FACTORS INFLUENCINGFINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN KENYA

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DECLARATION

Supervisee

I declare that this Proposal is my work and has never been submittedfor a degree or any award in any other University.

Signed…………………………………….. Date: ………………...

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Supervisor

We confirm that this candidate under our supervision carried out the work reported in this research project.

Signed……………………………………. Date……………….....…

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DEDICATION

I dedicate this work to my family who endured my silent and late nights and the cost of this quest in every possible way. I hope they will find it deserving.

ACKNOWLEDGEMENT

LIST OF ABBREVIATIONS

ATM   -   Automatic Teller Machine

CBK   -   Central Bank of Kenya

IMF   -   International Monetary Fund

FinTech   -   Financial Technology

KCB   -   Kenya Commercial Bank

MAS   -   Management Accounting System

NSE   -   Nairobi Stock Exchange

ROE   -   Return on Equity

STATA   -   Statistical Data

SACCO   -   Savings and Credit Cooperative Societies

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DEFINTION OF TERMS

Management accounting systems: refers to the processes, which have been put in place to provide vital information to the management team that they can use in making decisions (Granlund, 2001).

Managerial strategies: refers to theleadership styles and values used by management in making various decisions that influence day-to-day operations in the organization (Courpasson, 2000).

Organizational performance: refers to the overall output of the organization when measured against the intended output goals and objectives (Tomal and Jones, 2015)

Cost management system: entails the set of systematic methods of predicting impeding financial liabilities to help mitigate the chances of spending beyond the budget (Drury, 2013)

Internal control systems: comprises of the systematic measures used by an organization to govern its operations efficiently as a way of safeguarding resources and assets by detecting and deterring factors that threaten the effectiveness of financial management and accounting data (Amudo and Inanga, 2009).

Risk management systems: envisages the systematic processes of identifying, evaluating and controlling the financial uncertainties, strategic errors, legal liabilities, data security and disasters that threaten the organization's performance.

Financial technology: this entails the new applications, processes and business model products leveraged on technology to harness efficiency and security of transactions in the financial system.

ABSTRACT

This study examined the factors influencing performance of commercial banks in Kenya. Primarily, the research aimed at finding out the influence of cost management system, risk management system and financial technology on overall performance of commercial banks in Kenya. This study used secondary data as the main source of information. The data was gathered from the Central Bank of Kenya financial reports, Kenya Bankers Association journals, and published annual accounts of commercial banks between 2013 and 2016. STATA was used to analyze the collected data. The findings was tabulated using frequency tables, figures and charts to portray how the three factors influenced the overall performance of commercial banks in Kenya. The profit-maximization theory was used to explain cost management; contingency theory for risk management; and agency theory for financial technology. The study was justified by the fact that it contributed to the knowledge of organizational performance by examining factors that were crucial in achieving efficient access to the financial system, financial deepening, economic convergence: all of which influenced the performance of commercial banks.

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

At the heart of every commercial entity is a desire to maximize profits (Bobakova, 2003). Tomal and Jones (2015) define financial performance as the actual results or output of an organization as measured against the output objectives. In both theory and practice, financial performance stands between the present and future state of a commercial body. Financial performance does not occur in a vacuum. It happens within an environment marked with both internal and external shocks that from time to time influence the financial performance of a commercial entity. Similarly, positive performance of a commercial body brings with it an incentive to expand as a way of realizing even better performance within a given duration. The two scenarios invite the question of what factors influence this successful or failed performance of a commercial body.

1.1.1 Financial performance of banks

Financial performance of commercial banks is the lifeblood of the provision and acquisition of goods and services as well as general economic growth (Ongore & Kusa, 2013). Accordingly, Swarnapali (2014) states that various strategies adopted by banks determine their financial performance. Further, the question of what influences financial performance of banks is important to different interest groups including management experts, policy makers, investors, economic analysts and intellectuals. Financial performance of commercial banks is a determining factor of overall economic growth because they offer channels of accessing the financial system (Hussain & Bhatti, 2010).

Researchers state that the sustainability of any commercial bank depends on its level of profitability (Ongore & Kusa, 2013). This means that the dividends made from the invested shares encourage shareholders to increase their shares, a case that guarantees the

sustainability of the bank's future operations. Another study concludes that the financial performance of commercial banks is important because the profits made can be reinvested into the economy and lead economic growth (Ayanda, Christopher & Mudashiru, 2013). Poor financial performance of commercial banks can have far-reaching effects on economic growth of a country and general wellbeing of the citizens.

Harber (2005) argues that managerial strategies can improve or cripple the performance of commercial banks. While analyzing the performance of commercial banks in Mexico, Czech Republic and Poland, he argues that proper prediction of impending financial liabilities; risk avoidance and permeability of technology into the financial industry are the factors that lead to improved performance of commercial banks. Similarly, Bonin Hasan and Watchtel (2005) conclude that commercial banks in Nigeria realized better performance because of adopting effective risk management systems. The trio suggest that the performance of a bank is directly dependent on the ability to analyze, transfer, retain or reduce risks. The net effect of this comparison is to justify the need to test how the concept of risk management system influences performance among commercial banks in Kenya. It is important to understand the various cycles that Kenyan banks put in place in coping up with the ever-changing risks that threaten the performance of commercial banks.

Different researchers agree that cost management system is an integral part of attaining optimal performance for commercial banks. Hoque (2011), for instance, argues that equipping managers with the capacity and competency to predict impending financial liabilities helps banks to achieve efficient mitigation of spending beyond budget. Similarly, McManus (2012) submits that cost management system empowers commercial banks to devise systems that make it easy to estimate cost, budget, measure the performance of projects, foster easy reporting and improve third party integrations. Accordingly, Laitinen (2008) states that a proper cost management system enables commercial banks to implement

effective cost control mechanisms, which lead to better budget, planning, cost tracking, and improve earned value use. These arguments indicate that cost management system is an inevitable factor that influences performance of any given commercial bank. Therefore, it is intellectually sound to examine the place of this factor in influencing performance of commercial banks in Kenya.

1.1.2 Commercial banks in Kenya

Various legal instruments govern the operations of commercial banks in Kenya. These legislations include the Banking Act, Companies Act, Central Bank of Kenya Act as well as other periodical regulations issued by the CBK from time to time. The CBK regulates the banking business in Kenya by formulating and implementing financial guidelines that ensure proper functioning, liquidity and solvency of commercial banks. Registered banks operate under Kenya Bankers Association, an umbrella entity through which members further the interests an issues affecting commercial banks in Kenya.

Ongore and Kusa (2013) concluded that the financial performance of commercial banks in Kenya depends on ownership structure, economic conditions and management skills. Other studies indicate that competition, efficiency and productivity influence the financial performance of commercial banks in Kenya (Macit, 2011). Waweru, Hoque and Uliana (2004) argue that like any other civilization across the globe, Kenya's gross domestic index depends on the performance of commercial banks that largely control the country's financial system. Commercial banks offer a platform within which citizens enjoy access to the financial system. Such access encourages banks to innovate systematic means of achieving greatest economic convergence and financial inclusion of as many individuals as possible. Further, Muiruri and Ngari (2014) state Kenya's banking sector is in rapid expansion marked with an increasing asset base and customer deposits. As Kaya (2006) puts it, the challenge that arises is balancing between these viable ambitions and the risk of failing

to meet the set performance objectives. Given the importance of commercial banks in the country's economic growth, it is necessary to study the managerial trends employed by different commercial banks towards improving their respective performance (Koech and Makori, 2014). In events where a few banks fail to meet their performance objectives, it is worth assessing what such banks did or failed to take into account hence the dismal performance.

Therefore, this research premises on this background to examine the influence of cost management system, risk management system and financial technology on the performance of commercial banks in Kenya. The profit-maximization theory will be used to evaluate how banks use the cost management system as a tool of predicting impending financial liabilities and ensuring that commercial banks operate within the cost-curve. The contingency theory was used to examine the various managerial practices that commercial banks used to manage risks that threatened the possibilities of meeting their output objectives. The agency theory assessed how employee-adoption of financial technology aligned with the output objectives of the shareholder.

1.2 Statement of the Problem

Financial institutions act as intermediaries between the surplus and deficit units in the economy and this intermediary role is crucial for the efficient allocation of resources in the modern economy (Sinkey, 2002; El-Hawary, 2007). As observed from the latest US financial crisis, a collapse of the financial institutions affects the stability of the whole economy. Improved performance of commercial banks is crucial to maintaining the soundness and the stability of the financial system, through which the country's economy grows. Commercial banks in Kenya, just like other developing economies, operate within a fast-changing value chain that impact on their ability to meet their output objectives.

Chase Bank experienced liquidity troubles, a case that led to its placement under receivership. The CBK put two other banks, Dubai Bank of Kenya and Imperial Bank Kenya into receivership due to misappropriation of depositors' funds, embezzlement of the respective banks' assets that flaunted regulatory rules (Quarts Africa, 2016). The National Bank of Kenya was termed to be struggling with the effect of massive reclassification of outstanding loans showing an overstatement of performing loans leading to an increase of the provision for bad debts (Standard media, 2016). This state of affairs show the practice problem concerning the financial performance of commercial banks in Kenya.

Various researchers have studied the concept of financial performance of commercial banks in different contexts. Obamuyi (2013) studied the performance of commercial banks in Nigeria and found that efficient management of expenses leads to improved profitability of banks. Notably, the study did not study explain the influence of the cost management, risk management or financial technology on the performance of commercial banks.

Lipunga (2014) also conducted a study in Malawi where he found that the size of a bank influences the liquidity of a bank. Ongore and Kusa (2013) also examined the concept of financial performance and found that managerial decisions affect the performance or commercial banks. From the above studies, it is apparent that there is a research gap concerning the specific factors that influence performance of commercial banks. Therefore, the problem that arises from the gap is that of gaining a sound understanding of the influence of costs management system, risk management system and financial technology on financial performance of commercial banks in Kenya.

1.3 Research Objectives

1.3.1 General Objective

i. An analysis of factors influencing financial performance of commercial banks in Kenya.

1.3.2 Specific Objectives

i.   An analysis of the influencecost management system on financial performance of commercial banks in Kenya.

ii. An analysis ofthe effects of risk management system on financial performance of commercial bank in Kenya.

iii. An examination ofthe influence of financial technologyon financial performance of commercial bank in Kenya.

1.4 Research Questions

This study was guided by the following research questions:

i.   How cost management system influenced financial performance of commercial banks in Kenya?

ii. How risk management system affected financial performance of commercial banks in Kenya?

iii. How financial technology influenced financial performance of commercial banks in Kenya?

1.5 Significance of the Study

This study is of significance to various stakeholders. These include commercial banks, policy makers and researchers.

1.5.1 Commercial Banks

The management team in finanical institutions get some insight on the influence of cost management system, risk management system and financial technology on the performance of their organizations. Moroever, they are enlightened on how cost estimation, risk analysis and technological innovativeness lead to optimal organizational performance. Besides, the recommendations drawn from the findings help commercial banks to reconsider the way they

approach cost managent, risk management and adoption of financial technology as a way of improving their organizational performance.

1.5.2 Policy Makers

The study is of considerable significance to policy makers who may find the three concepts that this study tests immensely important in making strategic decisions that invite commercial rewards for their various institutions. Upon completion, results from the study helps the policy makers to develop policies, which are aimed at improving the financial performance of commercial banks.

1.5.3 Researchers and General Knowledge

On an intellectual basis, this study has contributed not only to enrich the available literature regarding the factors thatinfluence performance of comercial banks but also serve to motivate similar studies to be conducted across the emerging market economies to determine whether the issues reported here are similar or different. New insights may have been generated from the use of existing variables or through the inclusion of new constructs that take into account the differences in these countries. From the practical perspective, the results have gone a long to informing the adoption of cost management system, risk management system and financial technology by both banks and non-banks in efforts to increase the chances of meeting the various output objectives

1.6 Justification for the Study

This study is justified on the basis that it sought to answer a question that is hardly attended to by output scholars. There exists little literature that explored the direct linkage between cost management system, risk management system and financial technology on the output performance of commercial banks in Kenya. Moreover, this study did not contradict past studies on performance of commercial banks in Kenya. Instead, it built on the existing

knowledge with a perspective of establishing the province of factors that influence performance of commercial banks.

1.7 Assumptions

It is assumed that both internal and external environmental factors affect the performance of commercial banks in Kenya. As such, study sets in to inquire on the specific factors that affect such performance. The study presupposes that different theories influence the choice of a given managerial strategy as a way of maximizing profits. Therefore, the study aims at putting these factors into atest to ascertain authoritatively that cost management, risk management and financial technology has a significant role on the performance of commercial banks in Kenya.

1.8 Limitations

Besides that all efforts and reasonable care was adhered to, the researcher stood the risk of meeting hostilities that came with the process of research. Financial constraints and limitations of time for the study was a few of obstacles encountered in the course of achieving the desired conclusion for the study.

1.9 Scope of the Study

This study focused on the factors that influenced the performance of commercial banks in Kenya. The independent variables included cost management system, risk management system and financial technology.The population of the research comprised of 43 Commercial banks registered by Central Bank of Kenya as the end of 2016, for the period of 2013 to 2016, which seek to establish whether there was any relationship between these independent variables and the dependent variable.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This study sought to understand thevarious factors that influenced performance of commercial instutitions in the highly competitive environments and advanced technologies. This study examined three of such factorson performance ofcommercial banks in Kenya. The present chapter presents the literature review, theoretical perspective, empirical review and conceptual framework.

2.2 Theoretical Perspective

The three main theories that were given consideration in this study include the contingency theory, agency theory and profit-maximization theory.

2.2.1 Profit-maximization theory

Koetter (2004), as the main proponent of this theory, argued that optimal performance is a consequence of employing best output and price levels that maximize on return. The application of this theoretical model can be beneficial to an organization and at the same time affect consumers where such an organization opts to increase the prices of its products as a way of maximizing returns.

Hughes (2000) conducted a benchmark on profit maximization as a form of cost management system. Similarly, De Young (2001) looked into the viability of profit maximization in achieving a better cost-management model for the banking industry. On balance, both studies revealed that commercial banks realize better performance when they align their operational costs to the regulatory minimum capital ratio. Largely, this model enables commercial banks to develop an incentive that boosts their capital through a risk-return tradeoff. Another persuasive research conducted by Mueller (1990) points towards the

concept of persistent profits. Mueller argues that monopolistic attributes in the banking industry interfere with the normal equation, which is crucial in understanding the interplay between competition and monopoly. This argument reflects to the tendency of Kenyan commercial banks to attempt creating an artificial demand for their products. The effect of this cost-return tradeoff is that commercial banks manage to increase their profits from other incidental methods as opposed to overdependence on customer deposits.

This theory was applied to support the objective of assessing how cost management systems influenced the performance of commercial banks in Kenya. That is to say, the various ideas of the theory will be used to understand how commercial banks in Kenya apply the cost management strategies as a way of ensuring accurate prediction of their financial liabilities. As a result, this paper was to test the various findings of the profit-maximization theory with a view of understanding whether the performance of commercial banks was directly pegged on their choice of cost-management systems.

2.2.2 Contingency Theory

The main idea of this theory is that best management practices are situational. Woodward (1980), as the main proponent of this theory, suggests that situational practices are influenced by the prevailing characteristics of particular situations. The application of this theory has found its relevance in the accounting fields especially where relationships are being examined between risk management and the overall output performance of commercial banks (Gerdin & Greeve, 2004).

This theory was used to support the objective of examining how risk management influenced the performance of commercial banks in Kenya because it holds that an appropriate risk management system should consider the environment and organizational structure confronting an organization from time to time (Van de Ven, Ganco& Hinings, 2013). That means that managerial decisions on risk evaluation, risk analysis, risk retention

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and risk transfer should be aligned with the specific output objectives that were dominant in a given situation. An effective risk management system should be designed within an adaptive framework.

Gordon and Narayanan (1984) conclude that environmental uncertainty is a fundamental driver for designing an effective risk management system for commercial entities. Therefore, this research was to examine and recommend the various strategies that commercial banks in Kenya should have adopted in ensuring risks were minimized whereas they adopted to the situational changes that were likely to affect overall performance.
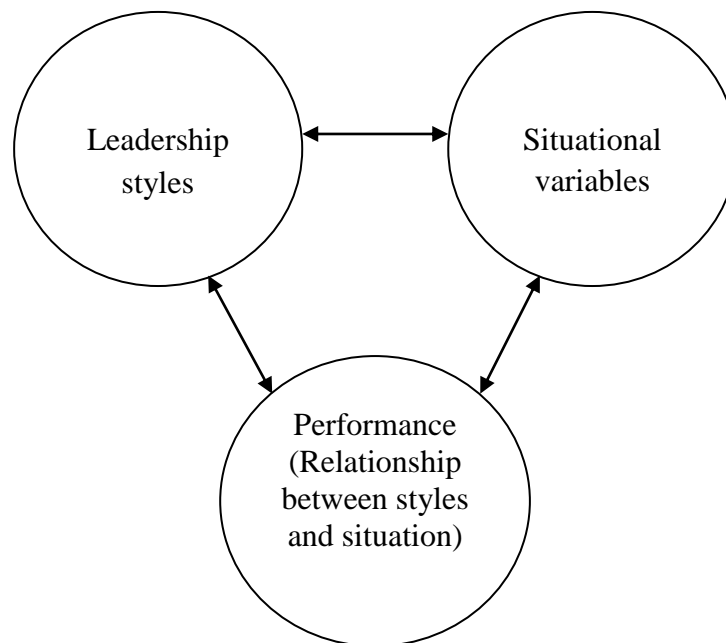
Chart1: Contingency model (Source: researcher)

2.2.3 Agency Theory

Agency theory has been one of the most important theoretical paradigms in commercial proliferation during the last 20 years. This theory suggested that directors and employees working in commercial banks were agents of the principals, the shareholders, and the relationship between the two was that agents were duty-bound to act in the best interest of the principal (Mustapha & Che Ahmad, 2011). As such, the interplay between agents and

principals informed much of the factors that affected the output of a commercial body. Shareholders came up with policies from deliberations arrived at in board meetings and they delegated their authority and powers to the directors and employees who implemented such policies.

This theory was applied in qualifying the objective of examining how financial technology influenced the performance of commercial banks in Kenya. Largely, the various propositions of the theory was handy in investigating whether agents in commercial banks did in fact act in the best interest of their principals. This examination paid deliberate attention to the variable of financial technology. The integration of technology in the financial sector has brought with it an array of both positive and negative effects (Kaplan & Norton, 1992). On one hand, the introduction of mobile financial services boosted the traditional banking sector by ensuring that the under banked and unbanked had equal access to the financial system as the banked. Financial technology had made the operations of commercial banks more effective considering that persons subscribed to commercial banks had access and control of their deposits through more efficient means like mobile service operators, automated teller machines and the internet (Diniz, 2012). The net effect of this incorporation of technology into the financial sector was that there had been increased access to the financial system, enhanced economic convergence and improved economic deepening.

However, financial technology brought with it a challenge that tested the viability of the principal-agent relationship in the commercial banks in Kenya. In some instances, agents conspired to use financial technology in furtherance of their own agenda, which marked a departure from their duty to the shareholders. In the recent past, internal fraud had been said to be one of the dangers that bleed commercial banks in Kenya. This state of affairs makes it necessary to examine the state of agent-principal relationship between in among commercial banks. As such, this theory was handy in assessing different aspects of financial technology

including mobile financial services and associated consumer risks, internet banking, and data theft.

Accountable to (reciprocity)

Principal	Employs	Agent	To perform	Task
Eg. Shareholders		Eg. Directors		Eg. Managing an organization

Tasks performed with authority and on behalf of
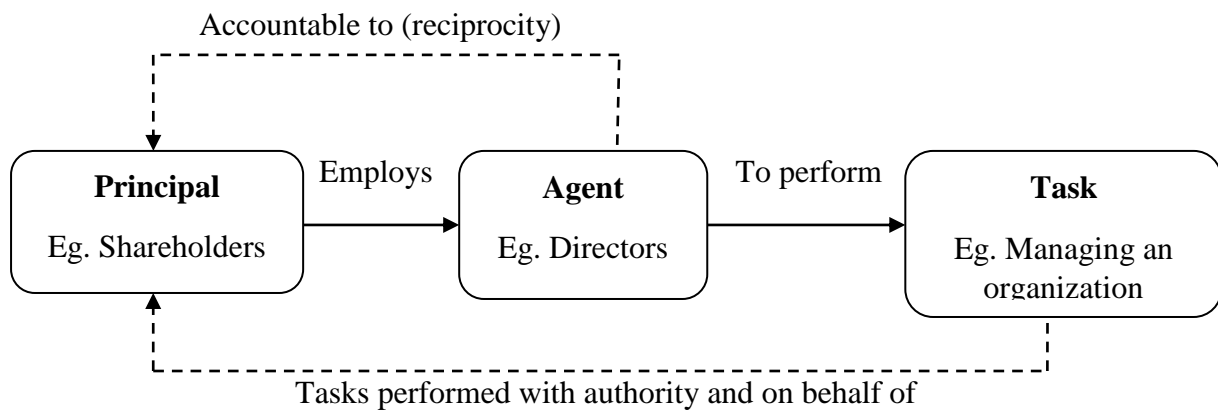
Chart :Agency model (Source: researcher)

2.3 Empirical Review

This section presented a review of literature on the area under study. The section was presented based on the research variables; cost management system, risk management and financial technology which resulted to perceived organizational performance.

2.3.1Cost management system and financial performance of commercial banks in

Kenya.

According to Drury (2013), cost management entails the set of systematic methods of predicting impeding financial liabilities to help mitigate the chances of spending beyond the budget. This was an integral part of realizing optimal performance for commercial banks. Kaplan and Atkinson (2015) argue that cost management compared information about current performance to budgets, forecasts, prior periods, or other benchmarks to measure the extent to which goals and objectives were being achieved and identify unexpected results or unusual conditions that require follow-up. In the same way that managers are primarily responsible for identifying the financial and compliance risks for their operations, they also have line responsibility for designing, implementing and monitoring their internal control system.

Internal controls help managers to monitor and measure the effectiveness of their accounting operations on performance.

Hunton (2002) investigated the relationship between cost management system and organizational effectiveness. His study showed that there was strongrelationship between cost control information and organizational effectiveness, which means access to information such as cost estimation, cost tracking and cost control lead to better performance. Several other recent studies on value of cost management for equity valuation, share price and earnings prediction have queried current cost estimation model in the developed world (Onaolapo, & Odetayo, 2012). The same issue can be raised in Kenya about the value relevance of cost management (Kithinji, 2010). Therefore, this study examined the province of cost estimation, cost control, cost tracking and integration with third parties.

2.3.2 Risk management system and financial performance of commercial banks in Kenya.

Chenhall and Euske (2007) explain that financial management need to put greater effort into monitoring the various risks that threaten the financial stability of an organization. Without proper risk evaluation, every commercial institution risks the ability to integrate external information to support the more important decisions will be taken up by other departments and will in time provide them with ever-increasing spheres of influence within top management. For instance, Waweru, Hoque and Uliana (2004) listed risk related factors that inform optimal performance of a financial institution. These factors include risk analysis, risk evaluation, risk avoidance, risk reduction, risk transfer and risk retention. Accordingly, technological innovations bring with them a number of issues that threaten the operations of commercial banks (Baines & Langfield-Smith, 2003; Waweru, Hoque & Uliana, 2004). Technological advancements cause an increase in uncertain environments, a case that force

managers to employ an apt risk management system that mitigates the risk of not meeting their output objectives.

According to Siddique (2012), the objective of all organizations is profitability, and the success of any organization depends on its employees' performance. Judge (2001) added that devisingan effective riskmanagement system instills the confidence of workforce, taking into consideration that a safe working environment goes a long way in improving job satisfaction as well client confidence in the stability of a financial institution. If the focus of an organization is developing innovative, high-quality products, the performance of its employees will play an integral part in achieving these organizational goals. De Andres and Vallelado (2008) examined the role managers expect management accountants to play in the decision support process. They found that the main types of information supplied by the organizations consist of information relating to costs, volumes, inventories and sales analysis. One of the main ways by which an effective risk management system adds value is by the accumulation and consolidation of information from different departments and the delivery of this to the appropriate decision makers.

Ryan, Spencer, and Bernhard, (2012), in their study, found that organizational performance and leadership competencies correlate with a leader's social, cognitive, and emotional intelligence (EI) competencies, all of which add to one's ability to foresee risks and formulate means of mitigating their impacts. Boyatzis and Boyatzis (2009) identified social intelligence as the ability of a leader to focus on innovation and motivate it among his or her team members. This is often referred to as directive leadership and depends heavily on delegation, where leaders understand how to confer some leadership powers to team members and allow them room to explore new ideas that help to secure an organization from risks that might impair the abilities to attain optimal performance (Emrich, 1999).

It is worth mentioning that increasing globalization has resulted in intense and aggressive competition, increased customer demands and shorter product life cycles (Shields, 1997). A proper link between risk management and financial sector operations is the key to developing sustainable competitive advantage (Porter, 1996). One way in which organizations' can respond to increasing customer demands for quality, flexibility, and dependability of supply is by improvising risk management systems that instill confidence in the consumers that the services offered by commercial banks are fit for the purpose, correspond with value for money and above all, their deposits are safe. An all-round approach that takes into account all the above factors leads to better performance.

2.3.3 Financial technology and financial performance of commercial banks in Kenya.

To remain competitive, organization need to monitor a diverse range of factors such as competition for price and market share, marketing and product competition and number of competitors, which may be achieved through the incorporation of technology into the financial sector (Baines & Langfield-Smith, 2003; Hoque et al., 2001). Haldma and Laats (2002) examined the influence of external environment, technology and organizational aspects in the performance of an Estonian company. They found that increased competition and change in market structure have made it mandatory for financial institutions to integrate financial technology into their operationsas a way of matching the dynamics of global competition. Further, they defined financial technology as this entailing the new applications, processes and business model products leveraged on technology to harness efficiency and security of transactions in the financial system.

Zhou, Chen and Cheng (2016) investigated whether internal technological control and whether corporate life cycle would affect firm performance in the emerging markets of China. Using multivariate regression analysis, they found that the financial technology

improves organization's performance. They concluded that when dividing firm life cycle into five stages: introduction, growth, mature, shakeout and decline, the impacts of financial on firm performance vary with different stages. According to their study, the positive impact of financial technology on firm performance is more significant in maturity and shakeout stages than other stages.

Kenya receives much hype for being one of the pioneers of mobile financial services. The introduction of M-Pesa in 2007 is an invaluable milestone in the process of achieving financial deepening. Within a short period of operation, the traditional banking system realized that mobile financial services were taking away much of the roles that were traditionally undertaken by commercial banks.(Nderitu, 2010). The access to a mobile phone and connection to a mobile service provider would enable one to make real-time deposits, transfers, withdrawals, savings as well as credit. This new way of commercial life sent commercial banks into a period of drastic innovation. The net effect of that innovation is what is presently known as mobile banking. Therefore, this study will examine how the integration of this financial technology has influenced the performance of commercial banks in Kenya.

2.4 Conceptual Framework

This study conceptualized on the factors that influenced the performance of commercial banks in Kenya. The variables to being investigated was to include cost management system, risk management system and financial technology. Chart 3 summarized the relationship between these variables.

Independent Variables   Dependent Variable

```
┌─────────────────────────────┐
│ Cost management system      │
│                             │──────────┐
│   -  Operational costs      │          │
└─────────────────────────────┘          │
                                          │
                                          │      ┌─────────────────────────────┐
┌─────────────────────────────┐          │      │ Financial Performance of    │
│ Risk management system      │          ▼      │ commercial banks in Kenya   │
│                             │─────────────────▶│                             │
│   -  Non-performing loans   │          ▲      │   -  Return On Equity       │
└─────────────────────────────┘          │      └─────────────────────────────┘
                                          │
                                          │
┌─────────────────────────────┐          │
│ Financial technology        │          │
│                             │──────────┘
│   -  Total deposits         │
└─────────────────────────────┘
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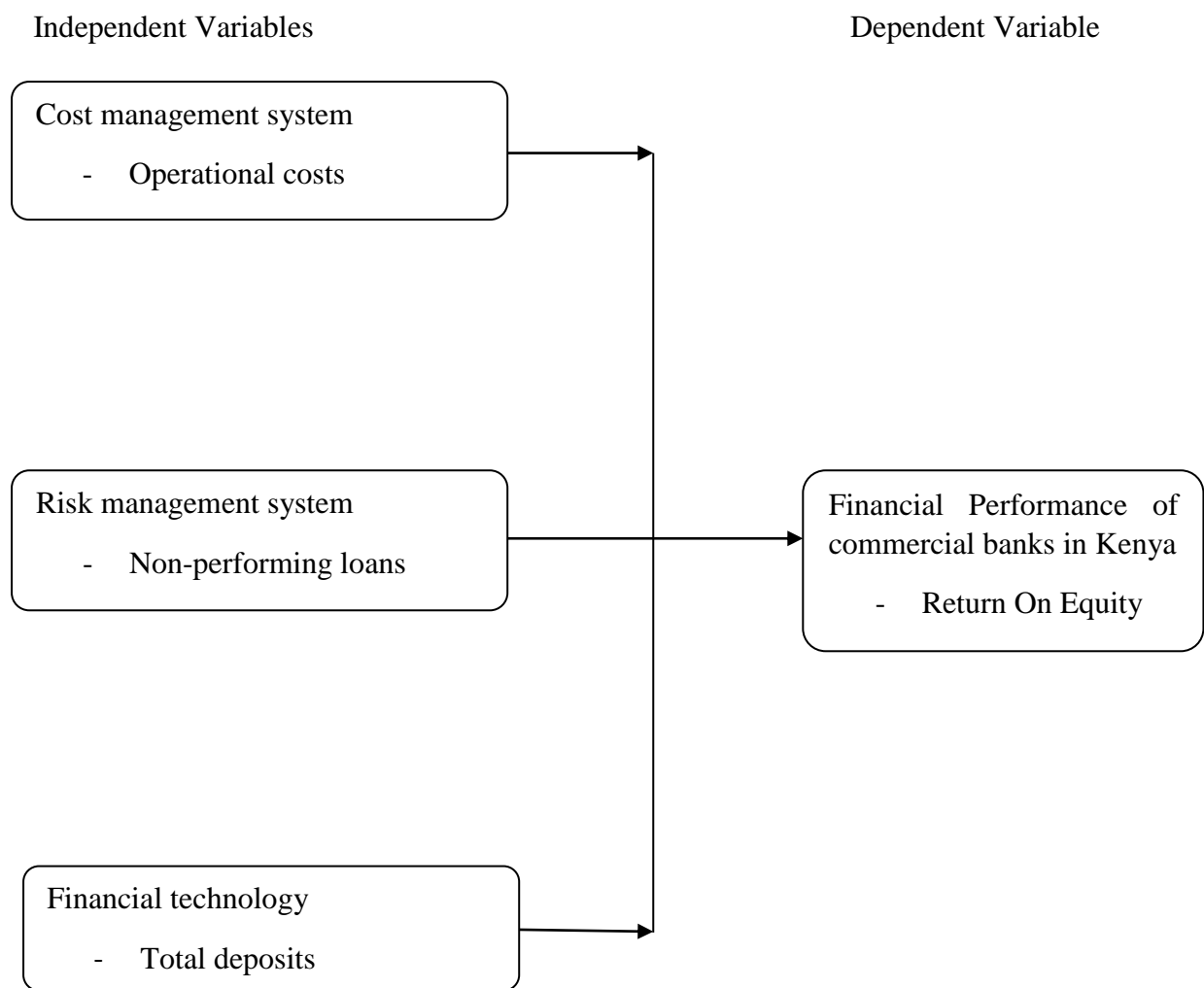
Chart 3: Conceptual Framework. (Source: researcher)

Objective	**Measurement**	**Methodology**
1. Cost management system	Operating cost	Regression analysis
2. Risk management system	Non-performing loans	Regression analysis
3. Financial technology	Total deposits	Regression analysis

Table 1: Operationalization of the conceptual framework (Source: researcher)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research Design

Upagade and Shende (2012) stated that research design is the arrangement ofconditions for collection and analysis of data in a manner that aims to combine relevance to the research objective with economy in procedure. It is the logical manner in which individuals or other units are compared and analyzed and acts s the basis of making interpretations from the data. A descriptive research was used. The design included surveys and fact finding enquiries of different kinds. The researcher had no control over the variables. The researcher could only report what has happened or what is happening. It involves collections of quantitative information (Morgan, 2007). This study adopted a descriptive research design where a deeper understanding of the topic was developed and put forward intervention strategies that was to alleviate the state of performance of commercial banks in Kenya.

3.2 Target Population

According to Bernard (2011), population is the total collection of elements about which the researcher wishes to make some inferences. The researcher intended to capture all 43 Commercial banks registered by Central Bank of Kenya as the end of 2016 (Central Bank of Kenya, 2016). However, the available audited and published financial data reflected 34 commercial banks whose data sufficiently captured the three variables that the researcher set to analyze. This target population represents 79% of the total population. This was deemed to be a sufficient basis upon which an informed inference would be made.

3.3 Data collection procedure

The researcher used the census method for the 43 commercial banks in Kenya. The study focused on the secondary data from 2013-2016. The data was gathered from the periodic

financial reports of the Central Bank of Kenya, Kenya Bankers Association journals, published annual accounts of commercial banks between 2013 and 2016.

3.4 Data Analysis

Panel data regression analysis was used to determine the expected relationships between Commercial Bank's overall performance and costs management system, risk management system and financial technology.

This is because the study used the data comprising both time series and cross-sectional elements, and such data is known as panel data. A pure time series approach often requires a long run of data simply to get sufficient number of observations to be able to conduct any meaningful hypothesis tests. But by combining cross- sectional and time series data, number of degree of freedom can be increased, thus the power of the test, by employing information on the dynamic behavior of a large number of entities at the same time (Mathew, Murinde and Zhao, 2007).

The general model for predicting the factors influencing the financial performance of the commercial Banks is represented as:

$$Y = \alpha + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \ldots\ldots + \beta_n x_n \varepsilon_1$$

Where Y is the dependent variable and is a linear function of $X_1, X_2, X_3 \ldots X_n$ plus ε_1,. α is the regression constant or intercept, β_1-n the regression coefficient, X_1-n are the study variables which are dependent variables, ε_1 is the error term that accounts for the variability in Y that cannot be explained by the linear effect of the predictor variables.

Thus, the estimated model for the factors influencing financialperformance of commercial banks will be expressed as:

$$FP_{it} = \alpha + \beta_1 CMS_{it} + \beta_2 RMS_{it} + \beta_3 FT_{it} + \varepsilon_{it}$$

Where:

FP=Performance measured by Return on Equity.

α= is a regression constant or intercept;

β$_{1-3}$ = are the regression coefficients, FP

i= Number of banks, in this case 43 commercial banks.

t= time, in this case one year.

CMS= represents Cost Management System, measured by operating cost.

RMS= represents Risk Management System, measured by non-performing loans.

FT= represents Financial Technology, measured by total deposits.

ε$_1$ $_=$ is a random error term.

3.4.1 Panel Estimator approach

There are two broadly two classes of Panel estimator approaches that was employed in this study.

3.4.1.1 The Fixed Effect Model

Fixed effect model is more plausible when the entities in the sample constitute the entire population. The fixed effects model controls for all time-invariant differences between the individuals, so the estimated coefficients of the fixed effects models cannot be biased because of omitted time invariant characteristics. Stock and Watson, (2003), gave an insight that if the unobserved variable does not change over time then any changes in the dependent variables must be due to influences other than the fixed characteristics.

The advantage of the model is that there were no omitted variable. This model introduces a dummy, which take care of all the omitted variables. This helps appreciate that the individuals are different over time. The model cannot be able to investigate time-invariant causes of the dependent variables. That is, one cannot retrieve 'good' estimates of sluggish or

slow changing, variables in the fixed effect model. Technically, time-invariant characteristics of the individual are perfectly collinear with the person or (entity) dummies.

The model is designed to study the causes of changes within a person (or entity). A time-invariant characteristic cannot cause such a change, because it is constant for each person/ (entity). An important assumption of the model is that, the time invariant characteristics is unique to the individual and should not be correlated with other individual characteristics. Each entity is different therefore, the entity's error term and the constant (which captures individual characteristics) should not be correlated with the others. If the error terms are correlated the fixed effect model is not suitable.

$$FP_{it} = \alpha + \beta_1 CMS_{it} + \beta_2 RMS_{it} + \beta_3 FT_{it} + \mu_{i} + \varepsilon_{it}$$

Where, μ_i is the dummy.

3.4.1.2 Random Effects model

The rationale behind random effects model is that the individual specific effect or variation across entities is assumed to be a random variable that is uncorrelated with the explanatory variables. The crucial distinction between fixed effect and random effect is whether the unobserved individual effect embodies elements that are correlated with the regressors in the model not whether these effects are stochastic or not. The advantage of the model is that you can include time invariant variables like gender, unlike in fixed effect, where the intercept absorbs all the time invariant variables. Here the individual error term is not correlated with the predictors which allows for time invariant variables to play a role as explanatory variables. This model decomposes the error term in two, that is, errors that are random in nature and cannot be observed and errors that are random in nature and cannot be observed and measured and errors that are general in nature and can be observed and measured.

$$FP_{it} = \alpha + \beta_1 CMS_{it} + \beta_2 RMS_{it} + \beta_3 FT_{it} + w_{it}(\varepsilon_i + \varepsilon_{it})$$

Where:

w_{it} is the combined error term;

ε_i is the unobservable and unmeasurable errors; and

ε_{it} is the observable and measurable errors

3.4.2 Procedure for choosing the model

To determine the best model for this research, Hausman test was done.

3.4.2.1 Hausman Test

The Hausman test statistic is a transformation of difference between the parameter estimates from fixed effects and random effects estimation that becomes asymptotically $\chi 2$ chi- square distributed under null hypothesis. The basic idea for this test is that under the null hypothesis of orthogonality both OLS and GSL are consistent while under alternate hypothesis is not consistent. For this research, the values were then differenced (1st difference) to ensure the data was stationary but before regression, a Hausman test was used to determine whether to use the fixed effects or random effects model to address objectives of this study. The Hausman test was distributed as chi-square with I degree of freedom. This study base's decision was made considering the resulting p-value. Therefore, on conducting the test, if the p-value exceeds 5% significance level, it implies that the individual level effects are best modeled using the random effects method. In other words, random effect is preferred because it is a more efficient estimator if the null hypothesis cannot be rejected (Haas and Lelyveld, 2006).

3.5 Diagnostic Tests

The nature and strength of the relationship between the dependent variables was measured through diagnostic tests.

3.5.1 Multicollinearity Test

Multicollinearity refers to a situation in which two or more explanatory variables in a multiple regression model are highly linearly related. In order to check multicollinearity in the three factors, the study checked on the interconnection among these factors. Multicollinearity occurs when these factors are highly correlated with the value of being greater than 0.9 (Tabachick and Fidell, 2007). This test was carried out under Pearson correlation. Correlation coefficient of greater than 0.9 for the various variables was deemed to be indicators multicollinearity and appropriate adjustments was made.

3.5.2 Heteroscedasticity Test

To test for heteroscedasticity the study carried out a diagnostic test on the regression equation. The classical linear regression model (CLRM) assumes that the variance of the errors (error term) is constant or what is referred to as homoscedasticity. If the errors do not have a constant variance, they are said to be heteroskedastic. The assumption of homoscedasticity is central to linear regression models in that if the OLS model is still used in the presence of heteroscedasticity instead of homoscedasticity, the standard errors could be wrong since the OLS regression seeks to minimize the residuals and in time possible standard errors. To avoid the F- statistic overstating the true significance level, disturbances was checked for the absence of heteroscedasticity. In this test, when the results showed probability values that are greater than 0.05, then the estimated parameters are constant.

3.5.3 Autocorrelation Test

Furthermore, the researcher tested the autocorrelation assumptions that imply zero covariance of error terms over time. That means errors associated with one observation are uncorrelated with the errors of any other observation. As noted by Gujarati (2004), the best renowned test for detecting serial correlation is Durbin Watson test. The Durbin – Watson statistic is a

simple numerical method for checking serial dependence. The test was used to test residuals from a linear regression or multiple regressions are independent. Most regression problems involving time series data exhibit positive autocorrelation, thus the hypotheses considered in Durbin-Watson test are   H0: $\rho =0$ and H1: $\rho > 0$. The assumption of uncorrelated or independent error for time series data is often not appropriate. Usually the errors in time series data exhibit serial correlation. Such errors are said to be auto correlated.

3.5.4 Unit Root Test

The study also conducted unit root test on each variable. The Augmented Dickey-Fuller (ADF) test was employed in this study to test the time-series properties of the data series. The ADF test the null hypothesis of non-stationarity against the alternative hypothesis of stationarity. The P-Perron tests was also useful in testing or unit roots. The ADF and P-Perron test assumed the following null hypothesis;

Ho: The variable was non-stationary (i.e. it has a unit root)

Ha: The variable was stationary (i.e. it has no unit root)

3.6 Test of Significance

Analysis of Variance (ANOVA) tested the significance of the model. The significance of the regression model was at 95% confidence interval and 5% level of significance. Adjusted R Squared was used to determine the variation in the dependent variable due to changes in the independent variables.

CHAPTER FOUR

DATA ANALYSIS AND FINDINGS

4.0 Introduction

This chapter presents findings from panel data analysis of secondary data procured from 43 commercial bank the chapter begins with exploratory analysis of the panel data followed by diagnostic analysis. The section on diagnostic analysis examines existence of time related fixed effects, test for significance differences in return on equity asset across the firms, examination of heteroscedasticity and serial correlation and criteria for choosing of random effects versus fixed effects models. In the last section, panel data analysis of the study data is performed to determine the effect of the three independent variables on return on equity.

4.1 Exploratory Data Analysis

Data analysis began with exploration of the study data. Exploration data analysis examined heterogeneity across the firms and over time. This analysis was essential in the determination of whether to use the panel data models or simply use pooled regression models. Exploratory data analysis was done using graphs to examine the trend of return on equity within and across firms. Details of the analysis are proffered below.

4.3.1 Growth plot

Exploratory data analysis was done using graphs to examine the trend of returns on equity within and across commercial banks. The study used growth plots to study within-firm behavior of Return on Equity (ROE).Figure 1 below indicates the empirical growth of ROE over the four-year period. The growth plot reveals that for most banks, ROE did not change much with time period under study. There were however a case where ROE appeared to change significantly i.e. spire bank and gulf bank however these outliers do not suggest existence of significant time-related fixed effects.
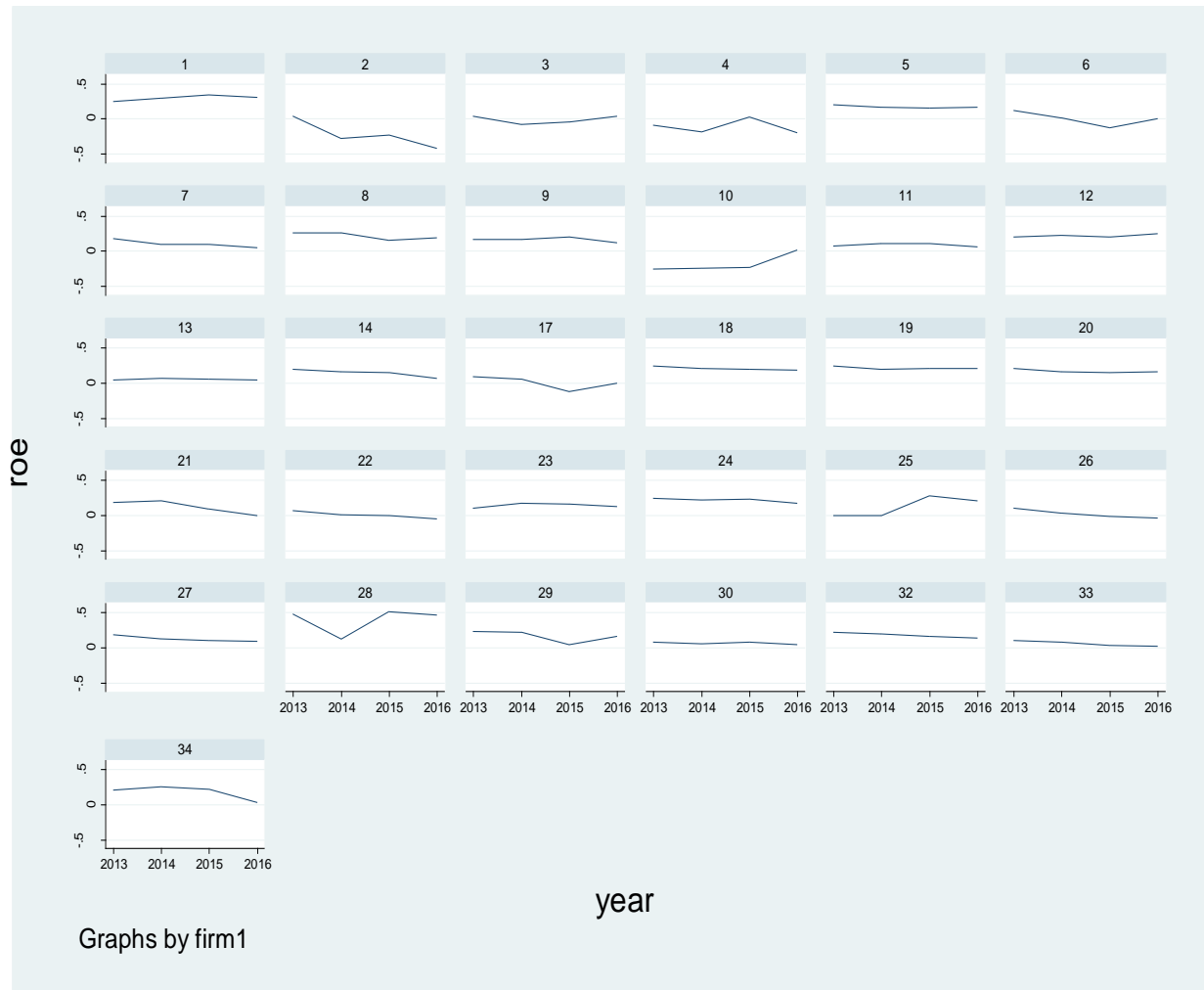
Figure 1: Growth Plot of ROE. Source: Researcher (2018)

4.3.2 Overlain plot

Overlain observation was carried out on ROE to find if there were non-significant slope differences among these 34 commercial bank   the panel graph plot for each thirty-four commercial bank to observe statistical visualization on the data processed curve generated by the time series of the growth of ROE for each of the commercial bank. Few with the y intercept not similar for all of the other commercial banks. Figure 2 below indicates the Overlain Plot of ROE.
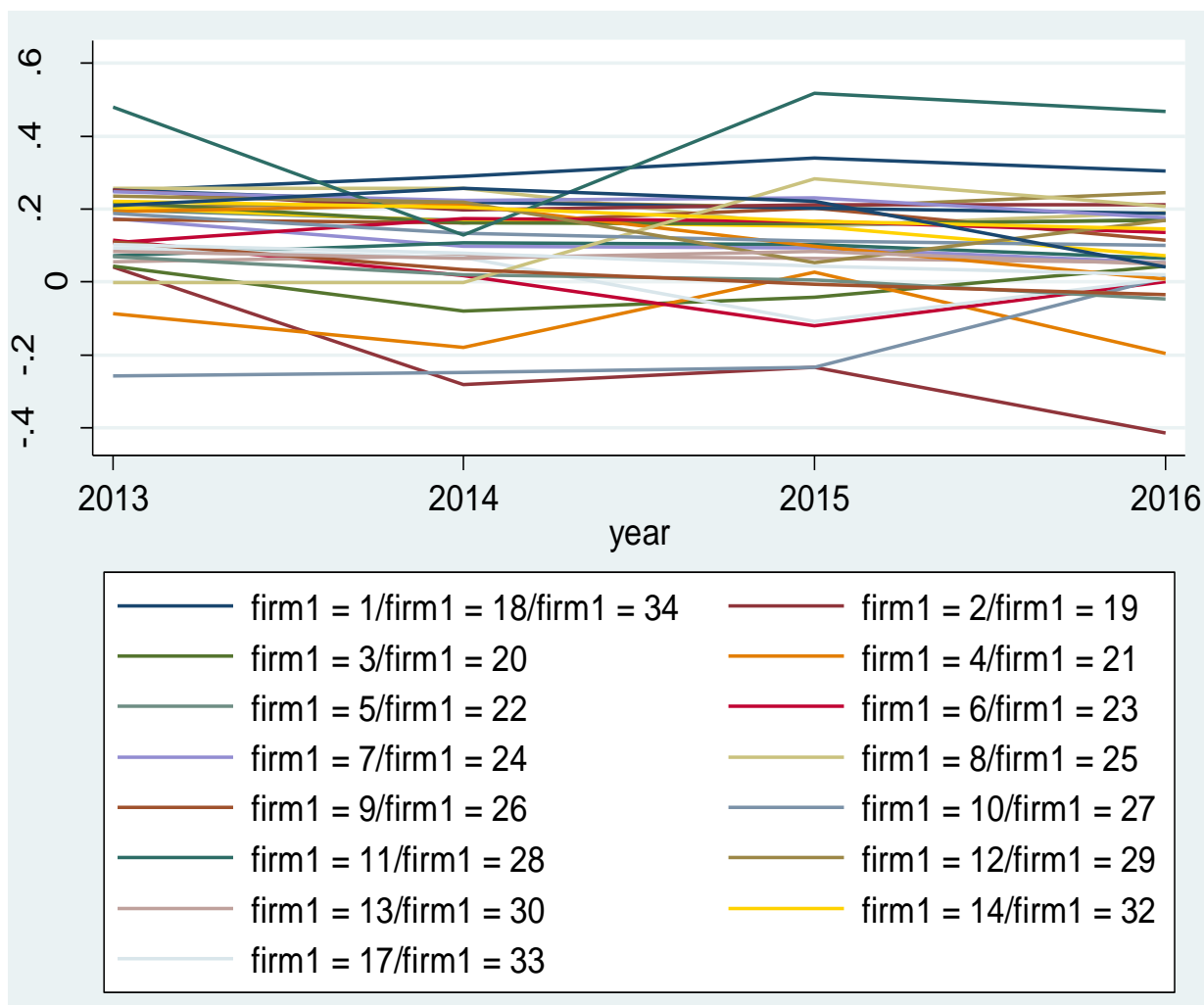
Figure 2: Overlain Plot of ROE. Source: Researcher (2018)

4.2 Diagnostic analysis

This section reports on result of the diagnostic analysis of the panel data. Specifically, the section reports on existence of time-related fixed effects and the suitability of fitting pooled regression models vis-à-vis panel data models. The study also examines the presence of heteroscedasticity and serial correlation. Lastly an analysis is done to determine if random effects or fixed effects models should be used.

To begin with, we first examined the plausibility of fitting a pooled regression model, which is much simpler than the panel data model. The Breusch-Pagan LM test was used to determine if a simple linear regression model was more preferable than the random effects

model. As table 2 below indicates chi-square values for the models was significant (p<0.000), implying existence of significant differences of return on equity among the commercial bank. Consequently it was found inappropriate to use simple regression models.

Model	Dependent variable	χ^2-value	p-value
1	Return on Equity (ROE)	66.60	0.00

Table 2: Chi-Square values for the Breusch-Pagan LM Test. Source: Researcher (2018)

Next the study examined the presence of time-related fixed effects. If such effects be present, then one would be required to account for the effects either by inclusion of dummy variables to capture the effects or fitting a two-way random effects model. The results of this test, shown in table 3, reveal that there are no significant time fixed effects (p>0.05) thus no need to fit two-way component models.

Model	Dependent Variable	F-Value	P-Value
1	Return On Equity (ROE)	2.62	0.0561

Table 3: Test Results for Fixed Effects. Source: Researcher (2018)

To establish existence of the degree of multicollinearity among variables or multicollinearity between variables, the researcher carried tests in stata using vif and then estat vif which produced the following results:

```
.  vif
```

Variable	VIF	1/VIF
td	2.42	0.412846
npl	1.96	0.509324
op	1.59	0.630900
Mean VIF	1.99	

Figure 3: Results for multicollinearity.. Source: Researcher (2018)

In figure 3 above, the mean vif is 1.99. This is lower than the 10 which is taken as standard bench mark for multicollinearity to exist if it is higher than the number. In this case, there is no presence of multicollinearity in the panel data because mean vif of 1.99 is lower than 10 as a thumb rule.

Lastly a test was conducted to examine the presence of heteroscedasticity and serial correlation in the panel data. To test for heteroscedasticity, the modified Wald test was used while testing for serial correlation was done using the Wooldridge-Drukker test. From the results of the two test, indicated in table 4 there was no evidence of serial correlation among the panels (all p>0.05)

		Test for heteroscedasticity		Serial Correlation	
Model	Dependent variable	$\chi^2-value$	p-value	F-value	p-value
1	Return on Equity(ROE)	1441.12	0.000	0.560	0.4599

Table 4: Result for Heteroscedasticity and Serial Correlation tests. Source: Researcher (2018)

Lastly a test was conducted to examine the presence of heteroscedasticity using Bresuch Pagan Cook Weisberg test. The test results are presented in table 4. It was noted that heteroscedasticity was present (all $p < 0.000$) and Robust standard error was used in the model because of the presence of heteroscedasticity.

4.3 Panel Data Analysis

The results of descriptive statistics in the table below produced the mean, standard deviation, minimum and maximum for dependent variable of the return on equity of commercial banks from year 2013 to year 2016.

```
. xtsum roe
```

Variable		Mean	Std. Dev.	Min	Max	Observations	
roe	overall	.1104333	.145437	-.413611	.5184612	N =	124
	between		.1299842	-.2226925	.3983366	n =	31
	within		.0683237	-.1603493	.3737023	T =	4

Figure 4: Panel data analysis. Source: Researcher (2018)

In Figure 4, the mean value for return on equity [ROE] is 11.04333%. This means that the average return on equity over the 4-year period for all the commercial banks is 0.110433 while the minimum and maximum of overall return on equity [ROE] for commercial banks for the same period was -0413611 and 0.5184612 respectively. The standard deviation for return on equity for commercial banks over four years is 0.145437. The average return on equity for commercial bank out of the forty three commercial banks varied between 0.1299842and 0.0683237. The standard deviation between tells us the variation in individual commercial banks over time while the standard variation within gives the variation of return on equity for all commercial banks over the four-year period.

Since simple pooled regression models were found unfit in the previous section, panel data analysis became the preferred choice. This because panel data analysis (PDA) captures both time and cross-sectional effects. Using PDA exposed us to two choices either use fixed effects (FE) model or random effects (RE) model. The fixed effects model is used when panel specific effects are known to correlate with the predictor variables. The FE model enables us estimate the panel specific effects, in our case firm specific effects that influence return on equity. The FE model however has the disadvantage of reducing degrees of freedom especially if the number of panels is large and further time invariant variables are eliminated from the analysis. On the other hand, the RE model assumes that panel specific effect effects are random and uncorrelated to the predictors. This has an advantage in that time invariant variables can be included in the analysis. However, the RE model is inappropriate if the panel effects are correlated with the independent variables. To determine whether to use the RE or FE model, would requires us to test if the firm-specific effects are significantly correlated to the predictor variables. However, since the firm-specific effects are unknown, Hausman (1978) proposes a test that compares the coefficient estimates under the assumptions of RE versus the assumption of correlation panel specific effects. Thus to determine which of the approaches was apt for this study, the Hausman test was used. The outcome of the test are presented in Table 5. Below. The results indicate that the estimates were insignificant and therefore the random effects model was selected to be used in presenting the panel data analysis results for return on equity

Model	Dependent variable	Chi2(9)	Prob>Chi2
1	Return on Equity(ROE)	9.40	0.0.244

Table 5:Random effects model. Source: Researcher (2018)

4.6 Random Effects Model

According to the pre-diagnostic tests performed in the study on Hausman, the random effects model was selected.

```
. xtreg ln_roe2 ln_td2 ln_npl2 ln_op2, re vce(robust)


Random-effects GLS regression              Number of obs      =        106
Group variable: firm1                      Number of groups   =         31

R-sq:  within  = 0.0009                     Obs per group: min =          1
       between = 0.3355                                    avg =        3.4
       overall = 0.1305                                    max =          4

                                            Wald chi2(3)       =       3.90
corr(u_i, X)   = 0 (assumed)                Prob > chi2        =     0.2719
```

(Std. Err. adjusted for 31 clusters in firm1)

ln_roe2	Coef.	Robust Std. Err.	z	P>|z|	[95% Conf. Interval]	
ln_td2	.1413969	.1191759	1.19	0.235	-.0921836	.3749774
ln_npl2	-.1215596	.1440099	-0.84	0.399	-.4038138	.1606947
ln_op2	.1040724	.1307383	0.80	0.426	-.1521698	.3603147
_cons	-4.564984	1.61624	-2.82	0.005	-7.732757	-1.397211
sigma_u	.6513661					
sigma_e	.63446169					
rho	.51314445	(fraction of variance due to u_i)				

Figure 5:Random Effects Panel Regression on Return on Equity

The panel regression results presented in Figure 5 above indicates that the constant was -4.564, and that this value was significant at the 5% level. This implies that in the absence of the influence of the independent variables, the dependent variable is deemed to have a value of -4.564

The regression results indicate show a coefficient of 0.1413fortotal deposits, with a p value of 0.235. This implies that there was a statistically significant negative relationship between the total deposits and financial performance of commercial banks. Essentially, a 1% increase in total depositswould result to 14.13% increase in financial performance of commercial banks.

The regression results indicate show a coefficient of -0.1215 fornon-performing loans, with a p value of 0.399. This implies that there was a statistically significant negative relationship between the non-performing loans and financial performance of commercial banks. Essentially, a 1% increase in non-performing loans would result to 12.15% decrease in financial performance of commercial banks.

The coefficient of operating expenses of 0.1040745 was statistically insignificant at 5 percent level with p-value of 0.426 that is less than 0.05. The results indicate that there was an insignificant positive relationship between operating expenses and financial performance of commercial banks as measured by return on equity. Thus a 1% change in operating expenses would result to a 10.40% change in financial performance.

Equation (I) can therefore be rewritten as:

$Y = -4.564 + 0.1413X_1 - 0.1215X_2 + 0.1040X_3$…………………….…………. (ii) Where:

Y = Dependent Variable (Financial Performance)

-4.561= Constant (Level of Financial Performance when all independent variables are at zero)

-4.561 = Coefficient of X_3 (change in the dependent variable due to a unit change in X_3)

X_1 =   Total deposits

0.1413= Coefficient of X_1 (change in the dependent variable due to a unit change in X_1)

X_2 =   Non-performing loans

-0.1215 = Coefficient of X_2 (change in the dependent variable due to a unit change in X_2)

X_3 = Operating expenses

0.1040 = Coefficient of X_2 (change in the dependent variable due to a unit change in X_2

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This study sought to find out the factors affecting the financial performance of commercial banks in Kenya. Thus, this chapter represents the summary, recommendations, and conclusions of the previous four chapters more especially chapter two that conducted an in-depth analysis on the literature review of the chosen research topic. The recommendation that will be highlighted herein would include areas of further research. Recommendations involve the researcher's opinion. The summary provides an overview of the research finding. The conclusions involve the researcher's thoughts or opinions about the study.

5.2 Summary of Findings

5.2.1 Cost management system and financial performance of commercial banks in Kenya.

The study found out that cost management practices are a high determinant of financial performance of a bank. Cost management entails all practices that help reduce spending beyond the budget. The regression analysis of the study shows that operational costs as a measure of cost management has p (0.000) value <0.05 and significantly influenced financial performance positively. Hence, indicated that operational costs were a significant predictor of financial performance of commercial banks in Kenya. The estimate of coefficient value for operational cost is 0.1040, which indicates that financial performance of commercial banks is positively influenced by operating costs.

The study findings agree with the findings of Hunton (2002) who investigated the relationship between cost management system and organizational effectiveness. His study showed that there was strong relationship between cost control information and organizational effectiveness.

5.2.1 Risk management and financial performance of commercial banks in Kenya.

Risk management was the second study variable measured by non-performing loans. Risk management was considered as all processes of risk analysis, risk evaluation, risk avoidance, risk reduction, risk transfer and risk retention.

The study indicated that non-performing loans as a measure of risk had p (0.000) value <0.05 and significantly influenced financial performance negatively with a coefficient of

-0.1215596 which indicates that risk management systems was a significant predictor of financial performance of Commercial banks in Kenya. The estimate coefficient value indicated that financial performance of commercial banks was negatively influenced by risk management. The findings of the study concur with the comments of Porter (1996) that a proper link between risk management and financial sector operations is the key to developing sustainable competitive advantage that promotes improved financial performance.

5.2.3 Financial technology and financial performance of commercial banks in Kenya.

Financial Technology was the third variable measured in terms of total deposits. For an organization to achieve optimum financial performance the study found out that this can only be achieved through the incorporation of technology.

The study findings indicated that the calculated p value for financial technology was 0.426 which was < 0.05. Indicating that financial technology affected the financial performance of the commercial banks and hence, financial technology was not a significant

predictor of financial performance of commercial banks. The estimate coefficient value for financial technology was 0.1413which indicated that financial performance of commercial banks was positively influenced by financial technology.This concurs with the findings of Zhou, Chen and Cheng (2016) who investigated whether internal technological control and whether corporate life cycle would affect firm performance. They found that the financial technology improves organization's performance.

5.3 Conclusions of the Study

The results of the study indicated that cost management systems have an insignificant influence on the financial performance of commercial banks.Further continuous designing, implementing and monitoring their internal control system by line managers of the banks forms an integral part of the cost management process.

Secondly, the findings indicated that an increase in non-performing loans has a negative impact on the financial performance of commercial banks. That is to say, the level of non-performing loans has a direct and significant influence on the financial performance of commercial banks. This implies that risk management systems has a significant effect on the financial performance of commercial banks in Kenya.

Lastly, the results indicated that financial technology has a significant influence on the performance of commercial banks in Kenya. Financial technology has a positive impact on total deposits hence leading to better financial performance.

5.4 Limitations of the Research

Amengor (2010) contend that; the variability and the reliability of any academic paper in one-way or another enhanced only when the researcher acknowledges the limitations of the study. Though most banks publish their accounts, some were in a format that could not be accessed which forced the researcher to reduce the target population from 43 to 34

commercial banks. This took too long in some instances. Additionally, the researcher was also faced time constraints owing to the need to balance the project work and the job.

5.5 Areas of Further Study

The study advances various suggestions to other researcher who would be willing to carry out similar studies on the same research topic. This study only concentrated on Kenya yet the study factors affect commercial banks worldwide. The study thus suggests conducting similar studies in other geographical regions more particularly in other countries in order to test the reliability and validity of the findings of this study (Goddard et al., 2008).

Secondly, the study only made use of three variables (cost management, risk management systems and financial technology). Therefore, the study suggests to future researchers who might be interested in this area to include more variables. Furthermore, the study made use of return on equity to measure financial performance. The study therefore suggests that further studies in this area should make use of other measures of financial performance such as net interest margins and return on equity.

REFERENCES

Abernethy, M.A. and Bouwens, J. (2005), Determinants of accounting innovation implementation, *Abacus,* 41(3), 217-240.

Amengor, E. C. (2010). Importance of liquidity and capital adequacy to commercial banks. A Paper Presented at Induction Ceremony of ACCE, UCC Campus.

Agoraki, M. E. K., Delis, M. D., & Pasiouras, F. (2011). Regulations, competition and bank risk-taking in transition countries. *Journal of Financial Stability,* 7(1), 38-48.

Asongu, S. A. (2014). Knowledge economy and financial sector competition in African countries. *African Development Review*, 26(2), 333-346.

Ayanda A. M., Christopher E. I. and Mudashiru M. A. (2013). Determinants of banks' profitability in developing economy: evidence from Nigerian banking industry. Interdisciplinary Journal of contemporary research in business, 4(1): 55-181

Ayyagari, M., Demirgüç-Kunt, A., & Maksimovic, V. (2011). Firm innovation in emerging markets: the role of finance, governance, and competition. *Journal of Financial and Quantitative Analysis,* 46(6), 1545-1580.

Baines, A., & Langfield-Smith, K. (2003). Antecedents to management accounting change: a structural equation approach. *Accounting, organizations and society*, 28(7), 675-698.

Bracci, E., and Maran, L. (2012). The role and use of management accounting systems (MAS) in family firms: a case study, *Piccola Impresa/Small Business*, 3, 129-153.

Bratten, B., Gaynor, L. M., McDaniel, L., Montague, N. R., & Sierra, G. E. (2013).

The audit of fair values and other estimates: The effects of underlying environmental, task, and auditor-specific factors. Auditing:*A Journal of Practice & Theory,* 32(sp1), 7-44.

Cadez, S. and Guilding, C. (2012), Strategy, strategic management accounting and performance: a configurational analysis, *Industrial Management & Data Systems,* 112(3), 484-501.

Chenhall, R. H., & Euske, K. J. (2007). The role of management control systems in planned organizational change: An analysis of two organizations. *Accounting, Organizations and Society,* 32(7), 601-637.

Cho, J. and Dansereau, F. (2010). Are transformational leaders fair? A multi-level study of transformational leadership, justice perceptions, and organizational citizenship behaviors, *The Leadership Quarterly*, Vol. 21 No. 3, pp. 409-421.

Chung, S.-H., Su, Y.-F. and and Yu-Ju, S. (2012), Broad scope management accounting system and managerial performance: The impact of role ambiguity and functional difference, *African Journal of Business Management,* 6(30), 8873-8878.

Cinquini, L. and Tenucci, A. (2010), Strategic management accounting and business strategy: a loose coupling? *Journal of Accounting & Organizational Change,* 6(2), 228-259.

De Andres, P., & Vallelado, E. (2008). Corporate governance in banking: The role of the board of directors. *Journal of banking & finance,* 32(12), 2570-2580.

Drury, C. M. (2013). *Management and cost accounting.* London: Springer.

El-Hawary, D., Grais, W. and Iqbal, Z. (2007). Diversity in the regulation of Islamic financial institutions, *The Quarterly Review of Economics and Finance,* Vol. 46 No. 5, pp. 778-800.

Gerdin, J. & Greve, J. (2004). Forms of contingency fit in management accounting research – A critical review. *Accounting, Organizations and Society*, 29, 303-326.

Goddard, &.A Tillmann, K., (2008). Strategic management accounting and sense-making in a multinational company. Management accounting research, 19(1), 80-102.

Hammad, S. A., Jusoh, R. and Oon, E. Y. N. (2010), Management accounting system for hospitals: a research framework, *Industrial Management & Data Systems,* 110(5), 762-784.

Hausman, J. A. (1978). Specification tests in econometrics. *Econometrica: Journal of the econometric society*, 1251-1271.

Hill, G. C. (2009). The effect of frequent managerial turnover on organizational performance: A study of professional baseball managers. *The Social Science Journal,* 46(3), 557-570.

Hoque, Z. (2011). The relations among competition, delegation, management accounting systems change and performance: A path model, *Advances in Accounting,* 27(2), 266-277.

Hunton, J. E. (2002). Blending information and communication technology with accounting research. *Accounting Horizons,* 16(1), 55-67.

Hussain, H and Bhatti, G.A. (2010). Evidence on Structure Conduct Performance Hypothesis in Pakistani Commercial Banks. International Journal of Business and Management. 5(9): 174-187.

Jermias, J. and Gani, L. (2004), Integrating business strategy, organizational configurations and management accounting systems with business unit effectiveness: a fitness landscape approach, *Management Accounting Research,* 15(1), 179-200.

Kaplan, R. S., & Atkinson, A. A. (2015). Advanced management accounting. PHI Learning.

Kaplan, R. S. and Norton, D. P. (1992). The balanced scorecard–Measures that driveperformance. *Harvard Business Review*, Jan –Feb., 71-79.

Kithinji, A. M. (2010). *Credit risk management and profitability of commercial banks in Kenya.*Retrieved fromhttp://erepository.uonbi.ac.ke/bitstream/handle/11295/40437/aibuma2011-submission232.pdf?sequence=1

Koech, C. S. and Makori, M. (2014). Effects of Innovation Orientation on Financial

    Performance of Commercial Banks in Kenya: A Case of National Bank of Kenya.

    European Journal of Business Management, Vol. 2(1).

Laitinen, E. K. (2008), A portfolio approach to develop a theory of future management

    accounting systems, *EuroMed Journal of Business,* 3(1), 23-37.

Macit, F. (2011). Bank Specific and Macroeconomic Determinants of Profitability: Evidence

    from Participation Banks in Turkey. Economics Bulletin, 32(1).

McManus, L. (2013). Customer accounting and marketing performance measures in the hotel

    industry: Evidence from Australia. *International Journal of Hospitality Management*,

    33, 140-152.

Mia, L. and Patiar, A. (2001). The use of management accounting systems in hotels: an

    exploratory study*, International Journal of Hospitality Management, 20(2), 111-128.*

Mondy, R. W. (1990). *Lecture Notes and Experimental Exercises for Management and*

    Organizational Behavior. Allyn and Bacon.

Muiruri, J.K. and Ngari, J.M. (2014). Effects of Financial Innovations on the Financial

    Performance of Commercial Banks in Kenya. *International Journal of Humanities*

    and Social Science, Vol. 4, No.7.

Murphy, K. J., & Zimmerman, J. L. (1993). Financial performance surrounding CEO

    turnover. *Journal of Accounting and Economics,* 16(1-3), 273-315.

Mustapha, M., & Che Ahmad, A. (2011). Agency theory and managerial ownership: evidence

    from Malaysia. *Managerial Auditing Journal,* 26(5), 419-436.

Onaolapo, A. A., & Odetayo, T. A. (2012). Effect of Accounting Information System on

    Organisational Effectiveness: A Case Study of Selected Construction Companies in

    Ibadan, Nigeria. *American Journal of Business and Management*, 1(4), 183-189.

Ongore, V.O and Kusa, G.M (2013), Determinants of Financial Performance of Commercial Banks in Kenya, International Journal of Economics and Financial Issues, 3(1): 237252

Parasuraman, A. and Colby, C.L. (2001).*Techno-Ready Marketing: How and Why Your Customers Adopt Technology*. Free Press: New York, NY.

Porter, T. M. (1996). *Trust in numbers: The pursuit of objectivity in science and public life*. New Jersey: Princeton University Press.

Ryan, G., Spencer, L.M. and Bernhard, U. (2012). Development and validation of a customized competency-based questionnaire: linking social, emotional, and cognitive competencies to business unit profitability, Cross Cultural Management: *An International Journal,* Vol. 19 No. 1,pp. 90-103.

Santos, L. L., Gomes, C. and Arroteia, N. (2012). Management Accounting Practices in the Portuguese Lodging Industry, *Journal of Modern Accounting and Auditing*, 8(1), 1-14.

Shields, M. D. (1997). Research in management accounting by North Americans in the 1990s. *Journal of management accounting research*, 9, 3.

Singh, R., Garg, S. and Deshmukh, S.G. (2010), Strategy development by small-scale industries in India, *Industrial Management & Data Systems,* 110(7), 1073-93.

Sinkey, J.F. (2002). *Commercial Bank Financial Management: In the Financial-services Industry,* 6th ed, Prentice-Hall, Upper Saddle River, NJ.

Swarnapali, R.M.N.C. (2014) Firm Specific Determinants and Financial Performance of Licensed Commercial Banks in Sri Lanka, Proceedings of the 3rd International Conference on Management and Economics, 26-27 February 2014, Faculty of Management and Finance, University of Ruhuna, Sri Lanka Retrieved on 24 July 2014 from http://www.mgt.ruh.ac.lk/pubs/pdf/ICME2014_OP_p247.pdf

Tomal, D.R. and Jones, K.J. (2015). A comparison of core competencies of women and men leaders in the manufacturing industry, *The Coastal Business Journal,* Vol. 14 No. 1, pp. 13-25.

Van de Ven, A. H., Ganco, M., & Hinings, C. R. (2013). Returning to the frontier of contingency theory of organizational and institutional designs. *The Academy of Management Annals,* 7(1), 393-440.

Wang, C. H., Chen, K. Y., & Chen, S. C. (2012). Total quality management, market orientation and hotel performance: The moderating effects of external environmental factors. *International Journal of Hospitality Management,* 31(1), 119-129.

Waweru, M.N., Hoque, Z., & Uliana, E. (2004). Management accounting change in South Africa: case studies from retail services. *Accounting, Auditing & Accountability Journal,* 17(5), 675-704.

Williams, J. J. and Seaman, A. E. (2001), Predicting change in management accounting system: national culture and industry effects, *Accounting, Organization and Society,* 26(1), 443-460.

Woodward, J. (1980). Industrial organization: Theory and practice. (2nd ed.). New York: Oxford University Press.

Zhou, H., Chen, H., & Cheng, Z. (2016). *Internal Control, Corporate Life Cycle, and Firm Performance. In The Political Economy of Chinese Finance (pp. 189-209).* Emerald Group Publishing Limited.https://www.researchgate.net/publication/322572245_Financial_Inclusion_Bank_Competitiveness_and_Credit_Risk_of_Commercial_Banks_in_Kenya

E. Diniz et al. / Electronic Commerce Research and Applications 11 (2012) 484–494

Munga, Geoffrey Nderitu. "The Impact of Mobile Banking: A Case Study of M-Pesa in the

Kenyan Society." *Unpublished MBA project, School of Business, University of*

Nairobi (2010).

Table 6: Estimated cost of the research

No	Activity	Cost
1	Proposal writing	10,000
2	Literature review (travel costs and photocopying) Typing, printing, photocopying and binding	10,000
3	Data collection	30,000
4	Data Analysis	5,000
5	Research Reports writing	5,000
6	Compilation and editing	10, 000
7	Transport, stationary & telephone costs and travel costs	20,000
	Grand Total	90,000

Table 7: Work Plan

Activity	March	July	August-Sept	Sept-Dec
Identification of supervisors and Proposal Writing	▓			
Proposal Presentation		▓		
Review of changes/ recommendations to proposal			▓	
Data collection and analysis			▓	
Presentation/ Defense of project				▓
Graduation				▓