

**THE DETERMINANTS OF COMMERCIAL BANKS PROFITABILITY IN
KENYA (1983-2012)**

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**A RESEARCH PAPER SUBMITTED TO THE SCHOOL OF ECONOMICS,
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DECLARATION

This research paper is my original work and has not been submitted for any award in any other university.

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DEDICATION

This research paper is dedicated to my loving mother, Ms Sylvia Mbuya. You gave me the drive and discipline to handle any hustles in life with enthusiasm and determination.

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LIST OF ABBREVIATIONS

ASQ - Asset Quality

CAMEL – Capital adequacy; Asset quality; Management cost; Efficiency; and Liquidity

CAP - Capital Adequacy

CBK - Central Bank of Kenya

CEF - Cost Efficiency

ES - Efficiency Structure

GDP - Gross Domestic Product

KNBS - Kenya National Bureau of Statistics

LIM - Liquidity Management

MP - Market Power

NPL - Non-Performing Loans

OLS-Ordinary Least Squares

RMP - Relative Market Power

ROA - Return on Assets

ROE - Return on Equity

SCP - Structure Conduct Performance

SEE - South Eastern Europe

ABSTRACT

This research paper examines some of the key determinants of commercial banks' profitability in Kenya. The first objective of the study was to determine the effects of bank-specific factors on the profitability of commercial banks in Kenya. The second objective was to determine the effects of macroeconomic factors on profitability of commercial banks in Kenya. The study employed a time series data analysis technique to achieve the above objectives. The study used data from annual Bank Survey Reports from CBK and Economic Survey Reports from KNBS for the period 1983 to 2012. A multiple linear regression model was employed to obtain the desired results. The analysis showed that both bank-specific factors and macroeconomic factors have statistically significant impact on profitability. Based on the results and findings, the study recommends policies that would encourage capitalization of banks, reduce costs of their operations, and minimize on the credit risk and liquidity holding while harmonizing the long term effects of the macroeconomic factors. The study therefore, provides additional knowledge about Kenyan commercial banking sector profitability that is important for policy making.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Bank profitability plays an important role in both the developed and underdeveloped economies in terms of giving financial means as well as advice. Therefore, impressive profit figures not only persuade depositors to supply their funds but also help reassure stakeholders. Hence, bank managers' main objective is to maximize profits, as an essential business rule.

In studying bank profitability, appraisal can be done at both micro and macro levels within the economy (Aburime, 2009). At micro level, profit is the essential prerequisite of a competitive banking institution and the cheapest source of funds. While at macro level, a sound and profitable banking sector is better able to withstand negative shocks and contribute to the stability of the financial system. Due to the importance of bank profitability at the micro and macro levels, both researchers, academics, bank managers and regulatory authorities have been pushed to develop considerable interest on the factors that determine profitability in the banking sector.

The approach assumes that profitability is explained by both bank-specific factors like capital adequacy, asset quality, liquidity management and cost efficiency; and by macroeconomics factors like economic growth, real interest rates and inflation. These will form the basis for analysis of profitability of commercial banks in the Kenyan context.

Kenya's banking sector has evolved over time. The inherent weaknesses in the banking system became apparent in the late 1980's and manifested themselves in the form of a controlled and fragmented financial system, differences in regulations governing banking and non-financial intermediaries, lack of autonomy, weak supervisory capacity of the commercial banks and weak government policies which contributed to accumulation of non-performing loans, loss of control over money supply by the Central Bank and non-

compliance by financial institutions to regulatory requirements of the banking act of 1989 among other factors (CBK, 2001).

In the early 1990's, the government embarked on reforms designed to promote a more efficient and market oriented financial system; improve mobilization, allocation and utilization of financial resources; increase efficiency of the process of financial intermediation; and develop more flexible instruments of monetary policy. These reform programs focused on the policy, legal and institutional framework of the sector (Kamau, 2009).

Liberalization of the financial sector in Kenya has led to tremendous changes. It ushered in stiff competition from SMFIs and SACCOs which opened front-office operations providing services very much similar to those of the commercial banks and NBFIs while some also converting to commercial banks.

Financial crisis of the 2000-2003 affected the banking profitability due to poor performance and dwindling lending opportunities. Banks were forced to diversify to non-balance sheet based income streams. Attracting these forms of incomes requires banks to take deliberate strategic initiatives towards improvement of the product/service range and delivery channels. These reforms may have been responsible for the improved performance in the post 2002 period.

This project proposal was initiated by a series of questions: Why are some commercial banks more profitable than others? To what extent are discrepancies in bank's profitability due to variation in internal factors within the control of bank's management and to what extent do macroeconomic factors impact the financial performance of these banks? Answers to these questions would be helpful in identifying the factors determining the success of commercial banks in Kenya and to help formulate policies that will improve performance for the banking sector.

The approach assumes that profitability is explained by both bank-specific factors like capital adequacy, asset quality, liquidity management, cost efficiency, income diversification; and by macroeconomics factors like economic growth, and inflation. These will form the basis of analysis of profitability of commercial banks within the Kenyan context.

1.1.1 Structure Performance of the Kenyan Banking Sector since 1980s to 2012

The structure of the Kenyan banking system has significantly changed since the late nineties. The transformation of the banking system came up as a respond to the rapidly changing international economic environment and the rising needs for financing. The necessity to adjust the banking legislation by the Central Bank of Kenya (CBK) has led in general to the liberalization of the Kenya's banking system, and in particular to the abolition of several types of subsidies in the provisions of financial services. This development led the entrance of new commercial banks both under local and foreign ownership.

The banking sector in Kenya comprised the Central Bank of Kenya, as the regulatory authority, Commercial Banks, Non-Bank Financial Institutions, Forex Bureaus and Deposit Taking Microfinance Institutions as the regulated entities. Our main focus will be on the commercial banks. The sector consists of 43 commercial banks; 3 of which are locally owned; 27 are privately owned; and 13 are under foreign ownership CBK (2010).

The locally owned commercial banks dominated the sector by accounting for 69.8 percent of the industry's total assets; the 13 foreign owned banks accounted for 30.2 percent as at the end of year 2010 as shown in table 1.1

Table 1.1: Ownership structure and Asset Base of the Financial Institutions (Kshs. Million)

Ownership	Number	%	Total Net Assets	%
Local Public Commercial Banks	3	7.0	81,155	4.8
Local Private Commercial Banks	27	62.8	973,404	58.0
Foreign Commercial Banks	13	30.2	623,553	37.2
Total	43	100.0	1,678,112	100.0

Source: CBK

Kenyan banking sector since the year 2000 has experienced growth in various key fronts including increase in the number of service providers, advancements in technology which facilitated service-delivery channels, geographical expansion by service providers both within Kenya and regionally and greater product differentiation resulting in niche market growth, among others. These improvements mark an important stage along the path towards a more efficient, stable and accessible banking system.

In the year 1999 the total net assets of the banking sector was 417.9 billion and 434.5 billion in 2000 Bank Supervision Report (2000). This has however, increased in the last half decade to 951 billion in 2007, 1.18 trillion in 2008, 1.24 trillion in 2009 and 1.35 trillion in 2010 Bank Supervision Report (2008, 2010). The amendment of the Banking Act 2008 to raise the minimum core capital to Kshs. 1 billion by the end of 2012 was aimed at ensuring banks were capitalized to weather any periodic local and global turbulence.

Analysis of the profit and loss accounts of the banking sector in Kenya CBK (2010) indicates that a strong level of revenue stream supported by high credit growth has seen the sector record a substantial increase in the pretax profits. In 1999 the pretax profit of

the sector was 0.2 billion and 2.8 billion in 2000. The have however, more than tripled in the last decade to levels of 35.6 billion in 2007, 43.3 billion in 2008, 48.9 billion in 2009 and 74.2 billion in 2010.

Generally, the banking sector in Kenya has remained stable and registered enhanced performance both in structure and profitability. This has been supported by robust domestic and global economy, regional expansion, adoption of modern technology and implementation of various legal policies among others.

1.1.2. Bank Branches and Automated Teller Machines (ATMs)

Branch Network

Banks branches have continuously expanded their branches throughout the entire period of the study. As at end year 2001 there were 465 branches across the country. This increased by more than 100 percent in the last decade. By the end of year 2009 there were 996 branches and at the end of 2010 there branches increased to 1063. The increase has created by the need to enhance and facilitate inclusion by the Kenyan populace.

Table 1.2: Branch Network per Province

Province	1985	1996	2001	2009	2010	Growth %
Central	37	53	69	106	115	8.0
Coast	42	57	69	126	135	7.0
Eastern	17	23	35	90	91	1.0
Nairobi	149	174	192	395	411	4.0
N. Eastern	2	3	4	15	18	20.0
Nyanza	24	33	40	69	70	1.0
Rift valley	48	62	67	156	175	12.0
Western	11	14	18	39	48	23.0
TOTAL	330	420	494	996	1063	7.0

Source: CBK

ATM Network

Banks have also continued to make use of the ATM to expand provision of their services in a more effective manner. As a result the number of ATMs increased by 262 representing a growth Of 15.3 percent from 1717 in the year 2009 to 1979 in 2010 as shown in table 1.2.

Table 1.3 ATM Network

Province	1985	1996	2009	2010	Increase	Growth %
January	409	733	1325	1730	405	30.6
February	418	748	1426	1755	329	23.1
March	420	769	1497	1777	280	18.7
April	420	789	1497	1794	291	19.8
May	422	811	1497	1828	331	22.1
June	427	815	1586	1831	245	15.4
July	438	816	1589	1861	272	17.1
August	441	822	1589	1883	294	18.5
September	463	827	1614	1903	299	18.5
October	481	831	1646	1925	279	17.0
November	490	840	1697	1940	243	14.3
December	529	844	1717	1979	262	15.3
		Figures excludes 112 Pesa Point ATMs				

Source: CBK

1.1.3. Technology and Banking in Kenya Today

New Product:

In an effort to enhance customer service, the banking industry introduced new products in the course of the year, mainly relating to Sharia compliant banking, mobile phone banking and internet banking. The introduction of these new products was driven by increased customer awareness and demand as well as the increasingly vibrant nature of competition in the sector. With the advancement in technology, public awareness and ease of use, e-banking has evolved to become the preferred mode of banking rather than as an alternative channel. It is expected that the products launched will play a significant role in expanding access to affordable financial services by the general public as well as reduction in banking costs to the banks' customers. (CBK 2010)

Mobile Banking

In 2010 mobile solution became the basis of payment solution for most of the banks. As a result, a number of banks continued to sign up partnerships with money transfer service providers as they improve their banking-on-the-move menus. In only four years of existence of mobile phone money transfer services, four mobile operators have enrolled over 15 million customers. Some of the commonly used mobile banking services launched during the year include; M-Shwari, Mobicash, Orange money, Yu-cash, Elma, Pesa-Pap, Pesa-Connect among others, with M-Pesa being the most widely used method of mobile money transfer with about 305.7 million transactions effected and valued at Ksh. 727.8 billion in the year.

Internet Banking

Banks continued to embrace the use of the Internet as a remote delivery channel for banking services. The most common online services include; viewing of accounts, inquiries and requests, salary payments, clearing cheques status query, instant alerts of account status and transfer of funds CBK (2012)

Generally, the banking sector in Kenya has remained stable and registered enhanced performance both in structure and profitability. This has been supported by robust domestic and global economy, regional expansion, adoption of modern technology and implementation of various legal policies among others.

1.2 Problem Statement and Study Background

During the great depression of the 1940s' USA experienced a series of bank failures and the poor performance of the financial markets in the Sub-Saharan Africa prompted considerable attention to bank performance. In addition, recent global financial crisis of 2007/2009 also demonstrated the importance of bank performance both in locally and internationally and, hence, the need to keep it under surveillance at all times. The importance of banks is more pronounced in developing countries because financial markets are usually underdeveloped, and banks are typically the only major source of finance for the majority of firms and are usually the main depository of economic savings.

African banks have not been widely studied and it is therefore, difficult to inform policy on readily efficient banks in the continent without sufficient data. The few studies that have been done in Kenya have come to a conclusion that more data was required on its banking system to inform policy and that more understanding of sector's performance was important.

There are many aspects of the performance of commercial banks that can be analyzed. This study focuses on the determinant of profitability of commercial banks in Kenya. It has also been observed that the importance of bank profitability can be appraised at the micro and macro levels of the economy. At the micro level, profit is the essential prerequisite of a competitive banking institution and the cheapest source of funds. It is not merely a result, but also a necessity for successful banking in a period of growing competition on financial markets. Hence the basic aim of every bank management is to maximize profit, as an essential requirement for conducting business.

At the macro level, a sound and profitable banking sector is better able to withstand negative shocks and contribute to the stability of the financial system. Bank profits provide an important source of equity especially if re-invested into the business. This should lead to safe banks, and as such high profits could promote financial stability (Flamini *et al*, 2009). However, too high profitability is not necessarily good. Other studies have observed that too high profitability could be indicative of market power, especially by large banks. This may hamper financial intermediation because banks exercising strong market power may offer lower returns on deposit but charge high interest rates on loans. Too low profitability, in turn, might discourage private agents (depositors and shareholders) from conducting banking activities thus resulting in banks failing to attract enough capital to operate. Furthermore, this could imply that only poorly capitalized banks intermediate savings with the corresponding costs for sustainable economic growth.

The banking environment in Kenya has, for the past decade, undergone many regulatory and financial reforms. These reforms have brought about many structural changes in the sector and have also encouraged foreign banks to enter and expand their operations in the country (Kamau, 2009). Kenya's financial sector is largely bank-based as the capital market is still considered narrow and shallow (Ngugi *et al*, 2006). Banks dominate the financial sector in Kenya and as such the process of financial intermediation in the country depends heavily on commercial banks (Kamau, 2009). In fact Oloo (2009) describes the banking sector in Kenya as the bond that holds the country's economy together. Sectors such as the agricultural and manufacturing virtually depend on the banking sector for their very survival and growth. The performance of the banking industry in the Kenya has improved tremendously over the last ten years, as only two banks have been put under CBK statutory management during this period compared to 37 bank-failures between 1986 and 1998 (Mwega, 2009).

The overall profitability of the banking sector in Kenya has improved tremendously over the last 10 years. However despite the overall good picture a critical analysis indicates that, not all banks are profitable. For example the small and medium financial institutions which constitute about 57 % of the banking sector posted a combined loss before tax, of Ksh 0.09 billion in 2009 compared to a profit before tax of Ksh 49.01 billion posted by the big financial institutions (CBK, 2009). The huge profitability enjoyed by the large banks vis-a-vis the small and a medium bank indicates that there are some significant factors that influence the profitability of commercial banks. Several studies have shown that bank profitability is influenced by bank-specific factors and industry specific factors. However, these studies were based on data from other countries and their findings may not be applied to the local banking sector. Locally, to the researcher's knowledge, no studies have been done on the determinants of the commercial bank's profitability. The aim of this study then is to close this gap in knowledge by empirically evaluating the determinants of profitability, within the banking sector for commercial banks in Kenya.

1.3 Research Objectives

The general objective of this study is to analyze the determinants of commercial banks profitability in Kenya. Specific objectives derived from the general objective of the study are:

- i) To determine the effects of bank-specific factors on the profitability commercial banks in Kenya.
- ii) To determine the effects of macroeconomic factors on the profitability of commercial banks in Kenya

1.4 Research Questions

This research paper was initiated by a series of questions; the answers to these questions would be helpful in identifying the determinants of successful Kenyan commercial banks in order to formulate policies for improved profitability of these institutions. The questions are:

- i) To what extent are discrepancies in bank's profitability due to variation in bank-specific factors under the control of bank management?
- ii) To what extent, do macroeconomic factors impact the profitability performance of these banks?

1.5 Justification of the Study

Empirical evidence clearly shows that studies focusing on Kenya's bank profitability and performance are still scanty and limited. Even those which have been carried out point to a need for further investigation of the factors that have affect performance in the sub-region, notwithstanding the reforms. Most of the evidence in regard to commercial banks' performance largely focus on the developed economies environments and the conclusions of may not be useful for Kenya's financial sector planning. According to literature, the studies on commercial banks' profitability would provide more elaborate and current information that is important for policy for the sector and also scholarly literature.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction to Literature Review

According to previous studies, bank profitability, typically measured by the return on assets (ROA) and/or the return on equity (ROE), is usually expressed as a function of internal and external determinants. Internal determinants are factors that are mainly influenced by a bank's management decisions and policy objectives. Such profitability determinants are the level of liquidity, asset quality, capital adequacy, cost efficiency and bank size. On the other hand, the external determinants, mainly macroeconomic, are variables that reflect the economic and legal environment where the credit institution operates. These external determinants include economic growth, inflation and interest rates.

The review of literature has revealed that bank profitability can be influenced by both bank-specific factors and macroeconomic factors. Bank-specific factors are those factors within the direct control of managers and can be best explained by the CAMEL framework, while macroeconomic factors include inflation, economic growth and interest rates.

The review of literature also revealed that the multiple linear regressions method is the most used in modeling the relationship between bank profitability and its factors. The relevant interrelationships among bank-specific factors and macroeconomic factors and their impact on bank profitability, as revealed by the reviewed of literature, and are depicted in the conceptual framework (Figure 3.1).

Finally, it is clear from the review of literature that few local studies have been dedicated on this particular area of bank profitability and that studies that have attempted to do so have tended to study each factor of performance to the exclusion of other factors.

2.2 Empirical Evidence

In trying to understand commercial banks' performance in Kenya like Sub-Saharan Africa, Europe and USA, studies on profitability have largely focused on returns on bank assets or equity (ROA). Traditionally, the impact on banks' performance has been measured by bank-specific factors such as capital adequacy, credit risk, liquidity risk, market power and regulatory costs. However, more recently, research seems to have focused on the impact of macroeconomic factors on banks' performance. In all these studies, the literature reveals that Kenya has been less studied and therefore would require more information on banking sector for better planning. This study is, therefore, an attempt to address the gap of knowledge on Kenyan banking sector.

In investigating bank profitability, Demircuc-Kunt and Huizinga, (2000) applied linear models to explain bank performance. Linear models have however been criticized for employing inconsistent variables and generating inefficient results.

A study done in SSA show that bank profitability can also be looked at a function of both internal and external factors (Panayiotis *et al.* 2006). Internal factors include bank-specific factors; while external factors include macroeconomic factors. In this literature, four standard key bank-specific indicators are used to determine bank profitability namely - capital adequacy; asset quality; operational cost efficiency; and bank size. Industry-specific factors include macroeconomic factors such as inflation, interest rate, per-capita income and growth in GDP. This study also discovered that bank profitability persist to a moderate extent which suggests that departures from perfectly competitive market structures may not be large. The study further shows that all bank-specific determinants, with the exception of size, influence bank performance in the anticipated way. Extending a similar study to Kenya, therefore, generates comparative results.

A study of Bahrain's commercial banks performance during 1994-2001 by (Samad, 2004) showed that commercial banks' liquidity performance is not at par with the banking industry. The student t-statistics also showed that commercial banks are

relatively less profitable, less liquid and more exposed. The study employed ten financial ratios for measuring credit, liquidity and profitability performances.

A study to investigate the determinants of bank profitability in Nigeria revealed that real interest rates, inflation, monetary policy, and exchange rate regime are significant macroeconomic determinants of bank profitability (Toni, 2008). The study employed a panel data set comprising 1255 observations of 154 banks over the 1980-2006 period and macroeconomic indices over the same period. According to the findings banking sector development, stock market development, and financial structure are insignificant; and the relationship between corporate tax policy and bank profitability in Nigeria is inconclusive.

Evidence from Tunisia reveals that high net interest margin and profitability tend to be associated with banks that hold a relatively high amount of capital and with large overheads (Naceur and Goaid, 2010). This study investigated the impact of banks' characteristics, financial structure and macroeconomic indicators on banks' net interest margins and profitability in the Tunisian banking industry for the 1980-2000 periods. Individual bank characteristics explain a substantial part of the within-country variation in bank interest margins and net profitability.

2.3 Bank Specific Determinants and Their Effects on Profitability

2.3.1 Capital Adequacy

According to (Kosmidou, 2009), Capital adequacy refers to the sufficiency of the amount of equity to absorb any shocks that the bank may experience. The capital structure of banks is highly regulated because capital plays a crucial role in reducing the number of bank failures and losses to depositors when a bank fails, as highly leveraged firms are likely to take excessive risk in order to maximize shareholder value at the expense of finance providers (Kamau, 2009). In Kenya, capital adequacy is measured by the ratio of total capital to total risk weighted assets at the minimum regulatory requirement of 12.0

percent. This ratio improved from 21.0 percent in 2009 to 22.0 percent in December 2010. This was as a result of a higher increase in total capital brought about by fresh capital injection and retention of profits that more than offset the increase in risk weighted assets. This trend has been sustained since 2007 (CBK, 2010)

There are several reasons to believe that a better capitalized bank should be more profitable. This can be attributed to the fact that capital acts as a safety net when it comes to banks' developments (Athanasoglou *et al*, 2008). The positive relationship is key when it comes to financing of a bank's assets due to the more favorable interest rates, hence increase in profitability and managing the cost of equity. According to (Berger, 1995) in his expected bankruptcy-costs hypothesis, a bank with capital ratio below its equilibrium ratio, expected bankruptcy costs are relatively high and an increase in capital ratios raises expected profits by lowering interest expenses on uninsured debt. In the theory of Signaling Hypothesis, (Berger, 1995) find a positive relationship between capital and profitability. This theory suggests that the bank management signals private information that future prospects are good by increasing capital.

The Basel Accord which requires banks to hold a minimum level of capital as a percentage of risk-weighted assets is another interpretation. Higher levels of capital may therefore denote banks with riskier assets, which translate, in turn, to higher revenues that increase the profitability of the bank. Most studies are in agreement that statutory capital requirement is important in reducing moral hazards; however, the debate is on how much of the capital is enough. Bank regulators opt to have the higher minimum requirements to cut-on case of bank failures, while bank management or bankers in general prefer a lower requirements as this will enhance their competitiveness as well as enable them obtain additional equity cheaply. Beckmann (2007) argue that high capital lead leads to low profits since banks with a high capital ratio are risk-averse, they ignore potential [risky] investment opportunities and, as a result, investors demand a lower return on their capital in exchange for lower risk.

On the contrary, in emerging economies where external borrowing is difficult and capital is expensive in terms of the expected returns, highly capitalized banks face lower cost of bankruptcy and lower need for external funding (Gavila *et al.*, 2009). Using a sample of 10 Tunisian banks from 1980 to 2000 and a panel linear regression model, (Neceur, 2003) and (Sufian and Chong, 2008) after examining the impact of capital on the performance of banks in Philippines from 1990 to 2005, reported a strong positive impact of capitalization on ROA. The banking sector in Kenya provides an interesting case to examine the impact of capital because the minimum statutory requirement has been upgraded to Kshs 1 billion in 2012. Capital adequacy is divided into Tier I and Tier II. Tier I capital is primary capital and Tier II capital is supplementary capital, but this study will focus on total equity of the banks as opposed to the minimum requirements.

2.3.2 Assets Quality

There seems to be a general agreement that profitability is directly related to the quality of the assets on a bank's balance sheet. It means that poor credit quality has a negative effect on bank profitability and vice versa. This relation exists because an increase in the doubtful assets, which do not accrue income, requires a bank to allocate a significant portion of its gross margin to provisions to cover expected credit losses; thus, profitability will be lower. Therefore, the evolution of the impairment losses on loans and receivables explains a large part of the profitability of both commercial and savings banks (Athanasoglou *et al.* 2008).

Credit risk, which is the quality of assets held by an individual bank, is one of the factors that affect the health of an individual bank. The quality of assets held by a bank depends on exposure to specific risks, trends in non-performing loans, and the health and profitability of bank borrowers Baral (2005). Aburime (2008) asserts that the profitability of a bank depends on its ability to foresee, avoid and monitor risks, possibly to cover losses brought about by risks arisen. Hence, in making decisions on the allocation of resources to asset deals, a bank must take into account the level of risk to the assets.

Poor asset quality and low levels of liquidity are the two major causes of bank failures. Poor asset quality led to many bank failures in Kenya in the early 1980s. During that period 37 banks collapsed following the banking crises of 1986-1989, 1993-1994 and 1998 Mweha (2009).

According to Waweru and Kalani (2009) many of the financial institutions that collapse in 1986 failed due to non-performing loans (NPLs) and that most of the larger bank-failures, involved extensive insider lending, often to politicians. The CBK measures asset quality by the ratio of net non-performing loans to gross loans. A good measure of credit risk or asset quality is the ratio of loan loss reserve to gross loans because it captures the expectation of management with regard to the performance of loans. Hempel *et al* (1994) observed that banks with high loan growth often assume more risk as credit analysis and review procedures are less rigorous, however returns are high in such loans indicating a risk and return trade-off.

Kosmidou (2008) applied a linear regression model on Greece 23 commercial banks data for 1990 to 2002, using ROA and the ratio of loan loss reserve to gross loans to proxy profitability and asset quality respectively. The results showed a negative significant impact of asset quality to bank profitability. This was in line with the theory that increased exposure to credit risk is normally associated with decreased firm profitability. Indicating that banks would improve profitability by improving screening and monitoring of credit risk.

2.3.3 Liquidity Management

Liquidity is risk arising from the possible inability of a bank to accommodate decreases in liabilities or to fund increases on the assets' side of the balance sheet. The loans market, especially credit to households and firms, is risky and has a greater expected return than other bank assets, such as government securities. Thus, one would expect a positive relationship between liquidity and profitability (Bourke, 1989). On the other

hand, however, it could be that the lower the funds held up in liquid investments the higher the level of expected profitability (Eichengreen and Gibson, 2001).

Changes in credit risk may reflect changes in the health of a bank's loan portfolio which may affect the performance of the institution. (Duca *et al*,1990), among others, conclude that variations in bank profitability are largely attributable to variations in credit risk, since increased exposure to credit risk is normally associated with decreased firm profitability. According to (Miller and Noulas, 1997) quality of loans made determines bank's credit risk such that the more financial institutions are exposed to high-risk loans, the higher the accumulation of unpaid loans and the lower the profitability.

An important decision that the managers of commercial banks take refers to the liquidity management and specifically to the measurement of their needs related to the process of deposits and loans. The importance of liquidity goes beyond the individual bank as a liquidity shortfall at an individual bank can have systemic repercussions (CBK, 2009). It is argued that when banks hold high liquidity, they do so at the opportunity cost of some investment, which could generate high returns (Kamau, 2009). The trade-offs that generally exist between return and liquidity risk are demonstrated by observing that a shift from short term securities to long term securities or loans raises a bank's return but also increases its liquidity risks and the inverse is true. Thus a high liquidity ratio indicates a less risky and less profitable bank. Hence, bankers are faced with the dilemma of liquidity and profitability. Some studies emphasized the adverse effect of increased liquidity for financial institutions stating that, although more liquid assets increase the ability to raise cash on short-notice, they also reduce management's ability to commit credibly to an investment strategy that protects investors which, finally, can result in reduction of the firm's capacity to raise external finance (Uzhegova, 2010).

In Kenya the statutory minimum liquidity requirement is 20%. However, according to (CBK, 2010), the average liquidity ratio for the sector was 41.9% in 2012, 40.4% in 2010, 39.8% in 2009, 37.0 % in 2008, and way above the minimum requirements. This

has baffled many financial analysts as to how could banks withhold such amount of cash in a credit needy economy such as Kenya (Kamau, 2009). The CBK attributes this to the banking industry's preference to invest in the less risky government securities; (Kamau, 2009) attributes this liquidity problem to the restrictions placed on commercial banks at the discount window, coupled with thin interbank market, a high reserve requirement and preference of government securities. Thus given the above foregoing analysis, the given Kenyan banking sector provides an interesting case to assess the effects of liquidity on profitability.

2.3.4 Cost Efficiency

Since the early 1990s, advances in information, communications and financial technologies have allowed banks to perform many of their traditional services more efficiently. Consequently, the cost-to-income ratio, a proxy for cost efficiency, has been declining almost everywhere to different degrees (Albertazzi and Gambacorta, 2009), meaning that banks have lower expenses for a given level of output. Therefore most studies suggest a positive and highly significant effect of efficiency on profitability. This relation would imply that operational efficiency is a prerequisite for improving the profitability of the banking system, with the most profitable banks having the lowest efficiency ratios. On the other hand, (Berger, 1994) noted that managerial ability in controlling costs (the so-called X-efficiency) is much more important than economies of scale are on average and is consistently associated with higher profits. Banks however, may have costs higher than the industry's minimum for the same scale and product mix because of poor management. Therefore, this study will aim to examine whether there exists a direct relationship between efficiency and profitability in the Kenyan banking system.

Poor expenses management is the main contributors to poor profitability (Sufian and Chong 2008). In the literature on bank performance, operational expense efficiency is usually used to assess managerial efficiency in banks. (Mathuva, 2009) observed that the CIR of local banks is high when compared to other countries and thus there is need for

local banks to reduce their operational costs to be competitive globally. Overheads are one of the most important components of the high interests rate spreads. An analysis of the overheads showed that they were driven by staff wage costs which were comparatively higher than other banks in the SSA countries.

2.4 Macroeconomic Determinants and Their Effects on Profitability

Macroeconomic determinants of bank profitability are those characteristics of a macro-economy that affect the profitability of the banks operating within it. They vary in their respective levels of significance from one economy to another and cannot be directly controlled by individual shareholder and managerial decisions and activities. In the literature, macroeconomic determinants of bank profitability include economic growth (GDP), inflation and interest rates which will provide theoretical backup for the explanatory variables that are included in the empirical estimations outlined in this paper.

2.4.1 Economic growth (GDP)

Bad economic conditions can worsen the quality of the loan portfolio generating credit losses and increasing the provisions banks need to hold, thus reducing bank profitability. In contrast, an improvement in economic conditions, in addition to improving the solvency of borrowers, increases demand for credit by households and firms, with positive effects on the profitability of banks (Athanasoglou *et al*, 2008). In the same view, (Albertazzi and Gambacorta, 2009) conclude that the pro-cyclical nature of bank profits derives from the effects that the economic cycle exerts on net interest income (via lending activity) and loan loss provisions (via credit portfolio quality). Therefore, in general, there is a positive relationship between bank profitability and economic growth.

2.4.2 Inflation

A widely used proxy for the effect of the macroeconomic environment on bank profitability is inflation. The effect of inflation depends on whether banks' wages and other operating expenses increase at a faster rate than inflation. The question is how mature an economy is so that future inflation can be accurately forecast and thus banks

can accordingly manage their operating costs. As such, the relationship between the inflation rate and profitability is ambiguous and depends on whether or not inflation is anticipated. An inflation rate fully anticipated by the bank's management implies that banks can appropriately adjust interest rates in order to increase their revenues faster than their costs and thus acquire higher profits. On the contrary, unanticipated inflation could lead to improper adjustment of interest rates and hence to the possibility that costs could increase faster than revenues. (Demirguc-Kunt and Huizinga, 2000) attempted to identify possible cyclical movements in bank profitability, the extent to which bank profits are correlated with the business cycle.

2.4.3 Interest Rates

It is generally believed that a rising interest rate should lead to higher banking sector profitability by increasing the spread between the saving and the borrowing rates. Studies in the USA have shown that this relationship is particularly apparent for smaller banks. They notice that the falling interest rates during recession lead to slower growth in loans and increase in loan loss. Consequently, banks, particularly the small ones may have difficulty in maintaining profit as market rates drops (Demirguc-Kunt and Huizinga, 2000).

In the essence of lend-long and borrow-short argument, banks, in general may increase their lending rates sooner by more percentage points than their deposit rates. In addition, the rise in the real interest rates will increase the real debt burden on the borrower. This in turn, may lower asset quality, thereby inducing banks to charge a higher interest margin in order to compensate for the inherent risk.

2.5 Theories and Models of Bank Profitability

Studies on the performance of banks started in the late 1980s/early 1990s with the application of two industrial organizations models: the Market Power (MP) and Efficiency Structure (ES) theories Athanasoglou *et al* (2006). The balanced portfolio theory has also added greater insight in to the study of bank profitability (Nzongang and Atemnkeng, 2006). Applied in banking the MP hypothesis posits that the

performance of bank is influenced by the market structure of the industry. There are two distinct approaches within the MP theory; the Structure-Conduct-Performance (SCP) and the Relative Market Power hypothesis (RMP). According to the SCP approach, the level of concentration in the banking market gives rise to potential market power by banks, which may raise their profitability. Banks in more concentrated markets are most likely to make abnormal profits by their ability to lower deposits rates and to charge higher loan rates as a results of collusive (explicit or tacit) or monopolistic reasons, than firms operating in less concentrated markets, irrespective of their efficiency Tregenna (2009). Unlike the SCP, the RMP hypothesis posits that bank profitability is influenced by market share. It assumes that only large banks with differentiated products can influence prices and increase profits. They are able to exercise market power and earn non-competitive profits.

The ES hypothesis, on the other hand posits that banks earn high profits because they are more efficient than others. There are also two distinct approaches within the ES; the X-efficiency and Scale-efficiency hypothesis. According to the X-efficiency approach, more efficient firms are more profitable because of their lower costs. Such firms tend to gain larger market shares, which may manifest in higher levels on market concentration, but without any causal relationship from concentration to profitability (Athanasoglou et al, 2006). The scale approach emphasizes economies of scale rather than differences in management or production technology. Larger firms can obtain lower unit cost and higher profits through economies of scale. This enables large firms to acquire market shares, which may manifest in higher concentration and then profitability.

The portfolio theory approach is the most relevant and plays an important role in bank performance studies (Nzongang and Atemnkeng, 2006). According to the Portfolio balance model of asset diversification, the optimum holding of each asset in a wealth holder's portfolio is a function of policy decisions determined by a number of factors such as the vector of rates of return on all assets held in the portfolio, a vector of risks associated with the ownership of each financial assets and the size of the

portfolio. It implies portfolio diversification and the desired portfolio composition of commercial banks are results of decisions taken by the bank management. Further, the ability to obtain maximum profits depends on the feasible set of assets and liabilities determined by the management and the unit costs incurred by the bank for producing each component of assets (Nzongang and Atemnkeng, 2006).

The above theoretical analysis shows that MP theory assumes bank profitability is a function of external market factors, while the ES and Portfolio theory largely assume that bank performance is influenced by internal efficiencies and managerial decisions. Several models of the banking firm have been developed to deal with specific aspects of bank behavior but none is acceptable as descriptive of all bank behavior. Some of these approaches are: univariate analysis, multiple discriminant analysis, multiple regression analysis, canonical correlations analysis and neural network method. A major limitation of the univariate analysis approach is that it does not recognize the possibility of joint significance of financial ratios, while the standard correlations method precludes the explicit calculation of marginal value of independent variables on the dependent variable nor can the significance of individual explanatory factors be determined. Multiple regression approaches correct for these limitations and will produce comparable results to the discriminant analysis method.

An evaluation of the performance of the multiple linear regression technique and artificial neural network techniques with a goal to find a powerful tool in predicting bank performance was done by (Bakar and Tahir, 2009). Data of thirteen banks in Malaysia for the period 2001-2006 was used in the study. ROA was used as a measure of bank performance and seven variables including liquidity, credit risk, cost to income ratio, size, concentration ratio, were used as independent variables. They note that neural network method outperforms the multiple linear regression method but it lacks explanation on the parameters used and they concluded that multiple linear regressions, notwithstanding its limitations (i.e. violations of its assumptions), can be used as a simple tool to study the linear relationship between

the dependent variable and independent variables. The method provides significant explanatory variables to bank performance and explains the effect of the contributing factors in a simple, understood manner. This study adopted this approach together with the correction analysis to explore the determinants of commercial banks' profitability in Kenya.

2.6 Study Limitation

This study is constrained by lack of adequate literature from within the country. No studies have been done locally to determine commercial banks profitability; hence, the literature of this study is mainly based on other countries in Europe, Asia, USA and SSA. Therefore, their finding may not be applicable to the case of Kenya.

The variable used in this study are not exhaustive as there factors that may influence the performance of commercial banks. Such other factors may include monetary policies, tax structure among others.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

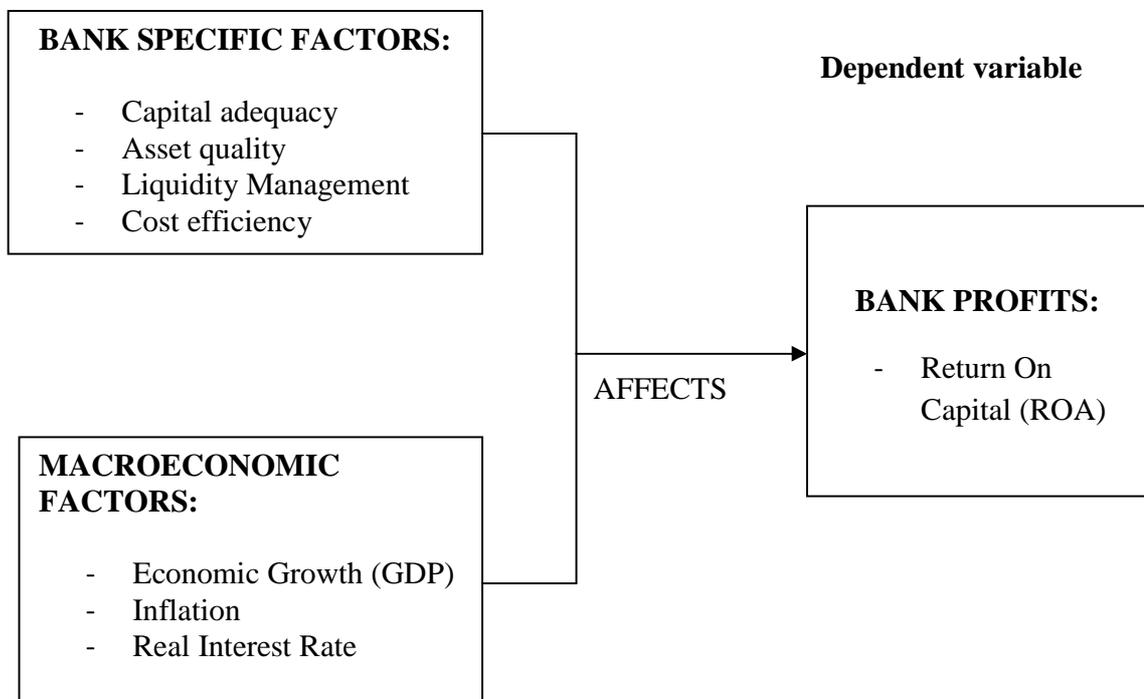
In line with achieving the objectives of the study, this chapter explains both the technique and methodology to be used in this study. The chapter will therefore outline the conceptual framework, model specification, estimation procedure, data sources and operational framework.

3.1 Conceptual Framework

Figure 3.1: Diagrammatic Representation of the Relationship between Variables

The conceptual framework shows a diagrammatic relationship between the independent variables and dependent variable filtered out from the literature review. It assumes a linear relationship between the independent variable and dependent variables.

Independent variables



3.2 Model Specification

The consensus from the literature on bank profitability is that the appropriate functional form of analysis is the multiple linear regression one. To this extent, (Short, 1979) and (Bourke, 1989) consider several functional forms and conclude that the linear model produces results as good as any other functional forms. Thus, the general linear regression model is given as:

$$\Pi_i = C + \sum \alpha B_j + \sum \beta X_k + u \dots \dots \dots (i)$$

where Π is the dependent variable and is observation on profitability (ROA); the independent variables include the intercept C , the j -th bank-specific characteristics, B_j , the k -th macroeconomic variable, X_k , that all banks take as given. α and β are coefficients while u is the error term.

Hence the model is given as:

$$\text{ROA} = C + \alpha_1 \text{CAP} + \alpha_2 \text{ASQ} + \alpha_3 \text{LIM} + \alpha_4 \text{CEF} + \beta_1 \text{GDP} + \beta_2 \text{INF} + \beta_3 \text{RRR} + e \dots \dots \dots (ii)$$

- Where;
- ROA = Profitability of banking sector
- CAP = Capital adequacy
- ASQ = Asset quality
- LIM = Liquidity Management
- CEF = Cost efficiency
- GDP = Economic growth
- INF = Inflation rate
- RRR = Real interest rates
- e = random error term

Where C = constant for each bank (fixed effects), α = bank specific factors coefficients, β = macroeconomic factors coefficient

3.3 Definition of Variables

Profitability of a bank is measured by its return on assets (ROA). The ROA, defined as net income divided by total assets, reflects how well a bank's management is using the bank's real investment resources to generate profits. In this case it is the ratio of profit before tax to total assets.

As for the determining factors of bank performance, they are divided into internal and external, and the description of them is provided in the following section.

The primary method of evaluating bank-specific determinants is by analyzing accounting data. Financial ratios usually provide a broad understanding of the bank's financial condition since they are constructed from accounting data contained in the bank's balance and financial statements Bashir (2005). The bank-specific determinants of the bank's profitability are bank characteristics that are mainly influenced by bank's management decisions and policy objectives. They originate from bank account (balance sheets and profit and loss account) and therefore, can be termed micro determinants of profitability.

Capital adequacy (CAP) which is the bank's capital ratio, which is measured by total equity over total asset, reveals capital adequacy and should capture the general average safety and soundness of the financial institution.

Asset quality (ASQ) is defined as loan-loss provisions over total loans. It is a measure of capital risk, as well as credit quality. If banks operate in more risky environments and lack the expertise to control their lending operations, it will probably result in a higher loan-loss provision ratio i.e. the ratio of non-performing loans to gross loans. Higher ratio indicates poor asset quality. Hence, the ratio is expected to have a negative relationship with profitability.

Liquidity management (LIM) is defined as the ratio of liquidity assets to total liability deposits. Loans are the largest segment of interest bearing assets and are expected to have a positive relationship with bank performance. Other things being constant, the more the deposits that are transformed into loans, the higher the level of profit will be. However, it could be the case that banks that are rapidly increasing their loan books have to pay a higher cost for their funding requirements, and this could lead to a negative impact on profitability.

Cost efficiency (CEF) this is defined as the ratio of operating costs (staff wages and administrative expenses) to net operating income (net interest income, net foreign exchange income, net fees and commission, and other income). Higher ratio indicates inefficiency.

Economic growth (GDP) which is measured by the real GDP growth rate is hypothesized to affect banking profitability positively. This is because the default risk is lower in upturns than in downturns. Besides, higher economic growth may lead to a greater demand for both interest and non-interest activities, thereby improving the profitability of banks.

Inflation (INF) is measured through the consumer price index. High inflation is associated with higher costs as well as higher income. If a bank's income rises more rapidly than its costs, inflation is expected to exert a positive effect on profitability. On the other hand, a negative coefficient is expected when its costs increase faster than its income.

Real interest rate (RRR) is expected to have a positive relationship with profitability.

3.4 Estimation Method

The study employs time series data analysis technique. The parameters were estimated using the Ordinary Least Square (OLS) method and run on Eviews statistical package. Since the study used time series data, a number of tests were conducted. Normality tests were carried out to check for normality of the data including Kurtosis tests, Skewness tests and Jarque-Bera tests. In addition, stationarity test was done using Augmented Dickey-Fuller tests. The presence of unit root at levels prompted us to difference the data used in our regression to avoid the problem of spurious and inconsistent regression results. Other tests carried out included Harvey test, Breusch-Pagan, CUSUM test and ARCH test.

3.5 Data Collection and Sources

The study employs time series data for the period 1983 to 2012. Data sources included Bank Survey Reports and Bank Supervisory Report for the periods 1983 to 2012 from the CBK and Economic Survey Reports of the same period from the KNBS.

Table 3.1: Operational Framework

	Variables	Measurement	Notation	Expected Effect
Dependent Variable	Profitability	Ratio of profit before tax to total assets.	ROA	N/A
Bank-Specific Variables	Asset Quality	Ratio of non-performing loans to gross loans.	ASQ	Negative
	Capital Adequacy	Total equity over total asset.	CAP	Positive
	Liquidity Mgt.	Ratio of liquidity assets to total liability deposits,	LIM	Positive
	Cost Efficiency	Ratio of operating costs to net income.	CEF	Negative
Macroeconomic Variables	Economic Growth	Annual GDP growth rate.	GDP	Positive
	Inflation	Consumer price index.	INF	Negative
	Real Interest Rate	Annual Real Interest Rates	RRR	Positive

Source: Research 2013

CHAPTER FOUR

EMPIRICAL RESULTS AND FINDINGS

4.0 Introduction

This chapter presents the empirical findings of the determinants of profitability of banks in Kenya for the period 1983-2012 under study. The first section gives the descriptive statistics, diagnostics tests, trend analysis, regression analysis and finally discussion of the findings.

4.1 Descriptive Statistics and Normality Test

It is important to scrutinize whether data displays normality before getting into details of empirical issues. Economic data may be non-normal (skewed) because the data may have a clear floor but not a definite ceiling or because of the presence of outliers. This study used the Jarque-bera statistics to test the normality of the time series data used. Mean based coefficient of skewness and kurtosis were utilized to check for the normality of the variables used.

Skewness is the tilt in the distribution and is usually estimated to be within the range of -2 and +2 for normally distributed series e.g. Return on Assets (ROA) is 0.62, Capital Adequacy (CAP) is 0.36, Asset Quality (ASQ) is 0.05 etc. and all the other variables display normality. Whereas, kurtosis is the peakedness of a distribution and should be within the range of -3 and +3 for a normally distributed data (Gujarati, 2007). For normality test, null hypothesis of normality is used against alternative hypothesis of non-normality. In case the probability value is less than Jarque-bera chi-square at 5% level of significance, the null hypothesis is not rejected. Table 4.1 gives the summary of the descriptive statistics used in this study. The normality test showed that bank-specific and macroeconomic factors affecting profitability are normally distributed. This is shown by the Kurtosis given as 2.93 for return on assets, 2.91 for capital adequacy, 1.88 for asset quality, 1.89 for liquidity management, 2.59 for GDP, 1.78 for inflation and 2.00 for real interest rates which all fall within the -3 to +3 range. Finally the Jarque-Bera test results for all the variables are greater than the probability values indicating normality.

Table 4.1: Normality Test Results**(N = 30)**

	Mean	Max	Min	Std. Dev.	Skewness	Kurtosis	Jarque-Bera	Prob.
Return on Capital	2.10	4.70	0.20	0.14	0.62	2.93	1.94	0.38
Capital Adequacy	17.08	23.00	15.30	0.59	0.36	2.91	2.97	0.07
Asset Quality	22.85	48.80	1.20	1.53	0.05	1.88	1.57	0.45
Liquidity Management	27.27	32.60	22.00	3.41	-0.03	1.89	1.53	0.46
Cost Efficiency	64.39	77.00	40.10	1.78	-0.68	2.59	2.54	0.28
GDP	3.76	7.00	0.10	2.24	-0.23	1.78	2.13	0.34
Inflation	10.08	19.90	1.60	1.89	0.33	2.41	1.01	0.60
Real Interest Rates	17.04	24.50	12.50	0.79	0.44	2.00	2.23	0.33

Source: Research 2013

4.2 Unit Root Testing

This study uses time series data, therefore it is important to check on the stationarity of the data to avoid problems which may arise due to the presence of unit roots. Working with non-stationary variables leads to spurious regression result from which further inference is meaningless. Augmented Dickey-Fuller (ADF) test was therefore employed to ascertain the stationarity status of the variables. The stationarity test was done solely to

determine whether the variables used were dependent on time. The unit root test used the null hypothesis that the variables being tested are time invariant. The test was done at three levels of significance namely at 1%, 5% and at 10%. The desirable status to ascertain a stationary variable is excess negativity compared to any of the critical values.

Table 4.2 Summary of ADF Unit Root Tests Results before Differencing

VARIABLES	ADF TEST	CRITICAL VALUE AT 1%	CRITICAL VALUE AT 5%	CRITICAL VALUE AT 10%	ORDER OF DIFF.
Return on Capital	-0.676	-3.724	-2.986	-2.633	Level
Capital Adequacy	-1.558	-3.699	-2.976	-2.627	Level
Asset quality	3.353	-3.689	-2.976	-2.625	Level
Liq. Management	-1.992	-3.689	-2.976	-2.625	Level
Cost efficiency	-2.117	-3.689	-2.976	-2.625	Level
GDP	-2.564	-3.689	-2.976	-2.625	Level
Inflation	-1.842	-3.689	-2.976	-2.625	Level
Real interest rates	-2.004	-3.689	-2.976	-2.625	Level

Source: Research 2013

Table 4.2 shows that the all the variables were non-stationary at levels of testing. Hence there was need to further integrate either at first or second order to determine whether there was stationarity. Table 4.3 shows the test results.

Table 4.3 Summary of ADF Unit Root Tests Results after Differencing

VARIABLES	ADF TEST	CRITICAL VALUE AT 1%	CRITICAL VALUE AT 5%	CRITICAL VALUE AT 10%	ORDER OF DIFF.
Return on Capital	-4.744	-3.724	-2.986	-2.633	I (1)
Capital Adequacy	-9.950	-3.699	-2.976	-2.627	I (2)
Asset quality	-5.353	-3.689	-2.976	-2.625	I (1)
Liq. Management	-7.672	-3.689	-2.976	-2.625	I (2)
Cost efficiency	-8.122	-3.689	-2.976	-2.625	I (1)
GDP	-7.442	-3.689	-2.976	-2.625	I (1)
Inflation	-6.835	-3.689	-2.976	-2.625	I (1)
Real interest rates	-7.782	-3.689	-2.976	-2.625	I (1)

Source: Research 2013

Table 4.2.2 shows the summary of the Augmented Dickey-Fuller test results for stationarity at either first or second order differencing. Results indicated that all the variables were stationary. The ADF test results showed excess negativity compared to the critical values at 1%, 5% and 10%. For example ADF test for Capital adequacy was -9.950, Liquidity management was -7.672, GDP -7.442 etc. compared to their critical values at 5% which were given as -2.976, -2.972, and -9.672 respectively. Since the ADF values are less than the critical values, therefore, all the variables are stationery after integration.

4.3 Cointegration analysis

Cointegration analysis was done to establish whether the variables that were non-stationary at levels are cointegrated. Detrending of non-stationary variables to realize stationarity may result to loss of long run properties. Cointegration suggests that in case there is a long run relationship between two or more non-stationary variables, deviation from this long run path are stationary.

In this study, we tested for cointegration using the (Granger, 1987) two step procedure specified in the cointegrating regression as;

$$X_t = a_0 + a_1 z_t + E_t \quad \dots\dots\dots (i)$$

$$E_t = (X_t - a_0 - a_1 z_t) \quad \dots\dots\dots (ii)$$

Equation (ii) above is the residual of equation (i) and it is a I(1) series. The advantage of the Engle-Granger two step procedure is that it prevents the errors in the long run relationship from becoming infinitely large. It has an error correction mechanism (ECM). In this study, our first step was estimation of a static (long run) model using the list squares method. Residuals were then generated from the regression results of long run equation for non-stationary variables. The stationarity of the residuals was then tested using ADF. Table 4.4 shows the results for stationarity test on residuals.

Table 4.4 ADF Test for Cointegration

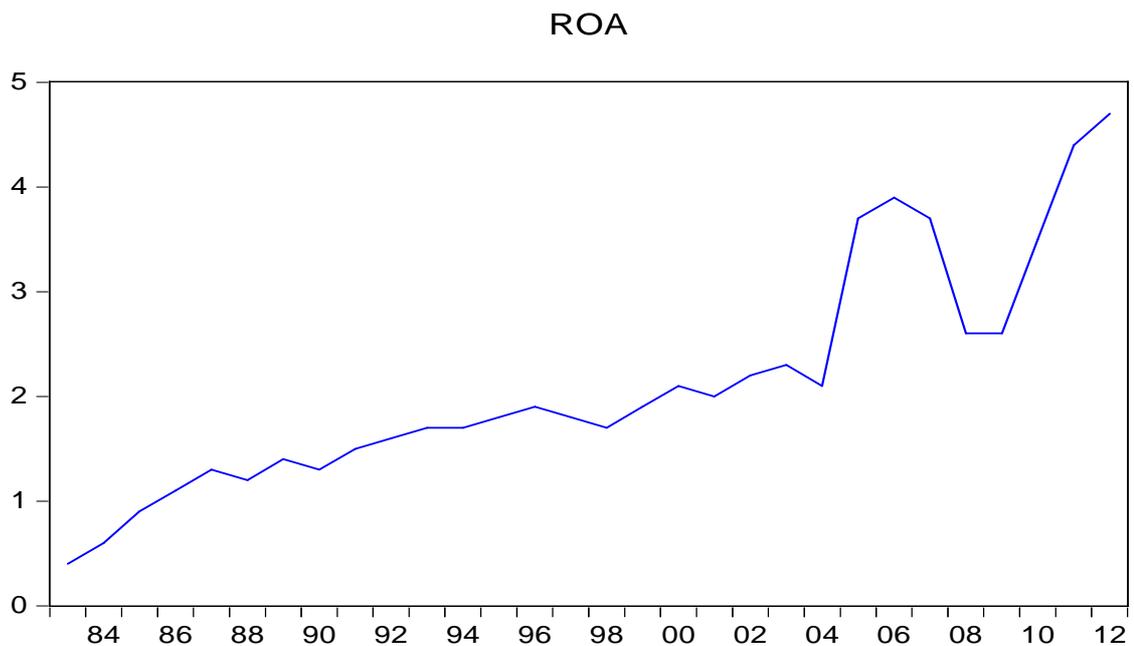
	t-statistics	Prob.*
ADF t-statistics	-1.460195	0.0014
Test critical values: 1% level	-3.679322	
5% level	-2.967767	
10% level	-2.622989	

Source: Research 2013

The results in table 4.3 above shows that the residuals were found to be non-stationary at 1%, 5% and 10% levels of significance. This is because the ADF test statistics of -1.4602 was greater than the critical values of -3.679, -2.968 and -2.623 at 1%, 5% and 10% level of significance respectively. Therefore, the residuals could not become the error correction term; hence, an error correction formulation could not be adopted. Since cointegration test results showed that the variables do not have a long run relationship, regression to estimate profitability was therefore done at levels.

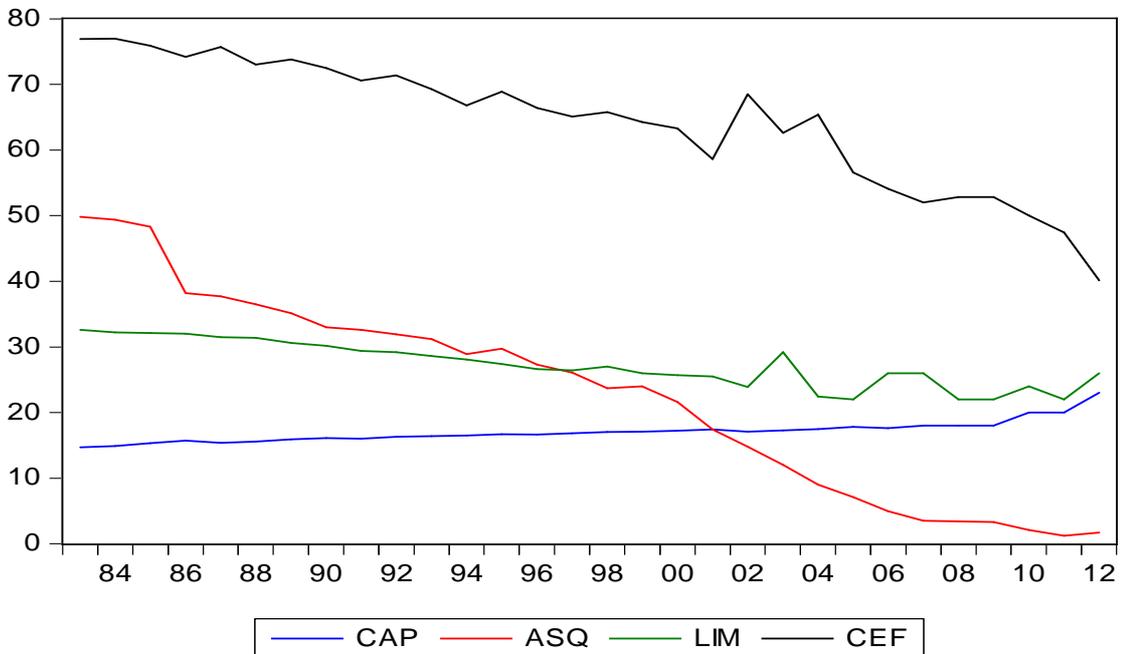
4.4 Trends in the Variables

Graph 4.4.1: Trends in the Return on Assets (ROA)



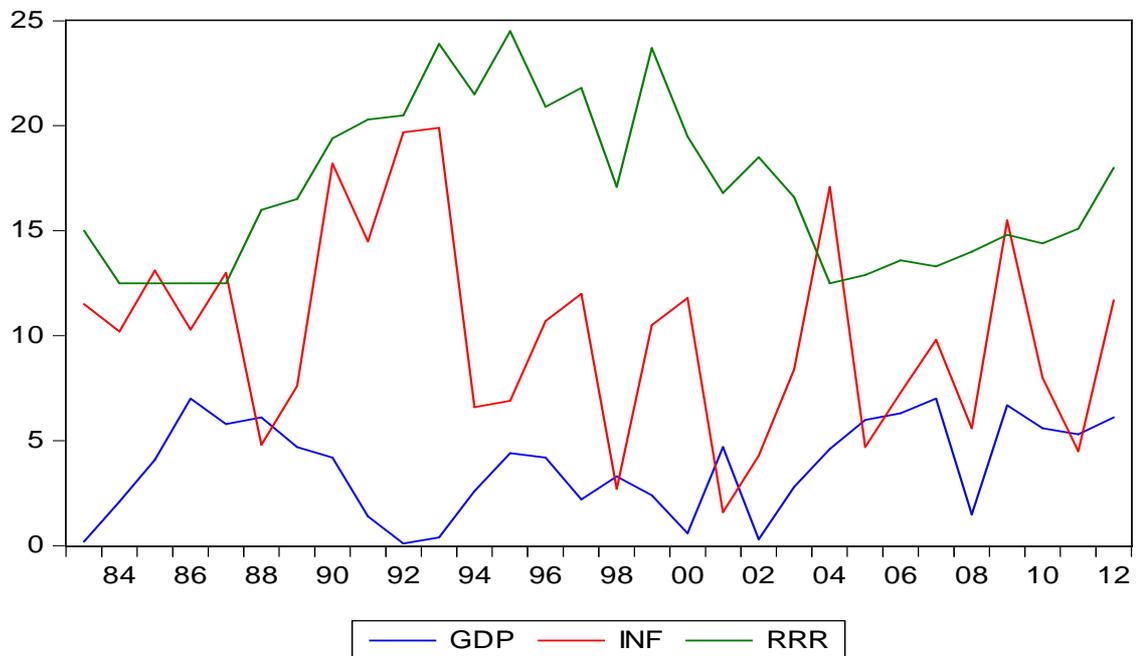
Graph 4.4.1 shows the trends in profitability measured by the return on assets (ROA). From the observation of the trend, ROA has been increasing over the period of the study except for the years 1998, 2002, 2008 and 2009 which shows declining levels. Incidentally, these fluctuations appear during and after the general elections, implying poor performance during these periods.

Graph 4.4.2: Trends in the Bank Specific F4actors – CAP, ASQ, LIM and CEF



Graph 4.4.2 shows the trends in the bank-specific factors i.e. capital adequacy (CAP), asset quality (ASQ), liquidity management (LIM) and cost efficiency (CEF) measured as a percentage over the period of the study. While CAP has taken an increasing trend over the period, ASQ and CEF have shown a decline in their trends though maintaining the levels above the CBK’s minimum statutory ratios. On the other hand, LIM has shown a cyclical trend over the period though still above the CBK’s maximum statutory ratio requirement of 20%. These trends in bank-specific factors determine the direction of profitability of the banks in Kenya.

Graph 4.4.3: Trends in the Macroeconomic Factors – GDP, INF and RRR



Graph 4.4.3 shows trend in macroeconomic factors affecting profitability of bank i.e. economic growth rate (GDP), inflation rate (INF) and real interest rates (RRR) over the period of the study. GDP has been growing steadily over the period from 0.6% in 2000 to a maximum of 6.97% in 2007 with exceptional decline in 2002 and 2008 associated with the post election effects. Meanwhile, INF has shown a cyclical trend over the period with 1.6% minimum in 2001 and about 20% maximum in 1994. On the other hand, RR shows not so much changes in terms of the trend over the period with the highest rates in 1995. From the results in the preceding literature, these macroeconomic factors have minimal impact on banks profitability in Kenya.

4.5 Regression Results for the Model

Table 4.5 shows a summary of the results of regression of Return on Assets against both Bank-specific variables and Macroeconomic variables.

Table 4.5: Model Regression Estimates

VARIABLES	COEFFICIENTS	STD. ERROR	t-STAT.	PROB.
Constant (C)	1.997255	3.561800	0.560743	0.5806
Capital Adequacy (CAP)	0.246064	0.020703	1.210116	0.2391
Asset Quality (ASQ)	-0.109858	0.016883	-1.768472	0.0908
Liquidity Management (LIM)	0.038729	0.048562	0.797500	0.4337
Cost Efficiency (CEF)	-0.145090	0.028661	-1.573200	0.1299
Gross Domestic Product (GDP)	0.178372	0.040711	0.942534	0.3562
Real Interest Rates (RRR)	-0.092886	0.015369	-0.187775	0.8528
Inflation Rate (INF)	0.009448	0.022275	0.118865	0.9065
R-squared	0.909727	F-statistic		31.67233
Adjusted R-squared	0.881004	Prob (F-statistic)		0.000029
S.E. of regression	0.375857	Durbin-Watson Statistics		1.699771

4.6 Diagnostic Tests

To assess the validity of the regression results, a number of diagnostic tests were carried out. ARCH test, Harvey test and Breusch-Godfrey test were carried out to establish whether the variance was constant across the observations. The results in Table 4.6 showed that heteroscedasticity was not a major problem since the f-statistics results in all the tests were greater than the probabilities.

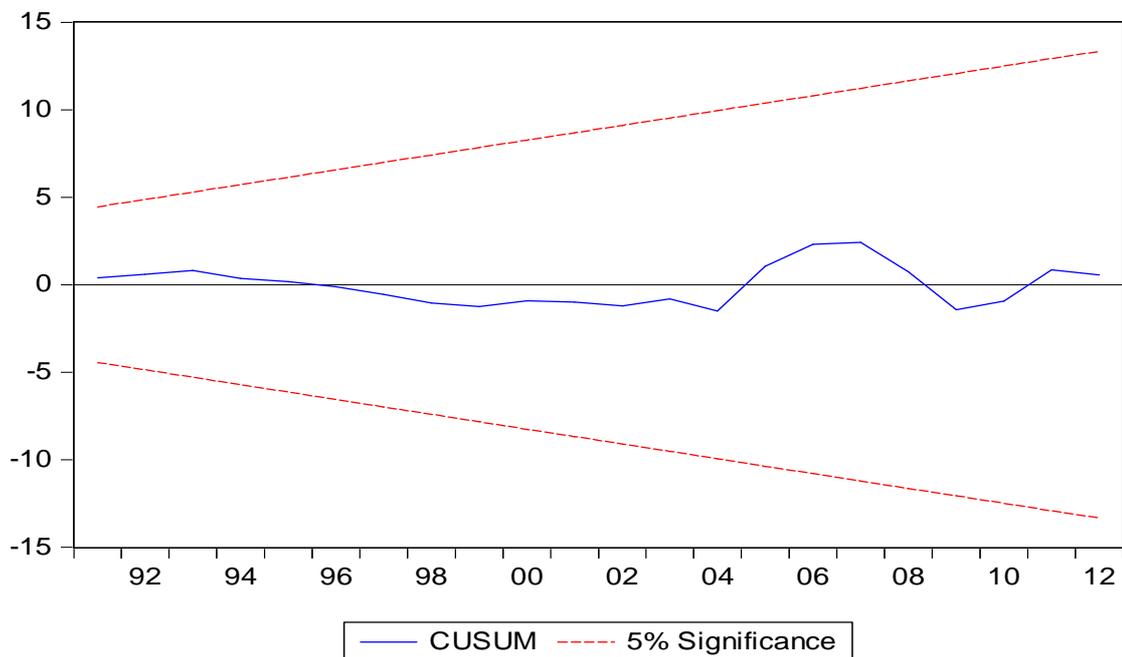
Table 4.6 Heteroscedasticity Tests

TESTS	F-statistic	Obs*R-squared	Prob. F(7,22)	Prob. Chi-Square (7)
ARCH	2.225654	2.208470	0.0008	0.1373
HARVEY	4.652030	17.90416	0.0025	0.0124
BREUSCH-GODFREY	5.662304	19.29199	0.0008	0.0073

Source: Research 2013

Overtime stability of coefficients was checked using Cusum test as shown in Figure 4.1. The results of the Cusum test showed that the coefficients used in the study were stable at 5% significance level since they fall within -5 and +5 range and therefore could be used for forecasting.

Figure 4.1 CUSUM Test



4.7 Discussion of Results and Findings

The normality test showed that kurtosis was within the range of -3 and +3 while the probability values of the variables were less than the Jarque-Bera value at 5% level of significance an indication that the data used was normally distributed. Secondly, ADF unit root tests showed an excessive negativity in the variables compared to the critical values at 1%, 5% and 10% a prove of stationarity in the time series data used. Finally cointegration test done using ADF showed that the variables do not have a long run relationship.

The Coefficient of Determination (R-Squared) was 0.9097, implying that 90.97 percentage changes in profitability were explained by both bank specific and macroeconomic factors. Thus these variables collectively, are good explanatory variables of the profitability of commercial banks in Kenya. The null hypothesis of F-statistic that the R^2 is equal to zero was rejected at 1% as the p-value was sufficiently low. Secondly the D.W. statistic was about 1.699 implying that there was no serious evidence of serial correlation in the data.

The findings also showed that capital adequacy makes a significant contribution to profitability of the commercial banks in Kenya, as the relatively high coefficient of equity to assets ratio (CAP) of 0.246. The ratio is positive, significant and its effect remains dominant. Therefore, an increase in capital leads to an increase in profitability. This finding is consistent with previous studies of (Berger, 1995; Dermigu-Kunt and Huizinga, 1999; Ben Nacuer, 2003; and Kosmidou, 2006) and indicates that well capitalized banks face lower costs of going bankrupt. This also suggests a reduced cost of funding or lower need for external funding hence implying high profits.

Asset quality (ASQ) has a negative coefficient of -0.110. This means that a higher ratio of asset quality (in terms of non-performing loans to gross loans) leads to lower profitability. This is consistent with previous findings of (Kosmidou, 2008; and Flamini et al, 2009). The findings show that local banks need to improve their process of screening credit given to customers and monitoring of the credit risk. This is an important indicator as local banks have had serious problems with the non-performing loans in the past which have also led to collapse of many banks. These results support the need for CBK's move to establish a credit bureau aimed at helping banks reduce the rate of bad loans in the industry and thus improving profitability.

As in the previous studies, the results concerning liquidity management (LIM) are mixed. This ration has a positive effect on ROA, consistent with (Bourke, 1989; and Kosmidou, 2006). On the contrary, (Molyneux and Thorton, 1989; Guru et al, 1999) reveals a negative sign which is only significant in the presence of other external factors. This study found the effect of LIM as 0.039, implying that an increase in LIM leads to an increase in profitability. The coefficient is however very weak and may have insignificant impact on profitability of commercial banks.

As expected the coefficient of income-cost ratio or cost efficiency (CEF) is negative -0.145 and very significant, suggesting that efficiency in expenses management is a robust determinant of profitability of banks in Kenya. The study found that a 1% increase in

operational costs could result in 14.5% decrease in profitability. (Flamini et al, 2009); (Pasiouras et al, 2006); (Guru et al, 1999; and Neceur, 2003) also confirm this inverse relationship for Greece, Australia, Malaysia respectively. It is therefore obvious that a lot needs to be done to reduce staff wage costs and administrative costs within the sector to improve profitability. The strong negative impact of CEF indicates that banks are not able to pass all their operating cost to customers which may be an indicator of the competitiveness and lack of market power within the sector.

Results of the macroeconomic variables indicators i.e. economic growth rate (GDP), inflation rate (INF) and real interest rates (RRR) also have significant implications on bank profits in Kenya. The coefficient of GDP is given as 0.178 meaning that an increase in GDP leads to an increase in banks' profitability hence the positive and significant coefficient. RRR has a negative coefficient of (-0.092). This implies that an adjustment of interest rates upwards has a negative impact on profitability. Similarly, the negative association between INF and bank profitability is consistent with the findings of previous studies like (Dermiguk-Kunt and Huizinga, 1999). The INF coefficient in this study was (-0.009); which is however, insignificant. Previous studies argue that a positive association supports the theory that inflation was unanticipated giving banks little or no opportunity to adjust the interest rates accordingly, even though this has very minimal impact on profitability.

CHAPTER FIVE

CONCLUSION AND POLICY RECOMMENDATIONS

5.1 Conclusion

The liberalization of the Kenyan Banking System, the harmonization of the legal system so as to meet the international standards, and the radical technological changes (expansion of ATM network across the country, mobile banking, internet banking, etc) have markedly affected the structure of the banking sector. The banks, through a process of acquisitions, mergers and expansion have attempted to enforce their position in the new banking era created by the adoption of modern technology. This strategy is expected to exploit economies of scale and support the provision of new financial services, such as asset management and financing etc. In addition, the expansion of the market share of private banks is a step towards the direction of intensifying competition. In parallel, the improvement of competitiveness of the state owned banks and the increase of the demand for financial services act together so as to enforce further competition.

This paper investigates the determinants of commercial banks profitability in Kenya for the 2000-2012 periods. This is also the main objective of the study. Two specific objectives were derived from the main objective. The first objective was to determine the effects of bank-specific factors on profitability of commercial banks in Kenya expressed within the CAMEL framework. The second objective was to determine the effects of macroeconomic factors on the profitability of commercial banks in Kenya which included economic growth, inflation and real interest rates. The study employed panel data technique and was analyzed using multiple linear regression models. The study found out that profitability is significantly determined by the bank specific factors more than the macroeconomic factors. Therefore, profitability of commercial is determined by those factors that aim to increase capitalization, reduce operating costs and improve the quality of assets through reduction of the non-performing loans and maintaining the right levels of liquid assets. Thus it can be concluded that profitability in the Kenyan banking sector is largely driven by managerial decision than market factors.

5.2 Policy Implications

Overall empirical findings provide evidence that profitability of Kenyan commercial banks is influenced by both bank-specific factors that have a direct relationship with bank management and macroeconomic factors that are not the direct result of a bank managerial decision. These findings call for a number of policy interventions in Kenya; given the low poor performance in terms of profitability. Low profitability levels reflected lack of competitiveness and inefficiency within the banking sector. Policies would probably need to be directed at improving risk management and technology, strengthening supportive information and bank supervision, developing inter-bank, securities and equity markets and at maintaining macroeconomic stability.

At the bank level, the improvement of the profitability of Kenyan commercial banks need to be conducted by reinforcement of the capitalization of banks through national regulation programs, by reducing the proportion of non-interest bearing assets to the benefit of bank loans.

The government and other concerned financial management institutions need to take into account the main fabrics and other policy repercussions towards commercial bank profitability that have gained considerable importance in Kenyan financial sector. This could probably be achieved through undertaking comprehensive and rigorous stress testing to avoid risks associated with market failures in the sector.

Supervisory and related services should be geared towards optimum utilization of resources, prudent risk management, sound competitive environment and excellence in service. For commercial banks in Kenya, there is need to be more risk vigilant related to changing macroeconomic factors in liberalized regimes across the country. Further, it would also be important to look into long term effects of inflation on the overall bank performance and need to expect asymmetric effect of such uncertainties on bank's profitability.

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