the issues under investigation and therefore the answers provided were reliable.

When the study sought to establish the age of the respondents, the findings of the study indicated that none of the respondents were 18-28 years, 23.5% were 29-39 years old, and 58.8% of the respondents were 40-50 years while 17.6% of the respondents were 51 years and above. This indicated that most of the respondents were in their prime age and therefore is able to work effectively.

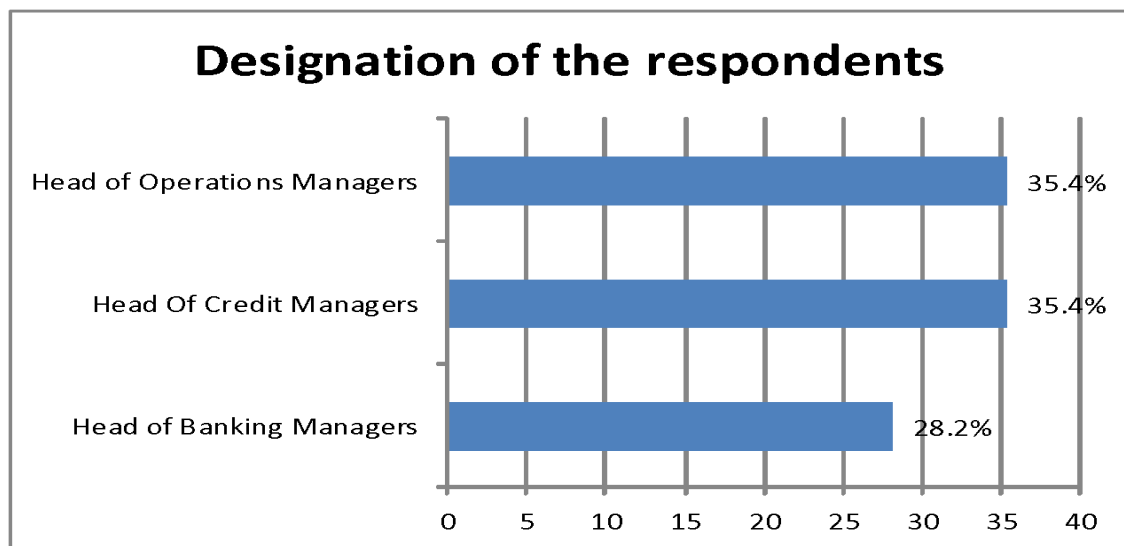
When the study sought to establish how long the staff had worked in the present commercial banks, the findings of the study indicated that 16.1% of the participants had worked in commercial banks for 0-3 years, 46.8% had worked there for 4-7 years while 37.1% had worked in commercial banks for 8-11 years while 17.3% of the respondents had worked in the commercial banks for above 12 Years. This indicated that most of the

staff in the selected commercial banks had the required experience with the innovation and their effects on the performance of the banks that they work in.

4.3.2 Designation of the respondents

The study had sought to establish designation of the participants. This was necessary as this was to ensure that the respondents selected had the right knowledge on the issues under investigation.

Figure 4.2:
Designation of the respondents



The study established that 28.2% were Head of Banking Managers, 35.4% Head Of Credit Managers while another 35.4% were Head of Operations Managers. This indicated that all the categories that were targeted by the study were well represented and therefore the findings of the study was as representative as possible

4.3.3 Respondents Bank

Table 4.2:

Respondents current Bank

Bank	Frequency	Percentage
KCB	3	17.6
Family Bank	3	17.6
Cooperate Bank	3	17.6
Equity Bank	3	17.6
Barclays Bank	3	17.6
Standard Bank	2	11.9
Total	17	100.0

The outcome of the investigation indicated that 17.6% of the participants were either from KCB, Family Bank, Barclays Bank, Equity Bank or Cooperate Bank while only 11.9% were from Standard Bank. The respondents included bank managers, credit managers and operations managers from the six sampled commercial banks in Kenya. This showed that the study was well participated and therefore the information was as representative as possible.

4.4 Descriptive Analysis

4.4.1 The influence of financial systems innovation on the financial performance of commercial banks

Table 4.3:

The influence of financial systems innovation on the financial performance of commercial banks

The influence of financial systems innovation on the financial performance of commercial banks.	SD&D %	Neutral %	SA&A %	Mean	STDV
Mobile money transactions have increased the profitability of the commercial bank.	5.9	23.5	76.0	3.94	.899
ATM withdrawals continue to be the banks main source of income,	23.5	17.6	58.8	3.47	1.375
More and more customers are considering Internet Banking as their main source of income from bank transfers	35.3	0.0	64.7	4.65	.493
The commercial bank has improved on its performance since embanking on financial systems innovation.	11.8	5.9	82.4	3.29	.920
The commercial banks need to ensure that all the systems are effectively working.	11.8	5.9	82.4	4.00	1.118

The study established that 76.0% of the respondents felt that mobile money transactions have increased the profitability of the commercial bank, 23.5% were neutral on the matter while 5.9% felt that mobile money transactions have increased the profitability of the commercial bank. The study indicated a mean of 3.94 and a variation in responses of a standard deviation of .899.

The study also was meant to establish whether ATM withdrawals continue to be the banks main source of income, where 58.8% of the respondents agreed, 17.6% were neutral while 23.5% felt that ATM withdrawals continue to be the banks main source of income. The

study in this part also indicated a mean of 3.47 and a Standard Deviation of 1.375, which shows that there was a great variation in terms of responses on whether ATM withdrawals continue to be the banks main source of income.

When the study sought to establish whether more and more banks are considering Internet Banking as their main source of income from bank transfers, the results indicated that 64.7% felt that more and more banks are considering Internet Banking as their main source of income from bank transfers while 35.3% of the respondents felt that less and less banks are considering Internet Banking as their main source of income from bank transfers. The study in this part indicated a mean of 3.94 and a difference in responses of a standard deviation of .493. The response indicated the lowest variation in terms of response. This means that the respondents felt almost the same way that either more and more clients are contemplating web banking as their main source of income from bank or less and less clients are considering web banking as their main source of income from bank.

The study results also indicated that 82.4% of the respondents felt that the commercial bank has improved on its performance since embanking on financial systems innovation, 5.9% of the respondents were neutral while 11.8% were of the opinion that the commercial bank has not enhanced on its achievement since embanking on financial systems innovation. The study in this part indicated a mean of 3.94 and a difference in responses of a standard deviation of 1.124. While many of the respondents had felt that the commercial bank has improved on its performance since embanking on financial systems innovation, there was a great variation in terms of responses.

Lastly, the outcome of this investigation also indicated that 82.4% of the participants felt that the commercial banks need to ensure that all the systems are effectively working, 5.9% were neutral while 5.9% of the respondents felt that the commercial banks did not need to

ensure that all the systems are effectively working. The study in this part indicated a mean of 4.00 and a difference in responses of a standard deviation of 1.131. This indicated that there was a high variation in terms of responses.

4.4.2 The influence of process innovation on the performance of commercial banks in Kenya.

Table 4.4:

The influence of process innovation on the performance of commercial banks in Kenya

The influence of process innovation on the financial performance of commercial banks.	SA&A	Neutral	SD&D	Mean	STDV
The process taken is shorter therefore affecting the overall performance of the commercial banks.	0.0	17.6	82.3	4.35	.786
The time taken for withdrawals from ATMs has affected the overall performance of the banks.	5.9	17.6	76.5	4.06	.899
The time taken for mobile money transaction from ATMs has reduced the overall cost of operations from banks.	17.7	11.8	70.6	3.82	1.237
The overall cost of transaction from mobile money operations has reduced the overall operations commercial banks.	11.8	11.8	76.5	3.88	1.269
The overall cost of transaction from ATM and electronic transfers has reduced the overall operations commercial banks.	5.9	11.8	82.4	3.53	1.281

In this part, the outcome of this investigation indicated that that 82.3% of the participants felt that the process taken is shorter therefore affecting the overall performance of the

commercial banks, 17.6% felt that the process taken is shorter therefore affecting the overall performance of the commercial banks. The study in this part indicated a mean of 4.35 and a difference in responses of a standard deviation of .786. The study divulged that there existed a high response variation on the overall cost of transaction from mobile money operations has reduced the overall operations commercial banks.

The outcome of the investigation also divulged that 70.6% were of the opinion that the time taken for withdrawals from ATMs has affected the overall performance of the banks, 17.6% were neutral while only 5.9% of the respondents felt that the time taken for withdrawals from ATMs has not affected the overall performance of the banks. The study in this part indicated a mean of 4.06 and a difference in responses of a standard deviation of .899. Although this response registered the higher mean of 4.06, there was a low variation in terms or response.

The results also indicated that the time taken for mobile money transaction has reduced the overall cost of operations from banks where 70.6% were in agreement, 11.8% were neutral while 17.7% of the respondents felt that mobile money transaction has not reduced the overall cost of operations from banks. The study in this part indicated a mean of 3.82 and a difference in responses of a standard deviation of 1.237. This indicated a high difference in terms of responses.

When the study sought to establish whether the overall cost of transaction from mobile money operations has reduced the overall operations commercial banks, the findings of the study established that 76.5% were in consensus yet 11.8% of the respondents were either neutral or felt that the overall cost of transaction from mobile money operations has not reduced the overall operations commercial banks. The study in this part indicated a mean

of 3.88 and a difference in responses of a standard deviation of 1. 269. There was a high variation in terms of responses.

Finally, the study established that 82.4% of the participants felt that the overall cost of transaction from ATM and electronic transfers has reduced the overall operations commercial banks, 11.8 % were neutral while overall cost of transaction from ATM and electronic transfers has not reduced the overall operations commercial banks. The study in this part indicated a mean of 3.53 and a difference in responses of a standard deviation of 1. 281. The responses indicated that the respondents felt different on whether the overall cost of transaction from ATM and electronic transfers has reduced the overall operations commercial banks.

4.4.3 The influence of product innovation on the financial performance of commercial banks.

Table 4.5:

The influence of product innovation on the financial performance of commercial banks.

The influence of product innovation on the financial performance of commercial banks.	SA&A	Neutral	SD&D	Mean	STDV
The more product innovation is carried out by the commercial banks the more they are able to increase their performance.	23.6	5.9	70.6	3.6 5	1.367
The number of products that have been developed over the last five years have increased commercial banks performances	17.7	23.5	58.8	3.4 7	1.231
Commercial banks can improve their performance if they continue innovating new products.	0.0	29.4	70.6	3.8 2	.636
The commercial banks must identify products that can help in the reduction of cost and improve efficiency in operations.	23.6	5.9	70.6	3.5 9	1.460

The study had sought to establish whether the more product innovation is carried out by the commercial banks the more they are able to increase their performance. The findings of the study indicated that that 70.6% of the respondents felt that the more product innovation is carried out by the commercial banks the more they are able to increase their performance, 5.9% were neutral while 23.6% the more product innovation is carried out by the commercial banks the more they were not able to increase their performance. The study in this part indicated a mean of 3.65 and a difference in responses of a standard deviation of 1.367. The study indicated that there was a great variation in terms of response on whether more product innovation is carried out by the commercial banks the more they were not able to increase their performance.

The findings of the study indicated that that 58.8% of the respondents felt that the number of products that have been developed over the last five years have increased commercial banks performances, 23.5% were neutral while 17.7% the number of products that have been developed over the last five years have not increased commercial banks performances. The study in this part indicated a mean of 3.47 and a difference in responses of a standard deviation of 1.231. The study indicated that there was a great variation in terms of response on whether the numbers of products that have been developed over the last five years have not increased commercial banks performances.

The study results indicated that that 70.6% of the respondents felt that commercial banks can improve their performance if they continue innovating new products, while 29.4% were neutral on whether the commercial banks can improve their performance if they continue innovating new products. None of the respondents felt that commercial banks cannot improve their performance if they continue innovating new products. The study in

this part indicated a mean of 3.82 and a difference in responses of a standard deviation of .636. There was a great variation in terms of response on whether the commercial banks cannot improve their performance if they continue innovating new products.

When the study sought to establish whether indicated that that 70.6% of the respondents felt that the commercial banks must identify products that can help in the reduction of cost and improve efficiency in operations, while 5.9% were neutral on whether the commercial banks must identify products that can help in the reduction of cost and improve efficiency in operations. On the other hand 23.6% of the respondents felt that the commercial banks must identify products that can help in the reduction of cost and improve efficiency in operations. The study in this part indicated a mean of 3.59 and a difference in responses of a standard deviation of 1.460. This indicated there was a great variation in terms of response on whether the commercial banks must identify products that can help in the reduction of cost and improve efficiency in operations.

4.4.4 Extent to which the financial innovation have influenced the financial performance of commercial banks.

Table 4.6:

Extent to which the financial innovation have influenced the financial performance of commercial banks.

Extent to which the financial innovation have influenced the financial performance of commercial banks.	SA&A	Neutral	SD&D	Mean	STDV
Financial innovation affects the performance of commercial banks.	23.6	29.4	47.0	3.35	1.169
The more the commercial banks innovate products the more the commercial banks will perform better	17.1	35.9	47.0	3.47	1.179
Prepaid Cards services have improve the performance of commercial banks.	23.6	23.6	52.8	3.35	1.272
Since the adoption of Automated Clearinghouse (ACH) the performance of commercial banks	23.6	11.8	64.7	3.59	1.372
Simple products that facilitate easy accounts opening have improved the performance of commercial banks.	11.8	35.3	52.8	3.59	.939
The numbers of products that have been innovated over time have improved the performance of commercial banks.	17.1	35.3	47.6	3.24	1.091

The study had sought to establish whether financial innovation affects the commercial banks performance. The outcome of the study divulged that 47.0% of the respondents felt that commercial banks performance was being affected by financial innovation, 29.4% were neutral while 23.6% the financial innovation affects commercial banks performance. The study in this part indicated a mean of 3.47 and a difference in responses of a standard

deviation of 1.169. The study also indicated that there was variation in the responses on whether financial innovation affects the commercial banks performance.

The investigation had also sought to establish whether the more products are innovated by commercial banks the more commercial banks will perform better. The outcome of the investigation indicated that 47.0% of the participants felt that the more the commercial banks innovate products the more the commercial banks will perform better, 35.9% were neutral while 17.1% the more the products are innovated by commercial banks the more commercial banks will perform better. The study in this part indicated a mean of 3.47 and a difference in responses of a standard deviation of 1.179. The study indicated that there was a variation in the way they felt on whether the more the commercial banks innovate products the more the commercial banks will perform better.

The outcome of the survey also indicated that 52.8% of the respondents felt that the prepaid cards services have improve the performance of commercial banks, 23.6% were neutral while 23.6% of the respondents felt that the prepaid cards services have improve the achievement of commercial banks. The study in this part indicated a mean of 3.35 and a difference in responses of a standard deviation of 1.272. This indicated the respondents felt differently on whether the prepaid cards services have improved the achievement of commercial banks.

When the investigation sought to determine whether since the adoption of Automated Clearinghouse (ACH) the achievement of commercial banks, the study established that 64.7% of the respondents felt that since the adoption of Automated Clearinghouse (ACH) the performance of commercial banks, 11.8% were neutral while 23.6% of the respondents did not feel that since the adoption of Automated Clearinghouse (ACH) the achievement of commercial banks. The study in this part indicated a mean of 3.59 and a difference in

responses of a standard deviation of 1.372. This also divulged that there existed a high variation in terms of the responses on whether since the adoption of Automated Clearinghouse (ACH) the achievement of commercial banks.

The study had also sought to establish whether simple products that facilitate easy accounts opening have enhanced achievement of commercial banks, the investigation divulged that 52.8% of the respondents felt that simple products that facilitate easy accounts opening have enhanced achievement of commercial banks, 35.3% were neutral while 11.8% of the respondents did not feel that simple products that facilitate easy accounts opening have enhance achievements of commercial banks. The study in this part indicated a mean of 3.59 and a difference in responses of a standard deviation of .939. This divulged the existence of a moderate variation in terms of responses on whether simple products that facilitate easy accounts opening have improved the commercial banks achievement.

Lastly, when the investigation determined whether the numbers of products that have been innovated over time have enhanced achievement of commercial banks, the investigation divulged that 47.6% of the respondents felt that the numbers of products that have been innovated over time have improved the performance of commercial banks, 35.3% were neutral while 17.1% of the respondents did not feel that the numbers of products that have been innovated over time have improved the commercial banks achievement. The study in this part indicated a mean of 3.24 and a difference in responses of a standard deviation of 1.091. This indicated that there was a high variation in terms of response on whether the numbers of products that have been innovated over time have improved the performance of commercial banks

4.5 Inferential Analysis from Primary Data

The other model adopted to examine the relations linking financial innovation and performance of commercial banks. Regression Coefficient can be explained as the slope of the regression line, where each coefficient estimates that X was being increased by a unit every time the mean changed. This happened when all the predictors remained unchanged. According to Bandyopadhyay and Forster (2011), there was considerably significant linking the response and the predictors when the chosen significance level was more than the p-value which was 0.05.

The model in this part shows a direct relations linking commercial banks performance with financial innovation.

The multiple linear regression models for the study was as follows;

Linear Regression Model 1: $Y_1 = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$

Whereby Y_1 is Performance of Commercial Banks

X_1 = Financial Systems Innovations

X_2 = Process Innovation

X_3 = Product Innovation

β_1 = coefficient

β_0 = a constant which is the value of dependent variable when all the independent variables are zero

e = Probabilistic error term (This explains variations in performance of commercial banks as result of intervening variables that are not explained by the regression)

4.5.1 Inferential Analysis from Primary Data

The findings for each variable are given by Pearson (r). If its corresponding p-value is less than 0.05 at 95% confidence level, then the study concludes that there is a significant relationship between the variables. On the hand Regression Coefficient can be explained as the slope of the regression line, where each coefficient estimates the change in the mean response per unit increase in X when all other predictors are held constant. If the p-value of a coefficient is less than the chosen significance level, such as 0.05, the relationship between the predictor and the response is statistically significant (Bandyopadhyay & Forster, 2011).

Table 4.7:

Bivariate Correlation

		Y	X1	X2	X3
Performance of Commercial Banks in Kenya	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	52			
Financial Systems Innovations	Pearson Correlation	.745**	1		
	Sig. (2-tailed)	.049			
	N	52	52		
Process Innovation	Pearson Correlation	.698**	.774**	1	
	Sig. (2-tailed)	.002	.000		
	N	52	52	52	
Product Innovation	Pearson Correlation	.694**	.761**	.787**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	52	52	52	52

The aim of the bivariate analysis was to evaluate the relationship between the independent variables (Financial Systems Innovations, Process Innovation and Product Innovation) influence on the dependent variable (Performance of Commercial Banks in Kenya). The first specific objective of the study was to determine effects of financial systems innovations on the Performance of Commercial Banks in Kenya. The findings of the study

showed that financial systems innovations (X1) had no significant influence on the Performance of Commercial Banks in Kenya ($r=.745, P<.049$) This suggests that the financial performance in commercial banks can be improved if the area of financial systems innovation is enhanced.

The second specific objective was to determine if there was a significant influence of Process Innovation on the Performance of Commercial Banks in Kenya. The findings of the study showed that Process Innovation (X2) had a significant influence on the Performance of Commercial Banks in Kenya ($r=.698, P<.002$). This suggests that the Performance of Commercial Banks in Kenya can be improved if process innovations are correctly done and that proper process are put in place to improve the banking services.

The third specific objective was to determine the significant influence of Product Innovation on the Performance of Commercial Banks in Kenya. The findings of the study showed that Product Innovation (X3) had a significant influence on the Performance of Commercial Banks in Kenya ($r=.694, P < .000$). This suggests that the financial performance in commercial banks can be improved if the area of product innovation is enhanced and that the commercial banks develop more products.

Table 4.8:

Effect of financial innovation and performance of commercial banks: Model Summery

Model	R	R Square	Adjusted Square	RStd. Error of the Estimate
1	.794a	.544	.515	.46983

The Table 4.7 exhibits the outcome of the regression which reflects considerable influence of commercial banks performance by financial innovation. The coefficient of determinant

(R-squared) of .544 that presents a 54.4% of sum variance in performance of commercial banks and can be explained by the financial innovation. Regulated square of .515 exhibits the financial innovation elements in isolation of variables that are constant expounded in the alteration in the performance of commercial banks by 51.5%. The remaining (48.5%) can be explained by the factors not included in the investigated model of regression. An elevated R-square of beyond sixty percent is needed for investigation in field of pure science because the behavior of particles and or molecules can be predicted reasonably with some level of perfection; yet a ten percent or low R-square is broadly welcomed in social sciences, humanities and arts fields because the behavior of humans cannot be precisely anticipated hence it is a challenge in social sciences, humanities and art .

Table 4.9:

Effect of financial innovation and performance of commercial banks: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	229.122	2	57.281	60.366	.045^b
	Residual	307.441	14	.949		
	Total	536.563	16			

a. Dependent Variable: Performance

b. Predictors: (Constant), Product, FS, PI

From the regression analysis test the relations linking commercial banks achievement with financial innovation, shows a regression result of financial innovation as valid F, (2, 16) =60.366, $P < 0.045$). This indicates that the financial innovation could be utilized as a predictor to explicate the variance in the performance of commercial banks. The model is thus suited in examining the relations between Independents Variable: financial innovation and Dependent Variable: performance of commercial banks.

A value of P that is less than 0.045 is and 0.05 critical value allows the null hypothesis rejection and acceptance of a different hypothesis alternative which indicates that financial innovation has a stronger positive consideration influence on the commercial banks performance.

Table 4.10:

Effect of financial innovation and performance of commercial banks: Regression Analysis

Model	Unstandardized Coefficients		Standardized Coefficients		Sig.
	B	Std. Error	Beta	t	
(Constant)	1.777	.210		8.470	.000
1 Financial Systems	.290	.047	.346	6.221	.024
Process Innovation	.148	.051	.182	2.918	.033
Product Innovation	.086	.051	.113	1.687	.093

From the multi-regression analyzing, the outcome of the investigation shows that: $Y=1.777+.290X_1+.148X_2+.106X_4+\epsilon$. This indicates that a .290 increase in Financial Systems, a .148 increase in Process Innovation while 086 in Product Innovation will have unit change in the achievement of commercial banks. Product Innovation is the only financial innovation component that does not have a significance influence on the performance of commercial banks.

Where; Constant 1.777 that indicates that if financial systems, process innovation and product innovation are all rated at zero, performance of commercial banks would stay at 1.777.

4.6 Financial Results Analysis

Table 4.11:

Financial Innovation Results

Category	Equity Bank	Cooperative Bank	Kenya Commercial Bank	Barclays Bank	Family Bank	Standard Chartered
Financial Systems						
Increase in number of transaction due to Mobile banking	0.47	0.41	0.39	0.38	0.42	0.36
Increase in number of transaction due to ATM Transactions	0.37	0.39	0.41	0.49	0.41	0.51
Increase in number of transaction due to Internet Banking, EFTs	0.30	0.28	0.26	0.39	0.32	0.41
Process Innovation						
Reduction in Transaction Time	0.75	0.65	0.69	0.76	0.71	0.72
Reduction in Transaction Cost	0.65	0.59	0.62	0.79	0.70	0.65
Product Innovation						
Increase in the number of products	0.35	0.32	0.35	0.35	0.32	0.32
Average	0.487	0.44	0.453	0.527	0.48	0.36

The findings of the study indicated that Equity bank had indicated the highest increase in number of transaction due to Mobile banking at 47%, followed by family bank at 42% while the lowest was increase in number of transaction due to Mobile banking was Standard Chartered Bank at 36%. The findings of the study also indicated that Standard Chartered indicated the highest increase in number of transaction due to ATM transactions at 51%, followed by Barclays Bank 49% while the lowest bank that registered the lowest

Increase in number of transaction due to ATM Transactions at 37% was Equity Bank followed by Cooperative Bank at 39%. The results of the study also indicated that Standard Chartered indicated the highest Increase in number of transaction due to Internet Banking and EFTs at 41%, followed by Barclays Bank 39% while the lowest bank that registered the lowest Increase in number of transaction due to Internet Banking and EFTs at 26% was Kenya Commercial Bank followed by Cooperative Bank at 28%.

In terms of Process Innovation, the outcome of the investigation shows that there was a reduction of transaction time by almost 75% for Equity Bank and the highest of 76% for Barclays Bank while the least reduction in transaction time due to financial innovation was registered by Cooperative Bank at 65% followed by Kenya Commercial Bank at 69%. The findings of the study also indicated that the highest reduction in transaction cost was registered by Barclays Bank at 79% followed by Family Bank at 70%.

When the study sought to establish the product innovation factors, the findings of the study indicated that the highest increase in the number of products was registered by Barclays Bank and Kenya Commercial Bank at 35% with lowest being 32% that was registered by Cooperative Bank, Family Bank and Standard Chartered banks in the five years covered by the study.

4.6.2 Analysis of the Financial Performance Indicator

Table 4.12

Analysis of the Financial Performance Indicator

Bank	Financial Innovation	ROE	ROA	ROC	ROI
Equity Bank	0.487	0.293	0.042	0.124	0.496
Cooperative Bank	0.44	0.1195	0.021	0.241	0.372
Kenya Commercial Bank	0.453	0.236	0.037	0.189	0.345
Barclays Bank	0.527	0.193	0.031	0.281	0.239
Family Bank	0.486	0.056	0.009	0.256	0.394
Standard Chartered	0.495	0.192	0.033	0.217	0.352
Average	0.481	0.182	0.029	0.218	0.367

The find of the study indicated that equity bank had registered average financial results of 0.487 and an ROE of 0.293 and an ROA of 0.042. The highest average financial innovation was registered by Barclays Bank at a ratio of 0.527 and Standard Chartered at a ratio of 0.495. The lowest Financial Innovation ratio was registered by Cooperative Bank at a ratio of 0.44 followed by Kenya Commercial Bank at a ratio of 0.453.

The highest ROE was registered by Equity Bank at a ratio of 0.293 followed by Kenya Commercial Bank at a ratio of 0.236. The lowest was Family Bank at a ratio of 0.056 followed by 0.1195 Cooperative Bank. On the other hand the highest ratio of 0.042 registered by Equity Bank followed by a ratio of 0.037 registered by Kenya Commercial Bank while the lowest was 0.009 registered by Family Bank followed by a ratio of 0.021 registered by Cooperative Bank of Kenya in the five years covered by the study.

The investigation also aimed to determine the Return on capital (ROC) where the study sought to establish the banking institutions profit on an investment in relation to how much was invested by the institutions. The highest ROC was registered by Family Bank at a ratio

of 0.256 followed by Cooperative Bank of Kenya at a ratio of 0.241. The lowest was Equity at a ratio of 0.124 followed by 0.189 for Kenya Commercial Bank. During the period covered by the study registered an average ratio of 0.218.

The study also analyzed the Return on Investment (ROI) for the 6 banking institutions in order to establish the benefit an investor will receive in relation to their investment cost. The highest ROI was registered by Equity Bank at a ratio of 0.496 followed by Cooperative Bank of Kenya at a ratio of 0.394. The lowest was Barclays Bank at a ratio of 0.239 followed by a ratio of 0.345 for Kenya Commercial Bank. The during the period covered by the study registered an average ratio of 0.367.

4.6.3 Regression Analysis from Secondary Data

The findings below indicated the results from the 5-year serial data collected from the five commercial banks covered by the study on the study findings on relations linking financial innovations (financial systems, process innovation and product innovation) and the financial achievement of commercial banks within Kenya.

Table 4.13

Effects of financial innovation and financial performance (ROE) results: Model Summery

Regression Statistics

Multiple R	0.159997
R Square	0.25599
Adjusted R Square	0.2992
Standard Error	0.081284
Observations	5

Regression results indicated an existence of a considerable influence of financial innovation and performance of commercial banks. The coefficient of determinant (R-squared) of 0.25599 that presents a 25.6% of a sum variance in performance of commercial banks yet it can be elucidated using financial innovation. On the other hand, the Adjusted R Squared of 0.2992 indicates these financial innovation factors, in isolating variables that are constant, elucidate the dynamics in the performance of commercial banks by 29.9%. The remaining (70.1%) can be elucidated by elements not factored in the model of regression within the study.

Table 4.14

Effects of financial innovation and financial performance (ROE) results: ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Sig.</i>
Regression	1	0.000521	0.000521	0.078815	0.797158
Residual	3	0.019821	0.006607		
Total	4	0.020342			

The findings of the study indicated that although only 25.6% of the total variance in achievement of commercial banks and can be elucidated using the financial innovation this relation linking commercial banks performance to financial innovation (ROE) was not very significant as there are very many other elements that were left out in this study that would then affect the overall financial achievement of commercial banks within Kenya.

Table 4.15:

Effects of financial innovation and financial performance (ROE) results: Regression Coefficient

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	0.000935	0.565624	0.001653	0.998785
0.487	0.330825	1.178403	0.28074	0.797158

The regression analysis indicated that: $Y=0.487+0.330825X_1+0.28074$. This indicates that a 0.487 increase in Financial Innovation have a significance influence on the performance of commercial banks (ROE).

Where; Constant 0.487 that indicates that if financial innovation (financial systems, process innovation and product innovation) are all rated at zero, performance of commercial banks would stay at 0.487 if a margin of error of 0.28074 was allowed.

Table 4.16:

Effects of financial innovation and financial performance (ROA) results: Model Summery

Multiple R	0.149623
R Square	0.22387
Adjusted R Square	0.30348
Standard Error	0.012769
Observations	5

Regression results indicated that there was a significant influence of the financial innovation and performance of commercial banks. The coefficient of determinant (R-squared) of 0.22387 that presents a 22.4% of the total variation in performance of commercial banks and can be explained by the financial innovation. On the other hand, the

Adjusted R Squared of 0.30 indicates these the financial innovation factors, in exclusion of constant variable, explained in the changes in the performance of commercial banks by about 30.0%. The remaining (70.0%) can be explained by the factors not included in the regression model under investigation.

Table 4.17:

Effects of financial innovation and financial performance (ROA) results: ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Sig.</i>
Regression	1	1.12E-05	1.12E-05	0.068699	0.810208
Residual	3	0.000489	0.000163		
Total	4	0.0005			

The findings of the study indicated that although only 22.4% of the total variance in commercial banks performance and can be elucidated using the financial innovation this relation linking commercial banks achievements with financial innovation (ROA) was not very significant as there are very many other elements left out in the study that would then affect the overall financial achievement of commercial banks within Kenya.

Table 4.18:

Effects of financial innovation on financial performance (ROA) results: Regression Coefficient

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	0.00269	0.088853	0.030272	0.977752
0.487	0.048519	0.185113	0.262105	0.810208

The regression analysis indicated that: $Y=0.487+0.048519X+0.185113$. This indicates that a 0.487 increase in Financial Innovation (financial systems, process innovation and product innovation) have a significance influence on the performance of commercial banks (ROA). Where; Constant 0.487 that indicates that if financial innovation (financial

systems, process innovation and product innovation) are all rated at zero, performance of commercial banks would stay at 0.487 if only an error of 0.262105 occurred.

Table 4.19:

Effects of financial innovation and financial performance (ROC) results: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.000	1	.000	.405	.553 ^b
	Residual	.004	5	.001		
Total		.005	6			

a. Dependent Variable: Financial Performance

b. Predictors: (Constant), ROC

The table 4.9 above that shows a regression output of financial innovation, as valid ($F(1,5) = .405, P < .553$). This means that financial innovation, can be used as predictors explaining the variation in the financial performance (ROC). The $P < .553^b$) which is less than the critical value of 0.05 leads us to accept the null hypothesis and reject the alternative hypothesis that financial innovation have no significant influence on the financial performance (ROC) in commercial banks in Kenya.

Table 4.20:

Effects of financial innovation and financial performance (ROC) results: Model

Summery

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.370 ^a	.137	.132	.029

The coefficient of determinant (R-squared) of .137 that presents a .13.7% of the total variation in financial performance (ROC) in commercial banks in Kenya. On the other

hand the Adjusted R Squared of .132 indicates that financial innovation, in exclusion of constant variable, explained in the changes in the financial performance (ROC) under investigation by 13.2%. The remaining (86.8%) can be explained by the factors not included in the regression model under investigation. This mean that performance in commercial banks are affected by other factors other than financial innovation.

Table 4.21:

Effects of financial innovation and financial performance (ROI) results: ANOVA

Model		Sum Squares	of df	Mean Square	F	Sig.
	Regression	.001	1	.001	.792	.414 ^b
1	Residual	.004	5	.001		
	Total	.005	6			

a. Dependent Variable: Financial Performance

b. Predictors: (Constant), ROI

The table 4.9 above that shows a regression output of financial innovation, as valid (F (1,5) = .792, $P < .553$). This means that financial innovation, can be used as predictors explaining the variation in the financial performance (ROI). The $P < .414$) which is less than the critical value of 0.05 leads us to accept the null hypothesis and reject the alternative hypothesis that financial innovation has no significant influence on the financial performance (ROI) in commercial banks in Kenya.

Table 4.22:***Effects of financial innovation and financial performance (ROI) results: ANOVA***

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.370 ^a	.163	.154	.029

The coefficient of determinant (R-squared) of .163 that presents a16.3% of the total variation in financial performance (ROI) in commercial banks in Kenya. On the other hand the Adjusted R Squared of .132 indicates that financial innovation, in exclusion of constant variable, explained in the changes in the financial performance (ROI) under investigation by 15.4%. The remaining (84.6%) can be explained by the factors not included in the regression model under investigation. This mean that performance in commercial banks are affected by other factors other than financial innovation.

Effects of Combined Financial Innovation factors and Financial Performance Factor

When the study sought to establish the effects of combined financial innovation factors (from both Primary and Secondary Data) and Financial Performance Factor (Primary Data, ROE and ROA).

Table 4.23***Effects of Combined Financial Innovation factors and Financial Performance Factor***

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.106	1	.106	1.550	.232 ^b
	Residual	1.021	15	.068		
	Total	1.126	16			

a. Dependent Variable: Financial Performance

b. Predictors: (Constant), Financial Innovation Factors

The regression analysis test on the relationship between financial innovation and performance of commercial banks, indicates a regression output of the financial innovation as valid $F, (1, 15) = 1.550, P < 0.232$. This means that the financial innovation can be used as predictors explaining the variation in the performance of commercial banks. The model is therefore fit for testing the relations between Independent Variable: financial innovation and Dependent Variable: performance of commercial banks.

On the other hand the $P < 0.232$ which is more than the critical value of 0.05 leads us to accept the null hypothesis and rejecting the alternative hypothesis which indicates that combined financial innovation factors has no significant effect on the performance factors (ROE, ROA and other performance indicators) of commercial banks.

4.6.4 Correlation Analysis for Secondary Data

The findings of the study also indicated a low correlation between financial innovation and financial performance of commercial banks in Kenya $r = 0.189342$ in terms of Return on Equity (ROE). The findings of the study in terms of its performance on ROA indicated a correlation score of $r = 0.182058$ which indicated that although there was a relation between financial innovation and financial performance of commercial banks in Kenya, the correlation was very low. This indicated that there are many other factors that would influence performance in commercial banks in Kenya that include the banks reputation, customer care, other financial related services, the government policies, capping rates, corporate governance, rates charged on loan, loan performance among other factors that were not covered by the study. This means while financial innovation would have an improvement on the overall performance in terms of process and cost of transactions, the

banks need to consider other factors. This would also explain why despite intensive investment in innovation some banks.

4.7 Conclusion and Triangulation Analysis

The findings from the primary data collected from the secondary data shows there exists a significance relation linking commercial banks performance to financial innovation, indicates a regression output of the financial innovation with a significance value of $P < 0.045$). The findings from the primary data also indicated that financial innovation factors ((financial systems, process innovation and product innovation) in isolation of variables that are constant, explicating the dynamics exhibited by performance of commercial banks by 42.0%. The fifty-eight percent that remained can be elucidated by other elements left out in this study's model of regression.

The findings of the study also indicated that while the findings from the primary data indicated that there was a significance relation linking financial innovation to financial achievement, the findings of the study from secondary data collected over five years on the relations between commercial banks performance and financial innovation in Kenya divulge that although only 22.4% of the total performance variance of commercial banks can be elucidated by the financial innovation this relation linking achievement of commercial banks to financial innovation (ROA) was not very significant as there are very many other elements left out in the study that would then influence the overall financial performance of commercial banks in Kenya.

On the other hand, while only 25.6% of the total variation in performance of commercial banks and can be explained by the financial innovation this relation between financial innovation and performance of commercial banks (ROE) was not very significant as there

are very many other factors that were not included in the study that would then affect the overall financial performance of commercial banks in Kenya.

On the other hand if every other factors remained constant 0.487 and there 0.048519 changes in financial innovation (financial systems, process innovation and product innovation) then there would be a unit change on the performance of commercial banks in terms of ROA. On the other hand if every other factors remained constant 0.487 and there 0.330825 changes in financial innovation (financial systems, process innovation and product innovation) then there would be a unit change on the performance of commercial banks in terms of ROE.

On the other hand the $P < .0.232$) which is more than the critical value of 0.05 leads us to accept the null hypothesis and rejecting the alternative hypothesis which indicates that combined financial innovation factors has no significant effect on the performance factors (ROE , ROA and other performance indicators) of commercial banks.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

This study's aim was to evaluate how commercial banks performance in Kenya was being affected by financial innovation. Contained within this section is a summarization of the outcomes leading to conclusions and finally appropriate recommendations.

5.2 Summary of findings

5.2.1 The influence of financial systems on the performance of commercial banks in Kenya.

The study had sought to establish the influence of financial systems on the performance of commercial banks in Kenya, the findings of the study indicated that 76.0% of the respondents felt that mobile money transactions have increased the profitability of the commercial bank, 58.8% of the respondents agreed that ATM withdrawals continue to be the banks main source of income. This supports a study by Lumpkin (2014) that mobile money, web banking, and ATM's influence the distribution of banking structures that have had a considerable effect on banking achievements. The finding also indicated 64.7% felt that more and more customers are considering Internet Banking as their main source of income from bank transfers. This was in consistent with Zacchaeus and Muturi (2017) findings that established that rapid innovations as an occurrence in the past years have revolutionized an assortment of financial services offered to clients and increased the efficiency of the financial system. The outcome of this investigation also indicated that 82.4% of the respondents felt that the commercial banks need to ensure that all the systems are effectively working while 82.4% of the respondents felt that the commercial bank has improved on its performance since embanking on financial systems innovation as support by Mansury and Love (2013) who established that technologies are among the major

changes in internal banking systems that also have exercised a positive influence on banking performance and profitability.

5.2.2 The influence of process innovation on the performance of commercial banks in Kenya.

When the study sought to establish the influence of process innovation on the performance of commercial banks in Kenya, the findings of the study indicated that 82.3% of the respondents felt that the process taken is shorter therefore affecting the overall performance of the commercial banks, 70.6% were of the opinion that the time taken for withdrawals from ATMs has affected the overall performance of the banks while 70.6% were in agreement that the time taken for mobile money transaction has reduced the overall cost of operations from banks. On the other hand the findings of the study indicated that 76.5% of the respondents were in agreement the overall cost of transaction from mobile money operations has reduced the overall operations commercial banks. This is inconsistent with Zikmund, (2017). findings that the benefits of process innovation in banks included the reduction of cost and improved efficiency in the process that would then be accrued through automation of the banking services. The findings also established that 82.4% of the respondents felt that the overall cost of transaction from ATM and electronic transfers has reduced the overall operations commercial banks.

5.2.3 The influence of product innovation on the performance of commercial banks in Kenya.

The findings of the study indicated that 70.6% of the respondents felt that the more product innovation is carried out by the commercial banks the more they are able to increase their performance, 58.8% of the respondents felt that the number of products that have been developed over the last five years have increased commercial banks

performances while another 70.6% of the respondents felt that commercial banks can improve their performance if they continue innovating new products and that the commercial banks must identify products that can help in the reduction of cost and improve efficiency in operations. This supports the findings by Stavins (2012) that indicated that innovation offers institutions the business upper hand in production, enhanced mechanisms to manage the uncertainties in the surrounding and enhanced capabilities to develop the latest resource configurations.

5.3 Conclusion

The findings of the study indicated that financial systems, process innovation and product innovation have an influence on the performance of commercial banks in Kenya. The findings from the primary data collected from the secondary data shows that there is a significance relationship between financial innovation and performance of commercial banks, indicates a regression output of the financial innovation with a significance value of $P < 0.045$). The findings from the primary data also indicated that financial innovation factors (financial systems, process innovation and product innovation) in exclusion of constant variable, explained the changes in the performance of commercial banks by 42.0%. The remaining (58%) can be explained by other factors not included in the regression model under investigation. The findings of the study supports the findings of Zacchaeus and Muturi (2017) and AlSayed (2021) carried out a study on financial product engineering in Islamic banking in the Middle East that established that rapid innovations as an occurrence in the past years have revolutionized an assortment of financial services offered to clients and increased the efficiency of the financial system. The findings of the study also indicated that while the findings from the primary data indicated that there was a significance relation between financial innovation and financial performance, the findings of the study from secondary data collected over five years on

the financial innovation and the financial performance of commercial banks in Kenya indicated that although only 22.4% of the total variation in performance of commercial banks and can be explained by the financial innovation this relation between financial innovation and performance of commercial banks (ROA) was not very significant as there are very many other factors that were not included in the study that would then affect the overall financial performance of commercial banks in Kenya.

On the other hand while only 25.6% of the total variation in performance of commercial banks that can be explained by the financial innovation this relation between financial innovation and performance of commercial banks (ROE) was not very significant as there are very many other factors that were not included in the study that would then affect the overall financial performance of commercial banks in Kenya. The findings of the study supports the findings by Wasiak (2020) evaluated the impact of the financial system on economic growth in the context of the global crisis. The study evaluated the empirical evidence from the EU and OECD countries.

On the other hand if every other factors remained constant 0.487 and there 0.048519 changes in financial innovation (financial systems, process innovation and product innovation) then there would be a unit change on the performance of commercial banks in terms of ROA. On the other hand if every other factors remained constant 0.487 and there 0.330825 changes in financial innovation (financial systems, process innovation and product innovation) then there would be a unit change on the performance of commercial banks in terms of ROE. The findings of the study also indicated that combined financial innovation factors have no significant effect on the performance factors (ROE, ROA and other performance indicators) of commercial banks. The study supports the findings by Stavins (2012) that innovation offers institutions the business upper hand in production.

5.4 Recommendation

5.4.1 Policy implication

There is need for increased mobile money transactions through creation of more APPs and the user friendly softwares that can provide easy interface between the commercial banks and the clients in order to increase profitability of the commercial bank. Given that ATM withdrawals continue to be the banks main source of income, there is need of establishing ATM invent in the remote areas that the given commercial banks do not have branches.

With the increased accessibility to network services there is need for the banks to increase Internet Banking products in order to attract the youths and the millennial that are more internets servy. There is also need of ensuring that the commercial banks systems are effectively working in order to enable as many is technological based services to be available. Lastly there is need for the commercial to consider other areas in order to increase their performance through modern financial systems innovation.

5.4.2 Process Innovation

There is need to ensure that systems are properly working and they do not hand given that they can really reduce the time to complete transaction thereby affecting the overall performance of performance of the commercial banks. Withdrawals from ATMs are great revenue for commercial banks in Kenya and therefore there is need of ensuring that they are properly working and that security is enhanced in order to encourage their usage.

There is also need of ensuring that the online platforms and mobile APPs function properly as they can increase the number of mobile money transaction which can then have an effect on the overall performance of the commercial banks in Africa. While there are variations in the cost of transactions for ATM, electronic transfers and mobile money operations, there is need for the banks whose charges are still high to reduce the overall

cost in order to encourage usage which will then reflect on the overall financial performance.

5.4.3 Product Innovation

With the increased competition from non-financial institution such as companies that lend money through online APPs there is need for increased innovation in terms of products to ensure that the commercial banks are able to compete with this emerging companies. They need to ensure that there is a continued innovation in terms of the number of product that are attractive to the youth and the millennial.

5.5 Suggestions for Further Studies

There is need for a study on the effects of non-financial innovation factors (banks reputation, customer care, other financial related services, the government policies, capping rates, corporate governance, rates charged on loan, loan performance among other factors that were not covered by the study) that influence financial performance of banks.

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APPENDICES

Appendix I: Research Questionnaire

This questionnaire is designed to gather information on the effects of financial innovation on performance of commercial banks in Kenya with reference to listed banks in Kenya and is purely for academic purposes only.

Kindly answer all questions as indicated by either filling in the blank or putting a tick (√) on the option that applies. The information provided will be treated with utmost confidentiality.

SECTION A: GENERAL INFORMATION

1. Gender of the Respondent

a) Male []

b) Female []

2. Age of the Respondents

18-28 years [] 29-39 years [] 40-50 years [] 51 years and above []

3. What is your Designation.....

4. For how long have you worked in the current Bank?

0-3 years [] 4-7 years [] 8-11 years [] 12 years and above []

5 Highest Education level:

O level []

A level []

Diploma []

Higher Diploma []

Degree []

Post Graduate Diploma []

Masters []

Doctorate []

6. Name of the Commercial Bank.....

.....

SECTION B. FINANCIAL SYSTEMS INNOVATION

To what extent do you agree with the following statement on whether the extent to which the influence of financial systems innovation on the performance of commercial banks in Kenya. Key: 5 Strongly Agrees, 4 Agree, 3 Moderately Agree, 2 Disagree, 1 Strongly Agree

The influence of financial systems innovation on the financial performance of commercial banks.	1	2	3	4	5
Mobile money transactions have increased the profitability of the commercial bank.					
ATM withdrawals continue to be the banks main source of income,					
More and more customers are considering Internet Banking as their main source of income from bank transfers					
The commercial bank has improved on its performance since embanking on financial systems innovation.					
The commercial banks need to ensure that all the systems are effectively working.					

SECTION C. PROCESS INNOVATION

To what extent do you agree with the following statement on extent to which the influence of process innovation on the performance of commercial banks in Kenya. Key: 5 Strongly Agrees, 4 Agree, 3 Moderately Agree, 2 Disagree, 1 Strongly Agree

The influence of process innovation on the financial performance of commercial banks.	1	2	3	4	5
The process taken is shorter therefore affecting the overall performance of the commercial banks.					
The time taken for withdrawals from ATMs has affected the overall performance of the banks.					
The time taken for mobile money transaction from ATMs has reduced the overall cost of operations from banks.					
The overall cost of transaction from ATM and electronic transfers has reduced the overall operations commercial banks.					

SECTION D. PRODUCT INNOVATION

To what extent do you agree with the following statement on the extent to which the influence of product innovation on the performance of commercial banks in Kenya. Key: 5

Strongly Agrees, 4 Agree, 3 Moderately Agree, 2 Disagree, 1 Strongly Agree

The influence of product innovation on the financial performance of commercial banks.	1	2	3	4	5
The more product innovation is carried out by the commercial banks the more they are able to increase their performance.					
The number of products that have been developed over the last five years have increased commercial banks performances					
Commercial banks can improve their performance if they continue innovating new products.					
The commercial banks must identify products that can help in the reduction of cost and improve efficiency in operations.					

SECTION E. FINANCIAL PERFORMANCE

To what extent do you agree with the following statement extent to which the financial innovation has influenced the performance of commercial banks in Kenya. Key: 5 Strongly Agrees, 4 Agree, 3 Moderately Agree, 2 Disagree, 1 Strongly Agree

Extent to which the financial innovation have influenced the financial performance of commercial banks.	1	2	3	4	5
Financial innovation affects the performance of commercial banks.					
The more the commercial banks innovate products the more the commercial banks will perform better					
Prepaid Cards services have improve the performance of commercial banks.					
Since the adoption of Automated Clearinghouse (ACH) the performance of commercial banks					
Simple products that facilitate easy accounts opening have improved the performance of commercial banks.					
The numbers of products that have been innovated over time have improved the performance of commercial banks.					

THANK YOU FOR YOUR PARTICIPATION

Appendix I: Cost of the Study

CODE	ITEMS	QUANTITY	COST	TOTAL
1	Ball pen	3	30	90
2	Pencil	4	60	240
3	Erasers	3	30	90
4	Photocopy paper	3	800	2400
5	Typed and printed proposal	2	1000	1000
6	Transport	-	5000	5000
7	Type and print report	2	1500	3000
8	Type, Printing and Photocopying of interview schedule	53	50	2650
TOTAL				14,470

Appendix II: Bank information

Bank	Number of Customer	Total Assets	Revenue
Equity Bank	8.7 million Customers	Kshs:295 Billion	12.64 Billion Shillings
Family Bank	1.7million customers	Kshs:83.22 Billion Shillings	Kshs:1.0 Billion
Kenya Commercial Bank of Kenya	4.1 Million Customers	Kshs:366 Billion	8.8 billion USD
Standard Bank	870,000 Customers	Kshs:142.9 Billion	8.61 Billion USD
Bank, Cooperative	4.2 Million Customers	Kshs:404.15 Billion	Kshs:10.31 billion
Barclays Bank	896,560 Customers	ES:404.15 billion	KES:10.31 billion

Source: African Business Central (2016)

Appendix III: Kemu Research Authorization letter

oo



KENYA METHODIST UNIVERSITY

Tel: 254-064-30301/31229/30367/31171

Email: info@kemu.ac.ke

Our ref: NAC/ MBA/1/2019/07

17th JULY 2019

Commission Secretary,
National Commission for Science, Technology and Innovations,
P.O. Box 30623-00100,
NAIROBI.

Dear Sir/ Madam,

EVA KENDI MWITI BUS-3- 0632-3/2015

This is to confirm that the above named is a bona fide student of Kenya Methodist University, undertaking masters in BUSINESS ADMINISTRATION. She is conducting a research titled **.THE EFFECTS OF FINANCIAL INNOVATION ON PERFORMANCE OF COMMERCIAL BANKS IN KENYA. CASE STUDY OF LEADING COMMERCIAL BANKS IN KENYA.**

In this regard, we are requesting your office to issue a permit to enable her collect data for her masters dissertation.

Any assistance accorded to her will be appreciated.

Yours faithfully,

PROF. Evangeline Gichunge, PhD.
ASS DIRECTOR POSTGRADUATE STUDIES



Encl.

Appendix IV: NACOSTI Research Permit



Handwritten signature in blue ink.

