AN EVALUATION OF THE EFFECTS OF INTERNAL BANKING
FACTORS ON PROFITABILITY OF COMMERCIAL BANKS IN KENYA

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May, 2013
DECLARATION

This research proposal is my original work and has not been presented for a degree in any other University.

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DEDICATION

I dedicate this research project to my supervisors who never failed to guide me, to my family who supported me in everything, to my friends and colleagues at work who helped me finish this research, and most of all to the Almighty God who gave me strength and good health while carrying out this study.
Acknowledgements

First of all, I thank the almighty God for His grace and mercy all through. It is through his guidance and renewed energy that this task was accomplished.

With a deep sense of gratitude, I wish to express my sincere thanks to my supervisors, Mr. Ngaba Dominic and Mr. J. Muturi, for their encouragement, stimulating suggestions and guidance. The dedication and commitment with which they guided the work requires no elaboration. On the other hand, profound knowledge and timely wit came as a boon under the guidance of Mr. Ngaba. His valuable instructions and suggestions during the course of work were greatly acknowledged. I would also like to pass vote of thanks to the lecturers in the Department of Finance & Accounting, Kenyatta University for all the knowledge that they imparted on me during my study.

I also want to thank my parents, who taught me the value of hard work by their own example. They rendered me enormous support during the whole tenure of my primary, secondary and post secondary education and gave me the encouragement and motivation to carry on my post graduate studies.

I am grateful to my wife Winfred and my two daughters Lynnette and Christine for the inspiration and moral support they provided throughout my study. Without their loving support and understanding I would never have completed this work.

Finally, I would like to thank all whose direct and indirect support helped me complete my thesis in time.
The overall profitability of the banking sector in Kenya has improved tremendously over
the last 10 years and the sector has also experienced rapid expansion in the recent past
which resulted to intensive competition by providing innovative products, efficient
management in the resources allocation and saving money. However, despite the overall
good picture depicted by the sector, 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-avis the small and medium banks
indicates that there are some significant factors that influence the profitability of
commercial banks (Tobias et al, 2011). The objective of this study was to examine the
impact of banks' internal factors on profitability of commercial banks in Kenya.

A total of nine commercial banks listed at the Nairobi Stock Exchange formed the
sample of this study. The selected banks were assessed by ratio analysis such as
Profitability, Asset management, and efficiency ratios hence by making the type of the
research conducted Quantitative in nature. The data was collected from audited and
published financial statements of the individual bank over a period of five years starting
from year 2006 to 2010. Panel data regression was used to analyze and to examine the
effects of internal banking factors on the financial performance of Kenyan commercial
banks.
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DEFINITION OF TERMS

Profitability
Profitability is the bank’s first line of defence against unexpected losses, as it strengthens its capital position and improves future Profitability through the investment of retained earnings. Commercial Banks incur costs for their liabilities and earn income from their assets. Thus profitability of banks is directly affected by management of the internal factors. In addition, different market and macroeconomic factors also influence the ability of the banks to make profits (Short, 1979; Molyneux and Thornton, 1992; Athanasoglou et al, 2008). For this study profitability was measured by profitability ratios, ROA and ROE.

Internal factors
Internal factors of bank performance can be defined as factors that are influenced by the decisions of the banks management. Such management effects will definitely affect the operating results of banks. Although quality management leads to good bank performance, it is difficult, if not impossible, to assess management quality directly. It was implicitly assumed that such a quality will be reflected in the operating performance.

Return On Assets (ROA):
According to Peter M. (2002), ROA reports the percentage of income earned for each dollar invested in an entity’s resources. It is measured by dividing net income to total assets. Using ROA enables the bank or any firm to assess the managerial performance. Banks use debt, deposits, and equity to acquire resources to maximize bank’s wealth. So management’s ability to create this wealth is determined by how effectively the bank uses its resources. ROA was used as a measure of profitability of commercial banks.
Return On Equity (ROE):
ROE is also another useful indicator of bank profitability. It reports how much profit the bank can generate on money invested by shareholders. It is calculated by dividing net income to shareholders’ equity. By Using ROE, it will show how efficient the bank’ management uses the equity (Alkassim 2005). For this study ROE was used as measure of performance of commercial banks in Kenyan.

Total Assets (TA)
Total assets are company valuables including tangible assets such as equipment and property as well as intangible assets such as goodwill and patent (Faisal, K. 2005). For banks, total assets include loans regardless whether it is interest-based or noninterest-based practices since it is the essence of bank’s operating. By recognizing total asset of each bank, we can determine bank’s size. The greater the number, the bigger the bank will be. Flaminini, McDonald, and Schumacher (2009) included total assets in their study of the Sub-Saharan African banks’ profitability, and they found a positive significant relationship between total assets and profitability. For the purpose of this study, total asset was used as an indicator of bank’s size.

Total Shareholders’ Equity (TE)
Shareholders’ equity represents the owners’ claims on the assets of the business. It is equal to total assets minus total liabilities (Williams, Haka, and others 2008). For this study, total shareholders’ equity was used in the determination of return on equity (ROE).
Total Equity to Total Assets (EQTA):
Total equity to assets is an indicator of capital adequacy. In other words, it shows how well the bank was able to absorb losses and handle the risk exposure with shareholders. Many studies by various researchers such as, Ben Naceur (2003) and Alkassim (2005), show that there exists a positive relationship between Equity-Assets ratio and profitability performance. EQTA was used as an independent variable in the regression model.

Deposit to total Assets (DTA):
Deposit to total assets is another leverage indicator. Deposits are included in the study to examine the influence of liability on profitability and how well the banks use it. Moreover, deposits are considered to be the main source of banks funding. DTA was used as an independent variable in the regression model.

Total Loans to Total Assets (LTA):
Total loan over total assets is a liquidity indicator. The higher LTA, the less liquid the bank will be. LTA was used as an independent variable in the regression model.

Loan to Deposits (LTD):
Loan to deposit ratio is another indicator of liquidity ratio. If the ratio is too high, it means the bank might not have sufficient liquidity to cover any unpredicted requirements. However, if the ratio is too low, that means the banks is not earning as much as they could be. LTD was used as an independent variable in the regression model.
Cost to Income Ratio (COTIN):
Cost to income ratio is one of the most used ratios to measure the efficiency of bank. The lower the ratio, the more efficient the bank will be. COTIN was used as an independent variable in the regression model

Total Expenses to Total Assets (OPEXTA):
Total expenses divided by total assets was included in the study to compare the efficiency among Kenyan banks. OPEXTA was used as an independent variable in the regression model

Operating Income to Total Asset (OPINTA):
Operating income to total assets is another indicator of efficiency. It shows how well the banks utilize the assets. OPINTA was used as an independent variable in the regression model
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<table>
<thead>
<tr>
<th>Abbreviation</th>
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<td>COTIN</td>
<td>Cost to income</td>
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<td>KCB</td>
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<td>BBK</td>
<td>Barclays Bank of Kenya</td>
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<td>CBK</td>
<td>Central Bank of Kenya</td>
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<td>NIC</td>
<td>National Industrial credit</td>
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<td>NSE</td>
<td>Nairobi Stock Exchange</td>
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<td>SSA</td>
<td>Southern Saharan Africa</td>
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<td>MP</td>
<td>Market power</td>
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<td>ES</td>
<td>Efficiency Structure</td>
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<td>SCP</td>
<td>Structure Conduct Performance</td>
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CHAPTER ONE:

INTRODUCTION TO THE STUDY

1.0 INTRODUCTION

This chapter aims to give a background to the area of study which is followed by the problem statement discussion, objectives of the study, Research questions & hypothesis, Significance of the study, the scope of the study, and finally but not the least limitations of the study.

1.1 BACKGROUND TO THE STUDY

A financial system is vital for the economic development of a country as it plays a role in funds mobilization, and allocation of resources. Today’s volatile economic environment requires efficient financial system for specialism in production, to retain investors’ friendly relationship and competitive market to assist economic transaction. A stable and efficient financial system represents efficient allocation of resources and becomes the foundation of rising financial performance of an organization which leads to enhanced actions and functions of the organization. Commercial banks provide a backup to all capital market in the economy through trading in shares, investment holdings, and merchant banking activities among other services. They also support the credit market in the country through short term and medium term loans.

There are many aspects of the performance of commercial banks that can be analyzed. For this study financial performance will be measured by profitability ratios, ROA and ROE. Aburime (2009) 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 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. Garcia-Herrero et al (2007) observed that too high profitability could be indicative of market power, especially by large banks. This would mean that the industry may become uncompetitive if a few banks earning high profits may foster tacit or explicit collusion and earn economic rent for monopolistic reasons.

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). 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 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 performance 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 medium bank indicates that there are some significant factors that influence the profitability of commercial banks. For the enhancement of financial performance three principal factors can be argued; asset management (AM), institution size (IS), and operating efficiency (OE) (Tarawneh, 2006). The intention of this study is to evaluate the effect of the principal internal banking factors on profitability of commercial banks in Kenya.

1.2 PROBLEM STATEMENT

The overall profitability of the banking sector in Kenya has improved tremendously over the last 10 years and the sector has also experienced rapid expansion in the recent past which resulted to intensive competition by providing innovative products, efficient management in the resources allocation and saving money. Despite the overall good picture depicted by the sector, 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-avis the small and medium banks indicates that there are some significant factors that influence the profitability of commercial banks (Tobias et al, 2011).
Flamini et al (2009) and other several studies have shown that bank profitability is influenced by internal and external factors but no adequate studies to investigate how key internal factors affects the profitability of the commercial banks. The aim of this study is to close this gap in knowledge by evaluating the effects of internal banking factors on profitability of commercial banks in Kenya.

1.3 OBJECTIVES OF THE STUDY

1.3.1 General objective

The main objective of this study was to evaluate the effects of internal banking factors on profitability of commercial banks in Kenya.

1.3.2 Specific objectives

The specific objectives of the study were to:

I Examine how asset management influence financial performance of commercial banks by adopting some financial indicators such as loans and advances to assets, Equity to assets, Deposits to assets, and operating income to total assets

II Examine how operational efficiency influence financial performance of commercial banks by adopting some financial indicators namely, Cost to income and operating expenses to total assets;

III Examine how bank size measured by total assets influence financial performance of commercial banks in Kenya.
1.4 RESEARCH HYPOTHESIS

The following null hypotheses were formulated for this study to provide hypothetical answers to the study problem:

a) There is no significant effect for Total assets (log Assets) on Financial Performance (Return on assets and Return on equity) of Kenyan commercial banks.

b) There is no significant effect for Total Loans (LTA) on Financial Performance (Return on assets and Return on equity) of Kenyan commercial banks.

c) There is no significant effect for Asset Total equity (EQTA) on Financial Performance (Return on assets and Return to equity) of Kenyan commercial banks.

d) There is no significant effect for Deposits (DTA) on Financial Performance (Return on assets and Return on equity) of Kenyan commercial banks.

e) There is no significant effect for operating income (OPINTA) On Financial Performance (Return on assets and Return on equity) of Kenyan commercial banks.

f) There is no significant effect for cost (COTIN) on Financial Performance (Return on asset and Return on equity) of Kenyan commercial banks.

g) There is no significant effect for operating expenses (OPEXTA) on Financial Performance (Return on asset and Return on Equity) of Kenyan commercial banks.
1.5 SIGNIFICANCE AND JUSTIFICATION OF STUDY

The stream of bank failures experienced in the USA during the great depression of the 1940s, prompted considerable attention to bank performance. The attention has grown ever since then (Heffernan, 2005).

The recent global financial crisis of 2007/2009 also demonstrated the importance of bank performance both in national and international economies and the need to keep it under surveillance at all times (Tobias et al, 2011). Arun and Turner (2004) argued that 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 (Athanasoglou et al, 2006).

This study will be beneficial to bank management by shedding some light on how the banks’ internal activities affect the performance of the bank. Shareholders will also benefit from the findings of this study as financial ratios gives more meaningful information for decision making than what is contained in the financial statements of the bank. Other stakeholders to benefit from this study are: bank supervisory department of CBK, public, researchers and students of finance and banking as the study contributes to knowledge of factors affecting the profitability of commercial banks in Kenya.
1.6 LIMITATIONS OF THE STUDY

This study focused on the profitability of commercial banks in Kenya by taking nine commercial banks as a case. The study was entirely based on secondary sources and lack of primary data due to time and confidentiality of information by the banks could have a limitation on the findings of the study. In addition external variables such as economic indicators were not included to test the bank's profitability in the study. Despite the above mentioned limitations, the study is believed to represent the true financial performance of the banking institutions.

1.7 SCOPE OF THE STUDY

The scope of the study was limited to licensed commercial banks operating in Kenya during 2006 and 2010 study period.
2.0 INTRODUCTION

This section introduces theoretical framework of performance of the bank, conceptual framework of the study, the operational framework of the study, and definition of terms as used for this study.

2.1 THEORETICAL FRAMEWORK OF THE BANK PERFORMANCE

To begin with profitability is simply the difference between total revenues and total expenses. Thus, the factors which affect commercial bank profitability would be those which affect banks’ revenues and expenses. The ultimate goal of all business organizations is to seek to attain profit maximization. The study of bank’s performance is a critical tool to assess banks’ operations and determine management planning and strategic analysis (Alkassim, 2005).

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 to the study of bank profitability (Nzongang and Atemnkeng, 2006).

Applied in banking the MP hypothesis postulates 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: univariant analysis, multiple discriminant analysis, multiple regression analysis, canonical correlations analysis and neural network method. Univariate analysis explores variables (attributes) one by one. Variables could be either categorical or numerical. Olugbenga and Olankunle (1998) noted that a major limitation of the univariant analysis approach is that it does not recognize the possibility of joint significance of financial ratios while the canonical 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 ascertained. They noted that multiple regression approaches correct for these limitations and they produce comparable results for discriminant analysis method.

Bakar and Tahir (2009) evaluated 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. 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, not withstanding its limitations (violations of its assumptions) for example, 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 and well understood manner. This study will adopt this approach together with the correction analysis to determine the effects of banking internal characteristic factors on bank profitability in Kenya.

Many studies have examined bank’s internal characteristics on financial performance in different countries. Spathis, Kosmidou, and Doumpos (2002) studied the profitability determinants in Greek banking systems. The paper measures the effectiveness and efficiency based on banks’ size (small and large banks) in Greece by using several ratios of profitability such as return on assets (ROA), return on equity (ROE), and Net Interest Margin (MARG). The study covered seven banks as large and sixteen banks as small banks over the period (1990-1999) by using panel data. The method used in their paper is Multicriteriia decision based on UTilite’s Additive Discriminative (UTSDIS) to examine Greek banks’ performance. Moreover, the study includes ratios to assess banks’ performance such as current asset to loans (CA/TL) to measure short-term investment, loans to deposits (L/D) to measure liquidity, and total assets to total equity (TA/TE) to measure capital adequacy. The evidence indicates that the large banks are more efficient than small banks. However, small banks are characterized by high capital yield (ROE), high interest rate yield (MARG), high financial leverage (TA/TE), and high capital adequacy (TE/TA). On the other hand, large banks are characterized by high assets yield (ROA), and low capital and interest rate yield (Spathis, Kosmidou, and Doumpos 2002).

Tarawneh (2006) studied the financial performance of Omani commercial banks. He used a sample data total of five Omani banks with more than 260 branches through 1999-2003. First,
the paper ranks these banks based on seven variables, namely total deposits, total credits, total assets, shareholders’ equity, return on equity (ROE), return on assets (ROA), and return on deposits (ROD). Furthermore, the paper also used simple regression to examine the impact of assets management, operation efficiency, and bank’s size (total assets) on financial performance. The variable used to measure the assets management is assets utilization ratio (operational income divided by total assets), whilst operational efficiency measured by operating efficiency ratio (total operating expenses divided by net interest income).

The results show that the financial performance of the banks is strongly and positively influenced by the operational efficiency, assets management, and banks’ size. However, the bank with higher total capital, deposits, credits, or total assets does not always mean that has better profitability performance (Tarawneh 2006). This study will adopt panel data regression analysis to test the hypothesis.

Ben Naceur (2003) examined the impacts of banks characteristics, financial structure, and macroeconomic indicators on banks’ net interest margins and profitability of Tunisian banking industry through 1980 to 2000 period. The study includes the main ten deposits banks in Tunisia. He used internal indicators including capital ratio, overhead, loans and liquidity ratios. Macro-economic measures such as GDP growth, Inflation and financial structures indicators are used as external indicators. Result indicates that net interest margin has a negative relationship with bank’s size, which means that large banks tend to have lower interest margin. Moreover, high net interest margins tend to be associated with banks that hold large capital and have large overhead expenses.

At the same time, macro-economic indicators do not have any influence on banks profitability for Tunisian banks. On the other hand, financial structure such as concentration is less beneficial for banking industry, but stock market development has positive impacts on profitability (Ben Naceur 2003).
Flamini, McDonald, and Schumacher (2009) studied the profitability determinants of commercial banks in Sub-Saharan Africa (SSA). The paper used a sample of 398 banks in 41 SSA counties. The study used ROA as a profitability measure. Meanwhile, internal indicators used in their paper are bank’s size (total assets), capital, credit risk, cost management, activity mix, market power and ownership. By contrast, the external indicators used, regarding macroeconomic, are wealth (GDP), inflation, and regulation. Findings show that higher ROA are associated with large bank size, activity diversification, and private ownership. Low inflation and favorable economic condition will lead to high profitability (Flamini, McDonald, and Schumacher 2009).

In an effort to promote efficiency in the banking industry and after a period of worldwide liberalization and deregulation, the Basel Capital Accord of 1988 (Basel I) which led to the endorsement of a new capital adequacy framework (Basel II) in 2004 (operational from 2007) marked the beginning of a new phase of re-regulation with an attempt to bring about an international harmonization of banking regulations (Bichsel and Blum, 2005). Kenyan banks are by and large yet to adopt model based approaches to assessing their capital adequacy needs (Central Bank of Kenya, 2008a). In assessing bank’s efficiency, the level, nature and composition of capital and the cost income ratio are some of the key measures used (Bourke, 1989; Berger, 1995; Thompson et al., 2002; Navapan and Tripe, 2003; Hess and Francis, 2004; Welch, 2006; Giokas, 2007).

Kwan and Eisenbeis (1995) and Hughes and Moon (1995) argued that it is necessary to recognize explicitly the concept of efficiency in the empirical models linking bank capital to risk and to distinguish between efficient and inefficient risk undertaking.
Capital adequacy has been the focus of many studies and regulator as it is considered to be one of the main drivers of any financial institution's profitability (Bourke, 1989; Berger, 1995; Thompson et al., 2002; Navapan and Tripe, 2003; White and Morrison, 2001). In contrast, other studies argue that in a world of perfect financial markets, capital structure and hence capital regulation is irrelevant (Modigliani and Miller, 1958). However, White and Morrison (2001) posited that the regulator ensures that banks have enough of their own capital at stake. Bichsel and Blum (2005) supported this proposition arguing that these regulations help in reducing negative externalities for instance, disruptions to the payments system and a general loss of confidence in the banking system) in addition to boosting the slow economic growth hence the Gross Domestic Product (GDP).

In Kenya, the government, through the Central Bank of Kenya has regulatory ratios that all commercial banks should gradually increase their capital base to one billion Kenya shillings from the current 250 million Kenya shillings by 2012 (Central Bank of Kenya, 2008b). This represents a 300% increase. Navapan and Tripe (2003) asserted that the proposition that there should be a negative relationship between a bank's ratio of capital to assets and its return on equity may seem to be self-evident as to not need empirical verification. It is therefore important to note that Berger (1995) found evidence for a positive relationship that is, the ratios of capital to assets and returns on equity were positively related.

He argued that a higher capital ratio (with reduced risk of bankruptcy) should reduce a bank's cost of funds, both by reducing the price of funds and the quantity of funds required, thus improving a bank's net interest income and hence profitability.

However, Navapan and Tripe (2003) found the contrary - that is, negative relationship between capital and profitability exists. Ghosh et al. (2003) explained that banks are required
to hold capital equal to a certain percentage of the total risk-weighted assets. Under the risk-based standards, capital consists of two parts: tier-I capital (comprising equity capital and published reserves from post-tax retained earnings) and tier-II capital (comprising perpetual preferred stock, loan loss reserves, sub-ordinate debt, etc.). Using the expected bankruptcy theory, Lewis (2008) explained that the expected bankruptcy costs hypothesis can be used to explain part of the observed positive relationship between capital asset ratios (CARs) and return on assets (ROA) under certain circumstances.

The Cost Income Ratio (CIR), with its limitations (Welch, 2006), is another emerging measure of bank’s efficiency and a benchmarking metric (Tripe, 1998; Hess and Francis, 2004). Being a standard benchmark of bank’s efficiency, the CIR measures a bank’s operating costs as a proportion of its total (i.e., net interest and non-interest) income (Welch, 2006).

In measuring the profitability of a bank, bank regulators and analysts have used Return On Assets (ROA) and return on equity (ROE) to assess industry performance and forecast trends in market structure as inputs in statistical models to predict bank failures and mergers and for a variety of other purposes where a measure of profitability is desired (Gilbert and Wheelock, 2007; Mostafa, 2007; Christian et al., 2008).

Navapan and Tripe (2003) explained that comparing banks’ Returns on Equity (ROE) is one way of measuring their performance relative to each other. The return on equity looks at the return on the shareholder’s investment and thus from the shareholder’s perspective, allows a comparison of investment in a bank’s shares with other investment opportunities, while it can also provide a measure of the bank’s riskiness (Gilbert and Wheelock, 2007).

Cotter (1966) noted that where shareholder interests are controlling, capital is an important managerial decision variable and the capital position of the wealth-maximizing bank
theoretically will affect its capital structure and the loan policy. To the extent that capital does affect lending, it has implications for the performance of banks as financial intermediaries and hence for the allocation of real resources within the economy. Cotter (1966) concluded by pointing out that from this standpoint, market determined capital positions seem preferable.

Capital (equity and long-term debt) represents a source of funds to the bank along with deposits and borrowings. Pringle (1971) observed that an undercapitalized bank will find itself subjected to high levels of short-term borrowing at potentially high excess costs during periods of tight money. Flamini et al. (2009) postulated that bank returns are affected by macroeconomic variables, suggesting that macroeconomic policies that promote low inflation and stable output growth do boost credit expansion.

According to Christian et al. (2008), capital adequacy measures provide significant information regarding a firm's returns, while a few of the individual variables representing asset quality and earnings are informative.

Size and growth and loan exposure measures do not appear to have any significant explanatory power when examining returns. The study establishes that the change in total assets is also significant.
2.2 CONCEPTUAL FRAMEWORK

Conceptual framework is a description of the relationship between the specific variables identified in a study. To achieve the main objective of this study, the dependent variable has been identified as profitability of commercial banks in Kenya. Profitability will be measured in terms of ratios. The advantage of using profitability ratios is that they are inflation invariant that is they are not affected by changes in price levels. This is useful in a time series analysis such as this, where the real value of profits may be distorted by the time varying inflation rates. In analyzing how well any given bank is performing, it is often useful to contemplate on the return on assets (ROA) and the return on equity (ROE) as used by Bourke (1989) and Molyneux and Thornton (1992). The choice of the profitability ratio will depend on the objective of the profitability measure. The ROA is primarily an indicator of managerial efficiency. It indicates how capable the management of the bank has been in converting the institution’s assets into net earnings. The ROA is a valuable measure when comparing the profitability of one bank with another or with the commercial banking system as a whole. A low rate might be the result of conservative lending and investment policies or excessive operating expenses.

Internal factors that affect the bank revenues and expenses are considered to be the independent variables for this study. The internal factors that affect the banks revenues and expenses are the; Bank size, Asset management, and operational efficiency.

The variable used to measure the assets management is assets utilization ratio (operational income divided by total assets), whilst operational efficiency shall be measured by operating efficiency ratio (total operating expenses divided by net interest income). The assumption here is that there will be a linear relationship between the response variable and the explanatory variables.
The study will adopt a multiple linear regression equation to represent the relationship between the dependent variables of (profitability) and the independent variables of (Bank size, Asset management and operations efficiency). The model is as follow:

\[ Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + \beta_6 X_{6it} + \beta_7 X_{7it} + u. \]

Where

- \( Y_{it} \) represents Return on Asset (ROA) and Return on Equity (ROE for bank \( i \) at time \( t \). 
- \( \beta_0 \) = Represents constant of the equation 
- \( X_{1it} \) represents natural logarithm of Total Asset (TA) for bank \( i \) at time \( t \) 
- \( X_{2it} \) represents ratio of Loan to total Assets (LTA) for bank \( i \) at time \( t \) 
- \( X_{3it} \) represents ratio of Equity to Total Asset (EQTA) for bank \( i \) at time \( t \) 
- \( X_{4it} \) it represent ratio of Total Deposits to Total Assets (DTA) for bank \( i \) at time \( t \) 
- \( X_{5it} \) represents ratio of operating income to Total Assets (OPINT) for bank \( i \) at time \( t \) 
- \( X_{6it} \) represents ratio of Cost to Income (COTIN) for bank \( i \) at time \( t \) 
- \( X_{7it} \) represents ratio of Operating Expenses to Total Assets (OPEXTA) for bank \( i \) at time \( t \) 
- \( i = 1 \) to 9 banks
2.3 OPERATIONAL FRAMEWORK

Operational framework introduces the calculation of selected variables of this research. The following lines describe variables’ calculation:

Profitability Ratios

Profitability is a bank’s first line of defence against unexpected losses, as it strengthens its capital position and improves future Profitability through the investment of retained earnings. Commercial Banks incur costs for their liabilities and earn income from their assets. Thus profitability of banks is directly affected by management of the internal factors. In addition, different market and macroeconomic factors also influence the ability of the banks to make profits (Short, 1979; Molyneux and Thornton, 1992; Athanasoglou et al, 2008). For this study profitability will be measured by profitability ratios, ROE and ROA.

Return on Equity (ROE) is calculated by dividing net income before tax and interest by total equity. For this study ROE was used as profitability indicator which is a dependent variable in the regression equation.

\[
ROE = \frac{\text{Net income before tax and interest}}{\text{Total Equity}} \times 100
\]

Return on Assets (ROA) is calculated by dividing net income before tax and interest by total assets. For this study ROA was used as profitability indicator which is a dependent variable in the regression equation.
ROA = Net income before tax and interest \times 100 \over \text{Total Assets}

**Bank Size**

**Total Assets:** The total assets determine the size of the bank and it will be included into this study and an independent variable. Since the dependent variable in the model (ROA and ROE) was deflated by total assets it was appropriate to take natural logarithm before including it in the model to be consistent with other ratios.

**Asset Management Ratios**

**Loan to Total Assets Ratio (LTA)** is calculated by dividing bank’s total loans by assets. This ratio is included in this study as an independent variable in the profitability model. The higher this ratio, the riskier the bank will be, and the liquidity will be low.

\[
LTA = \frac{\text{Loans and Advances}}{\text{Total Assets}} \times 100
\]

**Equity to Total Assets Ratio (EQTA)** is calculated by dividing shareholders’ equity by total assets. EQTA reveals capital adequacy and should capture the general soundness of financial institution and was included in this study as an independent variable in the profitability model.

\[
EQTA = \frac{\text{Shareholders’ Equity}}{\text{Total Assets}} \times 100
\]

**Deposits to Assets ratio (DTA)** is calculated by dividing total customer deposits by total assets. DTA was included in this study as an independent variable in the profitability model.
Operating income total assets (OPINTA) is calculated by dividing operating income by total Assets. OPINTA was included in this model as an independent variable in the profitability model.

\[
\text{OPINTA} = \frac{\text{Operating income}}{\text{Total Assets}} \times 100
\]

Operational Efficiency Ratios

Efficiency ratios are used to measure the efficiency in assets management; it is also called assets utilization or activity ratios (Khan and Jain, 2008). The following ratios were used in this research:

Cost to Income Ratio (COTIN) is calculated by dividing total operating expense by total operating income. COTIN was included in this study as an independent variable in the profitability model.

\[
\text{COTIN} = \frac{\text{Total Operating Expenses}}{\text{Total Operating Income}} \times 100
\]

Operating Expenses to Total Assets (OPEXTA) is calculated by dividing total operating expenses by total Assets. OPEXTA was included in this study as an independent variable in the profitability model.

\[
\text{OPEXTA} = \frac{\text{Total Operating Expenses}}{\text{Total Assets}} \times 100
\]
CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.0 INTRODUCTION

Research design and methodology direct the researcher in planning and implementing the study in a way that is most likely to achieve the intended goal. It is a blue print for conducting the study (Burns and Grove, 1998). This chapter describes the research design and methodology including sampling and data analysis.

3.1 RESEARCH DESIGN

Research can be categorized into different types depending on the nature of the purpose or research problem. The purpose of the academic research can be exploratory (ambiguous problem), descriptive (aware of problem), or explanatory (clearly defined problem) (Yin, 1994; Zikmund, 2000). The purpose of this study was to establish the influence of internal banking factor on the profitability of commercial banks in Kenya. The researcher used fact and information already available through financial statements of earlier years and analyzed these to determine the relationship and the strength of correlation of the variables hence by calling the use of diagnostic or explanatory analysis. The emphasis of explanatory researches is on studying a problem or a phenomenon in order to establish causal relationship among variables (Saunders et al., 2000) therefore Explanatory research is sometimes referred to as causal research (Zikmund, 2000).

There are two broad approaches to research Qualitative and quantitative methods. Quantitative research involves numerical representation and manipulation of observation for the purpose of describing and explaining the phenomena that those observations reflect.
Qualitative research on the other hand involves non-numerical examination and interpretation of observation for the purpose of discovering the underlying meaning and pattern of relationships. Qualitative research emphasis the process and meaning that are not rigorously examined or measured, in term of quantity, amount of intensity or frequency. In contrast, quantitative study emphasis measurement and analysis of causal relationships between variables, not processes (Casebeer and Verhoef, 1997; Zikmund, 2000; McDaniel and Gates, 1996; Miles, 1994; Easteby-Smith, 1991). In quantitative research variables and relationships are the central idea (Neuman, 2003). The purpose of this study was to analyze and examine the effects of Asset management, Bank size and Operational efficiency on financial performance (ROA and ROE) of commercial banks in Kenya during the period of five years 2006 to 2010 hence by making the researcher to employ quantitative research design. Quantitative research design was relevant for this study because it employs statistics, which is a comparative methodological discipline that uses mathematical ideas for descriptive data analysis, point inference, and hypothesis testing (Creswell, 1008). Quantitative research design is useful in providing detailed planning prior to data collection and analysis, because it provided tools for measuring concepts, planning design stages and for dealing with population and sampling issues. In addition, a quantitative research approach utilizes a deductive model in testing the relationship between variables and to provide evidence for or against pre-specific hypothesis (Neuman, 2003).
3.2 POPULATION

Polit and Beck (2004) define a population as the entire aggregation of cases that meet a designated set of criteria. The target population is the aggregate of cases about which is the researcher would like to make generalizations (Polit & Beck 2004). The target population of the study was taken to be all the commercial banks licensed to operate in Kenya during 2006 and 2010. According to 2010 Central Bank of Kenya survey, there were 43 commercial banks. Therefore the 43 commercial banks formed the observation units for this study.

3.3 SAMPLE SIZE AND SAMPLING TECHNIQUES

The sample is a subset of the population selected to participate in a research study. It defines the selected groups of elements that is: individual, groups and organizations. The sample is chosen from the study population that s commonly referred to as the target population (Burns & Grove 1998; Polit & Hungler 1999). Convenience sampling technique was adopted for ease of analysis. In convenience sampling participants are included in the study because they happen to be in the right place at the right time (Burns & Grove 1998; Polit & Hungler 1999). Thus, the nine listed commercial banks acted as the units of analysis for this study. There were nine commercial banks listed in the Nairobi Stock Exchange and operating in Kenya during 2006 and 2010. These are: Kenya commercial bank (KCB), cooperative bank of Kenya, Equity bank, NIC bank, National bank of Kenya, diamond trust bank, Barclays bank (BBK), standard chartered, and CFC Stanbic bank to investigate and examine the nature of these banks and try to achieve the aforementioned objectives from 2006 to 2010.

Table 1: List of commercial banks listed in the Nairobi Securities Exchange (NSE)
3.4 DATA COLLECTION METHODS AND PROCEDURES

Polit and Beck (2004) define data collection as the gathering of information needed to address a research problem. It is the precise systematic gathering of information relevant to the research problem using methods such as interviews, participant’s observation, focus group discussions, journals and available data. Data in form of annual financial statements consisting of; balance sheet and income statements for the period 2006 to 2010 was collected by personal visit to the finance departments of the nine selected commercial banks.

No device was employed in the collection of the data as data were collected via the internet and review of published financial statements and banking survey publication. The data used in the publication also ranks all Kenyan banks on a range of indicators and provides a refined overall ranking based on specific indicators.

3.5 DATA ANALYSIS METHODS:

The purpose of this study was to analyze and examine the effects of Asset management, Bank size and Operational efficiency on financial performance (ROA and ROE) of commercial banks in Kenya during the period of five years 2006 to 2010. The collected data was assessed by using ratio analysis such as: profitability ratios, Asset management ratios, and operational efficiency ratios. In addition, panel data regression was used to test the hypothesis with 95% level of confidence. It’s known as time series analysis that permits the analysis of consistent set of variables with data collected over multiple time periods (Campbell and Frei, 2006). Since the study tends to analyze the performance of different banks over time, it’s necessary to include indicator variables for each bank over the five years covered in this study. In the analysis, we assume that there is no autocorrelation of cross units.
3.6 VALIDITY AND RELIABILITY

A quantitative study technique characteristically commences with the compilation of data established based on speculation or hypothesis, followed by employing graphical or inferential statistical techniques. A quantitative research method is more reliable and credible because the results possess scientific validity and are devoid of human feelings and judgment. The data analysis process ensured the results were more reliable and authoritative. A quantitative research method gives more unbiased results than a purely qualitative study that relies on surveys (Creswell, 2008). According to Creswell (2008), surveys are not without data collection and coding problems and responses are rife with biases.

The internal validity of the study depends on whether or not the regression tools measure what they propose to measure, whereas external validity relies on generalizing the study’s results to similar contexts. A study is reliable if other research studies that replicate the design obtain the same or similar results. If the study is replicated with a similar population size using similar procedures, the results should be similar (Creswell, 2008).
CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.0 INTRODUCTION
This section deals with the results of the study which include the descriptive statistics, econometric results and tests for multicollinearity which is relevant for the study. Data pertaining to the effect of Asset management, Bank size and operational efficiency on profitability of commercial banks in Kenya measured in ROA and ROE is analyzed, presented, and interpreted.

4.1 DESCRIPTIVE STATISTICS
Descriptive statistics were used to provide summary about the sample and about the observations that have been made. Table 4.1 below provides minimum value, maximum value, the mean value and standard deviation for each of the nine variables in the study.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. deviation</th>
<th>Skewness (Bowley)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>0.028</td>
<td>6.636</td>
<td>3.199</td>
<td>1.436</td>
<td>0.070</td>
</tr>
<tr>
<td>ROE</td>
<td>0.177</td>
<td>53.073</td>
<td>23.412</td>
<td>10.146</td>
<td>0.047</td>
</tr>
<tr>
<td>LOG ASSETS</td>
<td>4.302</td>
<td>8.155</td>
<td>5.891</td>
<td>1.422</td>
<td>0.735</td>
</tr>
<tr>
<td>LTA</td>
<td>18.940</td>
<td>77.472</td>
<td>54.484</td>
<td>15.299</td>
<td>-0.528</td>
</tr>
<tr>
<td>EQTA</td>
<td>8.380</td>
<td>28.214</td>
<td>14.126</td>
<td>3.871</td>
<td>0.075</td>
</tr>
<tr>
<td>DTA</td>
<td>44.412</td>
<td>124.057</td>
<td>75.414</td>
<td>14.428</td>
<td>-0.495</td>
</tr>
<tr>
<td>OPEXTA</td>
<td>2.534</td>
<td>12.781</td>
<td>6.556</td>
<td>2.173</td>
<td>-0.210</td>
</tr>
<tr>
<td>OPINTA</td>
<td>5.556</td>
<td>53.522</td>
<td>12.518</td>
<td>7.167</td>
<td>-0.113</td>
</tr>
<tr>
<td>COTIN</td>
<td>11.792</td>
<td>68.934</td>
<td>55.481</td>
<td>10.049</td>
<td>-0.468</td>
</tr>
</tbody>
</table>

Confidence interval (%): 95 and Tolerance: 0.0001
Source: Research Data
ROA and ROE have a positive mean value which ranges from a low of 3.199 to 23.412. That is to say banks in the study sample have a return of assets of 3.2% and return of equity of 23.4% over the entire period of 2006 to 2010 under study. The mean of ROE varies greatly across banks and over the entire periods of the study, the standard deviation of ROE is 10.146%, with a minimum and maximum values are 2.8% and 6.636% respectively. There is greater variation in the data set of ROE, LTA, DTA, and COTIN because of the size difference of banks taken for study. Some of the banks are well established over a long period and thus they have big size and they employ higher Assets capital, and equity which increases bank’s ROE. All the other variables have low S.D values which show the consistency of the data set as their values are close to their mean values.

4.2 CORRELATION ANALYSIS

The relationships among the study variables depicted in the model were tested using correlation with ROA and ROE separately with internal determinants of the bank’s profitability which is presented in Table 4.2 and 4.3.

<table>
<thead>
<tr>
<th>Variables</th>
<th>LOG ASSETS</th>
<th>LTA</th>
<th>EQTA</th>
<th>DTA</th>
<th>OPEXTA</th>
<th>OPINTA</th>
<th>COTIN</th>
<th>ROA</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOG ASSETS</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LTA</td>
<td>-0.126</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EQTA</td>
<td>-0.021</td>
<td>-0.231</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DTA</td>
<td>-0.271</td>
<td>0.546</td>
<td>-0.371</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OPEXTA</td>
<td>-0.318</td>
<td>-0.080</td>
<td>0.245</td>
<td>-0.044</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OPINTA</td>
<td>0.092</td>
<td>-0.091</td>
<td>0.184</td>
<td>-0.184</td>
<td>0.422</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COTIN</td>
<td>-0.343</td>
<td>-0.063</td>
<td>0.115</td>
<td>0.061</td>
<td>0.382</td>
<td>-0.552</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>ROA</td>
<td>-0.310</td>
<td>0.197</td>
<td>0.320</td>
<td>0.371</td>
<td>0.393</td>
<td>0.101</td>
<td>-0.056</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Confidence interval (%): 95 and Tolerance: 0.0001
Source: Research Data
The correlation analysis shows that LTA, EQTA, DTA, OPEXTA, and OPINTA have a positive relationship with ROA, while LOG ASSETS and COTIN have a negative relationship with ROA. It depicts that the larger banks are better placed than smaller banks in harnessing economies of scale in transactions to the plain effect that they will tend to enjoy a higher level of profits. The result is consistent to previous findings of Molyneux and Thornton (1992), Bikker and Hu (2002) and Goddard et al. (2004). Table 4.3 shows correlation matrix between ROE and explanatory variables.

Table 4.3: Correlation Matrix-(ROE)

<table>
<thead>
<tr>
<th>Variables</th>
<th>LOG ASSETS</th>
<th>LTA</th>
<th>EQTA</th>
<th>DTA</th>
<th>OPEXTA</th>
<th>OPINTA</th>
<th>COTIN</th>
<th>ROE</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOG ASSETS</td>
<td><strong>1.000</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LTA</td>
<td>-0.126</td>
<td><strong>1.000</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EQTA</td>
<td>-0.021</td>
<td>-0.231</td>
<td><strong>1.000</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DTA</td>
<td>-0.271</td>
<td>0.546</td>
<td>-0.371</td>
<td><strong>1.000</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OPEXTA</td>
<td>-0.318</td>
<td>-0.080</td>
<td>0.245</td>
<td>-0.044</td>
<td><strong>1.000</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OPINTA</td>
<td>0.092</td>
<td>-0.091</td>
<td>0.184</td>
<td>-0.184</td>
<td>0.422</td>
<td><strong>1.000</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COTIN</td>
<td>-0.343</td>
<td>-0.063</td>
<td>0.115</td>
<td>0.061</td>
<td>0.382</td>
<td>-0.552</td>
<td><strong>1.000</strong></td>
<td></td>
</tr>
<tr>
<td>ROE</td>
<td>-0.272</td>
<td>0.320</td>
<td>-0.282</td>
<td>0.591</td>
<td>0.221</td>
<td>0.035</td>
<td>-0.202</td>
<td><strong>1.000</strong></td>
</tr>
</tbody>
</table>

*Confidence interval (%): 95 and Tolerance: 0.0001*

*Source: Research Data*

The correlation analysis shows that LTA, DTA, OPEXTA, and OPINTA have a positive relationship with ROE, while LOG ASSETS, EQTA and COTIN have a negative relationship with ROE.
4.3 REGRESSION ANALYSIS

Table 4.4 and 4.5 show the estimated parameters and t-statistics obtained from the application of multiple regression models, using ROA and ROE respectively as the dependent variables.

<table>
<thead>
<tr>
<th>Table 4.4: Regression of variable ROA:</th>
<th>Table 4.5: Regression of variable ROE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goodness of fit statistics:</td>
<td>Goodness of fit statistics:</td>
</tr>
<tr>
<td>Observations</td>
<td>Observations</td>
</tr>
<tr>
<td>Sum of weights</td>
<td>Sum of weights</td>
</tr>
<tr>
<td>DF</td>
<td>DF</td>
</tr>
<tr>
<td>$R^2$</td>
<td>$R^2$</td>
</tr>
<tr>
<td>Adjusted $R^2$</td>
<td>Adjusted $R^2$</td>
</tr>
<tr>
<td>DW</td>
<td>DW</td>
</tr>
<tr>
<td>45.000</td>
<td>45.000</td>
</tr>
<tr>
<td>45.000</td>
<td>45.000</td>
</tr>
<tr>
<td>37.000</td>
<td>37.000</td>
</tr>
<tr>
<td>0.803</td>
<td>0.811</td>
</tr>
<tr>
<td>0.766</td>
<td>0.775</td>
</tr>
<tr>
<td>1.878</td>
<td>1.745</td>
</tr>
</tbody>
</table>

The $R^2$ (coefficient of determination) indicates the percentage of the variability of the dependent variable which is explained by the explanatory variables. The closer to 1 the $R^2$ is, the better the fit. In this particular case, 80.3% of the variability of ROA and 81.1% of ROE is explained by Log Asset, ratios of Asset management and ratios of operational efficiency. The remainder of the variability is due to other explanatory variables for instance prevailing economic conditions that were not included in this study. The regression equations appear useful for making predictions in profitability of commercial banks since $R^2$ of 0.803 and 0.811 are closer to 1 for ROA and ROE respectively and therefore being considered significantly a test of goodness of fit.

Regression coefficients were used to determine which independent variable has a significant influence on profitability measured by ROA.
Table 4.6: Determinants of Return on Assets (ROA)

<table>
<thead>
<tr>
<th>Predictor Term</th>
<th>Coefficient</th>
<th>T</th>
<th>P</th>
<th>Lower bound (95%)</th>
<th>Upper bound (95%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>4.972</td>
<td>3.015</td>
<td>0.0046</td>
<td>1.631</td>
<td>8.314</td>
</tr>
<tr>
<td>LOG ASSETS</td>
<td>-0.127</td>
<td>-1.515</td>
<td>0.1382</td>
<td>-0.298</td>
<td>0.043</td>
</tr>
<tr>
<td>LTA</td>
<td>-0.004</td>
<td>-0.504</td>
<td>0.6172</td>
<td>-0.021</td>
<td>0.013</td>
</tr>
<tr>
<td>EQTA</td>
<td>0.201</td>
<td>6.606</td>
<td>0.0000</td>
<td>0.140</td>
<td>0.263</td>
</tr>
<tr>
<td>DTA</td>
<td>0.049</td>
<td>5.173</td>
<td>0.0000</td>
<td>0.030</td>
<td>0.068</td>
</tr>
<tr>
<td>OPEXTA</td>
<td>0.761</td>
<td>8.125</td>
<td>0.0000</td>
<td>0.571</td>
<td>0.951</td>
</tr>
<tr>
<td>OPINTA</td>
<td>-0.212</td>
<td>-6.660</td>
<td>0.0000</td>
<td>-0.277</td>
<td>-0.148</td>
</tr>
<tr>
<td>COTIN</td>
<td>-0.174</td>
<td>-7.849</td>
<td>0.0000</td>
<td>-0.219</td>
<td>-0.129</td>
</tr>
</tbody>
</table>

Confidence interval (%): 95 and Tolerance: 0.0001
Source: Research Data

From the coefficient Table 4.6, the p value corresponding to the independent variables; EQTA, DTA, OPINTA, COTIN, and OPEXTA possess p value less than 0.05. Therefore the conclusion is that these variables possess significant influence over the profitability measured by ROA. Going by the sign of the coefficients, Capital ratios EQTA and DTA show a significant impact on the dependent variable ROA. This can be interpreted as that well capitalized banks realize higher Returns on Assets (ROA). This result is consistent with results of previous research for instance (Alkassim, F.A. (2005). OPEXTA as a measure of efficiency of asset management has a significant positive influence on the dependent variable ROA. That is, as the bank management continuously increases efficiency of asset management variables the Return on Assets (ROA) also increases. However, OPINTA and COTIN has significant negative influence on the Return on Assets (ROA).
Table 4.7: Determinants of Return on Equity (ROE)

<table>
<thead>
<tr>
<th>Predictor Term</th>
<th>Coefficient</th>
<th>T</th>
<th>P</th>
<th>Lower bound (95%)</th>
<th>Upper bound (95%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>62.619</td>
<td>5.484</td>
<td>0.000</td>
<td>39.482</td>
<td>85.755</td>
</tr>
<tr>
<td>LOG ASSETS</td>
<td>-0.893</td>
<td>-1.533</td>
<td>0.133</td>
<td>-2.073</td>
<td>0.287</td>
</tr>
<tr>
<td>LTA</td>
<td>-0.050</td>
<td>-0.870</td>
<td>0.390</td>
<td>-0.166</td>
<td>0.066</td>
</tr>
<tr>
<td>EQTA</td>
<td>-0.128</td>
<td>-0.605</td>
<td>0.548</td>
<td>-0.556</td>
<td>0.300</td>
</tr>
<tr>
<td>DTA</td>
<td>0.362</td>
<td>5.508</td>
<td>0.000</td>
<td>0.229</td>
<td>0.495</td>
</tr>
<tr>
<td>OPEXTA</td>
<td>5.415</td>
<td>8.351</td>
<td>0.000</td>
<td>4.101</td>
<td>6.729</td>
</tr>
<tr>
<td>OPINTA</td>
<td>-1.513</td>
<td>-6.852</td>
<td>0.000</td>
<td>-1.961</td>
<td>-1.066</td>
</tr>
<tr>
<td>COTIN</td>
<td>-1.321</td>
<td>-8.589</td>
<td>0.000</td>
<td>-1.633</td>
<td>-1.009</td>
</tr>
</tbody>
</table>

Confidence interval (%): 95 and Tolerance: 0.0001
Source: Research Data

From the coefficient Table 4.7, the p value corresponding to the independent variables; DTA, OPINTA, OPEXTA and COTIN possess p value less than 0.05. Therefore the conclusion is that these variables possess significant influence over the profitability measured by ROE. Going by the sign of the coefficients, Liquidity ratio DTA show a significant impact on the dependent variable ROE. This can be interpreted as that well liquidated banks through funds raised from cheap customer deposits realize higher Returns on Equity (ROE). This result is consistent with results of previous research for instance (Alkassim, F.A. (2005). OPEXTA as a measure of efficiency of asset management has a significant positive influence on the dependent variable ROA. That is, as the bank management continuously increases efficiency of asset management variables the Return on Assets (ROA) also increases. However, OPINTA and COTIN has significant negative influence on the Return on Assets (ROA).

Equity (ROE) also increases. However, OPINTA and COTIN has significant negative influence on the Return on Equity (ROE).
4.4 ANALYSIS OF VARIANCE (ANOVA)

It is important to examine the results of the analysis of variance table (see Table 4.8 and 4.9 below).

### Table 4.8 Analysis of variance (ROA)

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Sum of squares</th>
<th>Mean squares</th>
<th>F</th>
<th>Pr &gt; F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>7</td>
<td>72.801</td>
<td>10.400</td>
<td>21.527</td>
<td>&lt; 0.0001</td>
</tr>
<tr>
<td>Error</td>
<td>37</td>
<td>17.875</td>
<td>0.483</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>44</td>
<td>90.676</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Computed against model Y=Mean(Y)*

### Table 4.9: Analysis of variance(ROE)

<table>
<thead>
<tr>
<th>Source</th>
<th>DF</th>
<th>Sum of squares</th>
<th>Mean squares</th>
<th>F</th>
<th>Pr &gt; F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>7</td>
<td>3672.177</td>
<td>524.597</td>
<td>22.650</td>
<td>&lt; 0.0001</td>
</tr>
<tr>
<td>Error</td>
<td>37</td>
<td>856.970</td>
<td>23.161</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>44</td>
<td>4529.147</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Computed against model Y=Mean(Y)*

The results helped to determine whether or not the explanatory variables have significant information (null hypothesis $H_0$) to the model. Given that the probability corresponding to the Fisher's F is lower than 0.0001, it means that we would be taking a 0.01% risk in assuming that the null hypothesis (no effect of the seven explanatory variables and their interaction) is wrong. Therefore, the conclusion was that the seven variables and their interaction do have a significant effect.
4.5 INCREMENTAL REGRESSION

The incremental regression was performed by removing individual independent variables from the model and by checking the effect on the value of $R^2$.

Table 4.10: Incremental Regression (Model 1 ROA)

<table>
<thead>
<tr>
<th>MODELS</th>
<th>$R^2$ VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>R Squared original</td>
<td>80.3%</td>
</tr>
<tr>
<td>R Squared after removal of OPEXTA in the model</td>
<td>45.1%</td>
</tr>
<tr>
<td>Difference</td>
<td>35.2%</td>
</tr>
</tbody>
</table>

Among all the variables removed, ratio of operating expenses to total assets (OPEXTA) has altered the value of R-squared to a highest degree (35.2% decreases in the portion of the dependent variable explained by independent variables) as the value for the $R^2$ changes from 80.3% to 45.1%. This substantial decrease in the value of the R-squared shows the importance of OPEXTA in the model. This importance is also highlighted in the regression result as the value of coefficient of the variable (0.76) is highest among all the variables. The result is presented in table 4.8.

Table 4.11: Incremental Regression (Model 2 ROE)

<table>
<thead>
<tr>
<th>MODELS</th>
<th>R-VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>R Squared original</td>
<td>81.1%</td>
</tr>
<tr>
<td>R Squared after removal of OPEXTA in the model</td>
<td>43.4%</td>
</tr>
<tr>
<td>Difference</td>
<td>37.7%</td>
</tr>
</tbody>
</table>
Among all the variables removed, cost to income ratio (COTIN) has altered the value of R-squared to a highest degree (35.2% decreases in the portion of the dependent variable explained by independent variables) as the value for the R-squared changes from 80.3% to 45.1%. This substantial decrease in the value of the R-squared shows the importance of OPEXTA in the model. This importance is also highlighted in the regression result as the value of coefficient of the variable (-1.32) is highest among all the variables. The result is presented in table 4.8.

4.6 TESTING THE HYPOTHESIS

To test multiple regression models, it was necessary to assess whether the collected data violated some key assumptions of regression models because any assumption violations can result in distorted and biased research results (Hair et al. 1998). These assumptions include: Multicollinearity and Normality.

Multicollinearity can be controlled by two ways: tolerance values and values of variance inflation factor (VIF) (Hair et al. 1998). High degrees of multicollinearity can result in both regression coefficients being inaccurately estimated, and difficulties in separating the influence of the individual variables on the dependent variables (Hair et al. 1998). Any variables with a tolerance value below 0.10 or with a value above 10.0 of VIF would have a correlation of more than 0.90 with other variables, indicative of the multicollinearity problem (Hair et al. 1998). Results in the Multicollinearity table (4.12) below showed that Tolerance for all independent variables was more than 0.10 and Variance Inflation Factor (VIF) for the independent variables was less than the limited valued 10.0 for both ROA and ROE multiple regression concluding that there was no multicollinearity between the independent variables.
Table 4.12 Multicollinearity statistics:

<table>
<thead>
<tr>
<th>Statistic</th>
<th>LOG ASSETS</th>
<th>LTA</th>
<th>EQTA</th>
<th>DTA</th>
<th>OPEXTA</th>
<th>OPINTA</th>
<th>COTIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tolerance</td>
<td>0.767</td>
<td>0.688</td>
<td>0.788</td>
<td>0.585</td>
<td>0.265</td>
<td>0.210</td>
<td>0.220</td>
</tr>
<tr>
<td>VIF</td>
<td>1.303</td>
<td>1.454</td>
<td>1.269</td>
<td>1.709</td>
<td>3.773</td>
<td>4.760</td>
<td>4.539</td>
</tr>
</tbody>
</table>

The data were also checked to verify that the assumption of multivariate normality was met. In a strict definition of a normal distribution, the skewness of the data would equal zero (Hair et al. 1998). In a practical sense, normality is defined as "a range of scores that span either side of zero". In the current study, skewness ranged from -0.528 to 0.735 as showed in table (4.1). Following the definition, skewness scores of the current data indicated an approximately normal distribution.

To know if there is an impact of independent variables on the dependent variable, hypotheses were tested using Multiple Regression analysis and (t-test). According to the decision rule: accept null hypothesis (H0) if the significance level (α) of the question is greater than 0.05 significance level, and reject (H0) if the significance (α) level equals or is less than 0.05 (Sekaran, 2003). As a result for this decision rule, the researcher has tested statistically the proposed hypotheses and found the following results:

**Hypothesis 1**

**There is no significant effect for Total assets (log Assets) on Financial Performance (Return on assets and Return on equity) of Kenyan commercial banks.**

Using multiple regression to test the mentioned hypothesis, it was found that t (observed value) = 1.515 and 1.533 for model one and two respectively (lower than the |t| Critical value = 2.015) and a significance level of (.138 and 0.134) which is greater than the significance level alpha=0.05, the null hypothesis was accepted.
The risk to accept the null hypothesis while it is not true is lower than 0.01%. Thus, bank size (log Asset) which was considered as one of the important factors does not have a significant impact on financial performance for commercial banks in Kenya.

**Hypothesis 2**

*There is no significant effect for Total Loans to Asset ratio (LTA) on Financial Performance (Return on assets and Return on equity) of Kenyan commercial banks.*

Using multiple regression to test the mentioned hypothesis, it was found that $t$ (observed value) = 0.504 and 0.870 for model I and model II respectively (lower than the $|t|$ Critical value = 2.015) and a significance level of (0.617 and 0.390) for ROA and ROE models respectively which is less than the significance level alpha=0.05, the null hypothesis was accepted. The risk to reject the null hypothesis while it is true is lower than 0.01%. Thus, the ratio of Loan to Total Asset (LTA) which was considered as one of the important factors does not have significant impact on financial performance for commercial banks in Kenya.

**Hypothesis 3**

*There is no significant effect for the ratio of Equity to total Assets (EQTA) on Financial Performance (Return on assets and Return to equity) of Kenyan commercial banks.*

Using multiple regression to test the mentioned hypothesis, it was found that $t$ (observed value) = 6.606 and 0.605 for model I and II respectively (greater than the $|t|$ Critical value = 2.015 for model I and lower than the $|t|$= 2.015) and a significance level of (<.0001 and 0.549) which is lower than the significance level alpha=0.05, for ROA model the null hypothesis was rejected and the risk to reject the null hypothesis while it is true is lower than 0.01%. However, the $t$ (observed value) = 0.605 for ROE model (less than the $|t|$ Critical value =
2.015) and a significance level of (0.549) which is greater than the significance level alpha=0.05 the null hypothesis was accepted and the risk

Thus, the ratio of Equity to total Assets (EQTA) which was considered as one of the important factors has a significant impact on financial performance measured in ROA. However, this factor has no significant impact on financial performance measured in ROE.

Hypothesis 4

There is no significant effect for Deposits to Total Assets (DTA) on Financial Performance (Return on assets and Return on equity) of Kenyan commercial banks.

Using multiple regression to test the mentioned hypothesis, it was found that $t$ (observed value) = 5.173 and 5.508 for models I and II respectively (greater than the $|t|$ Critical value = 2.015) and a significance level of (<.0001) which is lower than the significance level alpha=0.05, the null hypothesis was rejected. The risk to reject the null hypothesis while it is true is lower than 0.01%. Thus, the DTA which was considered as one of the important factors has a significant impact on financial performance for commercial banks in Kenya.

Hypothesis 5

There is no significant effect for operating expense to Total Asset (OPEXTA) On Financial Performance (Return on assets and Return on equity) of Kenyan commercial banks.

Using multiple regression to test the mentioned hypothesis, it was found that $t$ (observed value) =8.125 and 8.351 (greater than the $|t|$ Critical value = 2.015) and a significance level of (<.0001) which is lower than the significance level alpha=0.05, the null hypothesis was rejected. The risk to reject the null hypothesis while it is true is lower than 0.01%. Thus, the
Hypothesis 6

There is no significant effect for operating income to total Asset ratio (OPINTA) on Financial Performance (Return on asset and Return on equity) of Kenyan commercial banks.

Using multiple regression to test the mentioned hypothesis, it was found that $t$ (observed value) = 6.660 and 6.852 in ROA and ROE models (greater than the $|t|$ Critical value = 2.015) and a significance level of (<0.0001) which is lower than the significance level alpha=0.05, the null hypothesis was rejected. The risk to reject the null hypothesis while it is true is lower than 0.01%. Thus, the OPINTA ratio which was considered as one of the important factors has a significant impact on financial performance for commercial banks in Kenya.

Hypothesis 7

There is no significant effect for cost to income ratio (COTIN) on Financial Performance (Return on asset and Return on Equity) of Kenyan commercial banks.

Using multiple regression to test the mentioned hypothesis, it was found that $t$ (observed value) = 7.849 and 8.589 for ROA and ROE (greater than the $|t|$ Critical value = 2.015) and a significance level of (<0.0001) which is lower than the significance level alpha=0.05, the null hypothesis was rejected. The risk to reject the null hypothesis while it is true is lower than 0.01%. Thus, the COTIN ratio which was considered as one of the important factors has a significant impact on financial performance for commercial banks in Kenya.
CHAPTER FIVE:

CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSIONS
Profitability is an important criterion to measure the performance of banks, especially in the changing environment of banking. This study examines the impact of internal banking factors on profitability of commercial banks in Kenya. Different ratios including return on assets (ROA), return on equity (ROE), Bank size (Log Asset) Loan to Asset ratio (LTA), Equity to total Asset ratio (EQTA), Deposit to Asset (DTA), Operating expense to Total Asset (OPEXTA), Operating income to Total Asset (OPINTA) and Cost to Income ratio (COTIN) were evaluated to analyze the financial data of selected Kenyan commercial banks for the period 2006 to 2010. These ratios helped to indicate the condition of Assets Management, and Operation Efficiency position of different commercial banks sampled for this study.

The aim of this study was to evaluate the impact of banks specific factors on the performance of commercial banks in Kenya. To achieve this, the following specific objectives were developed:

I. Examine how asset management influence financial performance of commercial banks by adopting some financial indicators such as loans and advances to assets (LTA), Equity to assets (EQTA), Deposits to assets (DTA), and operating income to total assets (OPINTA).

II. Examine how operational efficiency influence financial performance of commercial banks by adopting some financial indicators namely, Cost to income (COTIN) and operating expenses to total assets (OPEXTA)
III. Examine how bank size measured by total assets influence financial performance of commercial banks in Kenya.

For this aim, panel data method (fixed effects model) was applied to data which was obtained from nine commercial banks' financial statements from 2006 to 2010. The data analysis based on the data over the period of 2006-2010 established that there exists a long run relationship of all explanatory variables with profitability. LTA, EQTA, DTA, OPEXTA, and OPINTA have a positive relationship with ROA, while LOG ASSETS and COTIN have a negative relationship with ROA. Further analysis established that LTA, DTA, OPEXTA, and OPINTA have a positive relationship with ROE, while LOG ASSETS, EQTA and COTIN have a negative relationship with ROE.

Test of hypothesis at 5% significance level established that DTA, OPEXTA, OPINTA, and COTIN were found to have significant impact on financial performance on commercial banks in Kenya. However, EQTA at 5% significance level has a significant impact on financial performance measured by ROA and no significant impact on financial performance measured by ROE.

Further test of hypothesis at 5% significance level established that Bank size (Log Asset) and Loan to Asset (LTA) does not have significant impact on financial performance on commercial banks in Kenya.
5.2 RECOMMENDATIONS

This research offers researchers and practitioners both with insights to enhance the financial and economic literature as regards the profitability of commercial banks in Kenya.

The recommendations are that further research addressing a longer period of time with broader selection of financial and economic conditions can expose some new issues. This study can be extended by including more banks or by including all banks around the globe. Future research could include more variables such as Macroeconomic factors such as taxation, regulation indicators, exchange rates, gross domestic product, and inflation. A comparative analysis of Private and commercial banking may be included in further research.


Faisal A. Alkassim (2005), “The Profitability of Islamic and Conventional Banking in the GCC Countries: A Comparative Study”


### APPENDIX 1 BUDGET

<table>
<thead>
<tr>
<th>EXPENSES</th>
<th>Cost In Shillings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Travel and refreshments cost</td>
<td>3,000</td>
</tr>
<tr>
<td>Internet Charges</td>
<td>6,000</td>
</tr>
<tr>
<td>Printing and binding @ Sh. 5 and Sh. 40 respectively</td>
<td>3,000</td>
</tr>
<tr>
<td>Miscellaneous @ 10% of the total cost</td>
<td>1,200</td>
</tr>
<tr>
<td>Total</td>
<td><strong>12,000</strong></td>
</tr>
</tbody>
</table>
**APPENDIX 2 WORK SCHEDULE**

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>Jan 2013</th>
<th>Feb 2013</th>
<th>March 2013</th>
<th>April 2013</th>
<th>May 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Get approval from school of business to begin data collection</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collect data</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analyze Data</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Submission of the research project to the supervisors for approval</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Submission of the approved research project to the school of Business</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>